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DIE CUTTING

Die cutting HYZOD sheet in gauges up to .080" thick is normally achieved utilizing the following steps.

Steel rule dies mounted in a press provide good results. The shear strength of HYZOD sheet is 10,000 psi which is appropriate for die cutting methods.

Calculating the required press tonnage to cut HYZOD sheet:

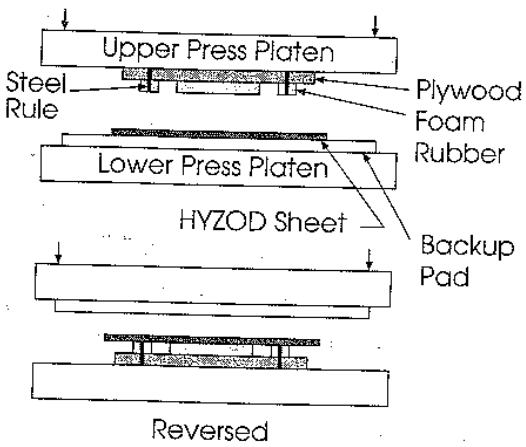
$$\frac{F=P \times A}{2{,}000}$$

F=Required force in tonnage of the press
P=10,000 psi (shear strength of HYZOD sheet)
A=The sectional area to be cut

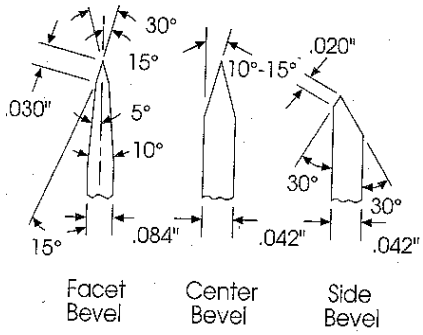
Example: Die cut 12" x 20" x .030" thick rectangle
Total length of cut = 20"+20+12"+12"=64"
Shear area = Total length x thickness (.030") or 64" x .030" =1.92 in^2
Required force = P = 10,000 psi

$$\frac{F=P \times A}{2{,}000} = \frac{10{,}000 \text{ psi} \times 1.92 \text{ in}^2}{2{,}000 \text{ lbs.}} = 9.6$$

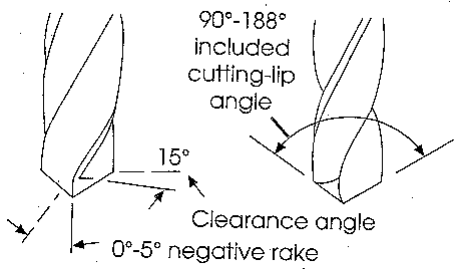
Press tonnage (PT.) = 9.6



CROSS SECTION - BLADE GRINDS



DRILL BIT DESIGN



Use 3 PT. (.042") thick steel sheet to fabricate steel rule die. Flush or centre bevel ground rule provides a clean cut. Facet ground steel rule is used to cut thicker gauge HYZOD sheet. (above .060")

Be sure platens are parallel and that the backup pad is in good condition. Backup pads can be made from a wide variety of materials such as nylon, HDPE, etc,

DRILLING

HYZOD sheet is easily drilled using ordinary high-speed steel drill bits.

Regulate pressure and speed until a continuous spiralling chip is observed. Use air or water as a coolant if required. Using cutting oils may cause crazing. Be extremely careful if using taps or self-tapping screws; tapping creates notches that can result in stress cracks because polycarbonate is a notch-sensitive material, like most clear plastics. Recommended drill speed is 350-1750 rpm.

Hole Dia.	Drill Speed (RPM)
1/8"	1750
1/4"	1000-1500
1/2"	350-500