

Drilling Plastic

Any kind of hand or power drill may be used for drilling plastic sheet. Use drills bits designed specifically for plastics. Many different sizes are available from your TAP Plastics store. Your TAP Salesperson can help you select the ones that are best for your job.



When drilling a hole three times deeper than the diameter of the drill, a lubricant, or coolant should be used, such as water. This will help remove chips, dissipate heat, and improve the finish of the hole. Rough, irregular, or fuzzy holes can lead to cracking and breaking months after the piece has been completed.

The work piece should be held firmly, or, preferably, solidly clamped to the worktable. It is best to backup the piece being drilled with acrylic or plywood so the drill bit will continue on into solid material as it penetrates the bottom surface. This will prevent chipping of the bottom surface. Use a slow feed rate when starting the drilling action to allow the bit to enter the material, and also slow the feed rate as the bit exits the bottom surface to prevent chipping.

Holes which may be subject to high stress should be deburred with a counterbore. Use a drill of larger diameter than the hole and deburr the rough edge on the exit side of the hole (side where the drill came through the sheet).

Holes should be in as far from the edge of the plastic as possible to prevent cracking.

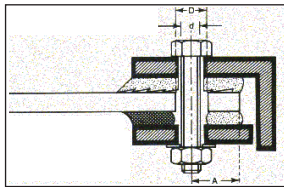
Acrylic plastic can expand and contract up to $1/16"$ per lineal foot with temperature changes, therefore, holes should be larger than the bolt or screw used to fasten the plastic. This will allow the plastic to move without placing stress on the holes.

We do not recommend using flathead screws with countersunk holes, they do not allow for expansion and contraction. Use a standard round-head wood screw with a smooth shank. Use of a metal and/ or rubber washer is also recommended. Do not use drywall screws, they tend to crack the plastic.



When drilling holes to support sheet by point fastening, there are two rules that apply. First, the bolt hole diameter should be at least 2 times the diameter of the bolt. This allows for adequate clearance for thermal and moisture expansion and contraction. Second, the distance from the hole center to the edge of the sheet should be at least 1.5 times the diameter of the drilled hole. Please see the picture below for a detailed diagram.

Additional Exterior Framing System Designs



d = Bolt diameter
D = Clearance hole for bolt (at least 2d)
A = Distance from hole center to edge of the steel (min = 1.5D)

Suggested Drill Speeds

On equipment which allows variation of the rotational speeds, use the following speeds as a guideline.



| Drill Diameter | Speed (RPM) |
|----------------|-------------|
| 1/8" | 3,500 |
| 3/16" | 2,500 |
| 1/4" | 1,800 |
| 3/8" | 1,200 |
| 1/2" | 900 |
| 5/8" | 700 |
| 1" | 450 |

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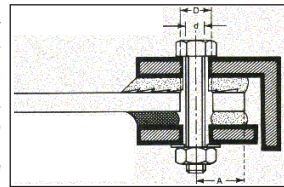
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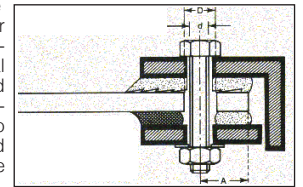
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