WORKING WITH
TUFFAK
polycarbonate sheet

MS.

Brake Bending Cold Forming Annealing

Brake bending

Cold forming
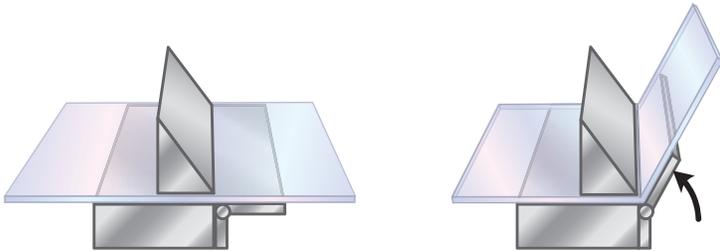
Brake bending

TUFFAK polycarbonate sheet up to 0.177″ thick can be brake bent up to 90° angles. For gauges thicker than 0.177″, strip heat bending is recommended to prevent potential cracks or breakage. Strip heat bending should also be used for all flame-resistant sheet grades.

TECH TIPS:

» Perform the bending operation quickly

» To attain the desired angle, some degree of over-bend is required

» Do not brake bend flame retardant grades due to possibility of cracking

» For best results with gauges greater than 0.177″, use two-side heating, or turn the part frequently when using a one-side heater. This helps with even heat penetration, preventing moisture bubbling.

» Additionally, for gauges greater than 0.177″, back route or V-groove with a 1/16-inch radius to heat cross section. Again, this will help avoid moisture bubbling, while still creating a sharp angle.
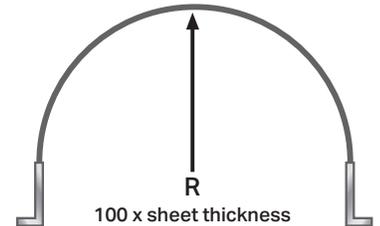
Cold forming

TUFFAK sheet may be cold-formed, bent into place without heating, to a radius based on the sheet thickness. As a guideline, the minimum cold forming radius is equal to 100 times the thickness: ($R = T \times 100$).

Cold forming radius guide – inch

Sheet thickness	Minimum radius
0.118	12
0.177	18
0.236	24
0.370	37

R
100 x sheet thickness

TUFFAK cold forming product guide

Cold formable	Not cold formable
GP	15
DX-NR	AR
FC	Hygard®
FI	NR-C
LF	
LD	
Lumen XT	
NR	
OP	
SL	
SK	
UV	

Annealing

Batch oven method

Annealing is a way of relieving internal stresses in thermoplastic parts caused by thermoforming or fabrication. The polycarbonate sheet is thermal conditioned at an elevated temperature over a specified time period and then cooled slowly. Through annealing, potential dimensional instability of a part, such as warp, is also reduced.

While annealing is effective for reducing stresses, it is time-consuming and may not be economical or practical for all situations. Also, extended heat histories can affect the physical properties of plastics. If you have questions or concerns regarding annealing, contact your Plaskolite representative, or the Technical Service Group.

Annealing procedure:

1. Prior to heating, support or fixture the part to the desired geometry using low thermal conductivity framing (e.g., wood)

2. Slowly heat oven, fixture and part at the same time to 250°F

3. Hold at 250ºF for 15 minutes per 0.125″ sheet thickness

4. Turn off heater, blower remains on, starting the cool-down cycle

5. Remove part from oven, remove the part from the fixture