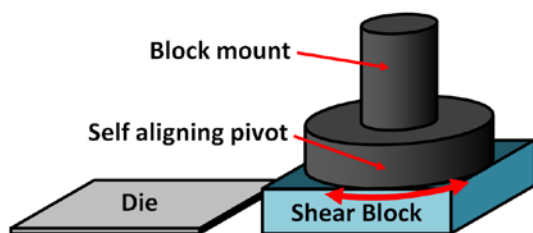


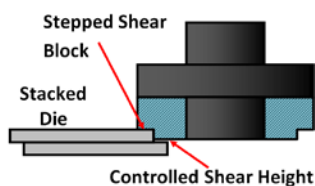
Self aligning shear solution

A fundamental problem exists when shear testing large die; the strength of the bond is in proportion to the area of the die but the area available to apply the shear load is much smaller, being limited to that of one of its edges. As die become larger and thinner the relative sizes of these two areas can result in the stresses created by the shear tool being higher than the yield strength of the die causing it to splinter or shatter before the bond is tested.

In many cases this undesirable effect can be eliminated with the use of XYZTEC's latest shear tool development*. The part of the tool that contacts the die is a shear block. It should be a relatively soft material like aluminium or mild steel. Because it is softer than the die, it deforms at the points of contact that inevitably result due to surface irregularities between the edge of the die and the tool tip. This deformation considerably reduces the high contact stresses that would otherwise cause the die to fail.



The shear block is held in place on a mount by vacuum. The block can rotate slightly (self alignment). Another feature is that its underside can include an undercut that ensures a precise shear height. Without this system deformations in the vertical axis caused by the very high shear forces can cause the shear tool to either rise or fall relative to the substrate. If the tool lifts it increases the stress concentration on the edge of the die making die failure likely. This feature is ideally suited for testing stacked die, which are very thin and require such precise control of shear height. XYZTEC offers a complete



Self aligning shear tool:
The application is mounted on a special die shear work holder.

solution for die shear testing, that consists of the self aligning tool and a special die shear work holder. This combination supports high shear forces. The work holder also offers a protection cap for the safety of the operator and with special masks it is possible to test dies on different angles and in different sizes.

For more information visit our website
www.xyztec.com.

Specifications

Maximum shear force:	500 kgf
Maximum rotation angle of shear tool	+/- 2 degrees
Minimum shear tool dimension (w x d)	20 x 20 mm
Maximum shear tool dimension (w x d)	35 x 35 mm
Minimum shear tool height (h)	8 mm
Maximum shear tool height (h)	10 mm **
Minimum Die size (w x d)	2 x 2 mm
Maximum Die size (w x d)	35 x 35 mm
Minimum Die height (h)	0,2 mm
Maximum Die height (h)	10 mm
Minimum Substrate size (w x d)	2 x 2 mm
Maximum Substrate size (w x d)	100 x 100 mm
Minimum Substrate height (h)	0,2 mm
Maximum Substrate height (h)	5 mm
2 vacuum positions for substrate, one parallel to shear tool, other under an angle of 45 degrees	
Material shear tool customizable	

* Patent pending PCT/NL2010/050545

** customizable

