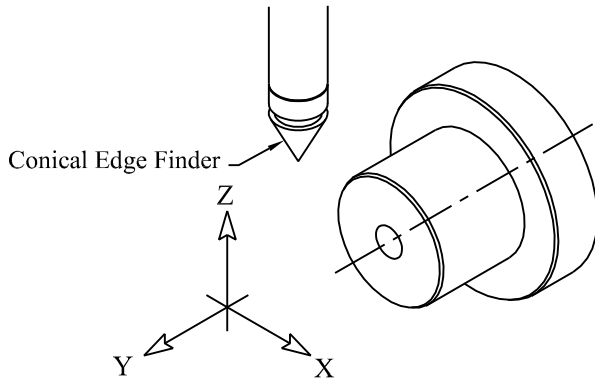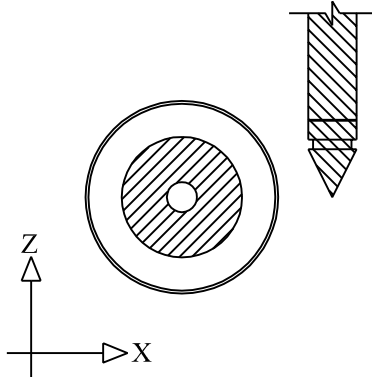# Want to find centerline's position along x-axis.
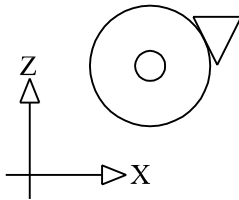

Conical Edge Finder

Consider a cross-section that passes through the centerline of the cylindrical edge finder and the part.
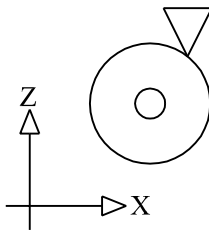

Note that the end of the edge finder forms a triangle and the part forms a circle. The edge finder can contact the circle in three ways:
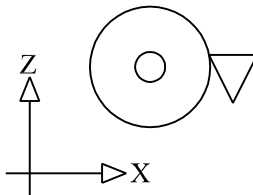
1) Tangentially - This is the correct way to touch off on the part.

2) At the Tip - This is *incorrect*. The edge finder does not repeatably indicate a zero when used in this manner.
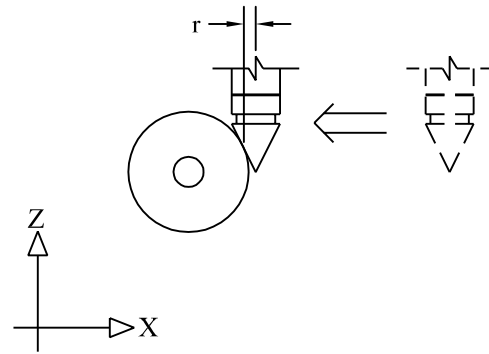

3) At the Base - This is *incorrect*. The edge finder does not repeatably indicate a zero when used in this manner.


How to Use a Conical Edge Finder

Obtain a zero on the x-axis. Define r to be the distance from the centerline of the edge finder to the point of contact.

The DRO now reads 0.000. Let R be the disance along the x-axis from the center of the cylinder to the contact point. Touching the edge finder to the opposite side of the cylinder **at the same z height** results in a DRO reading of $X=2(r+R)$.
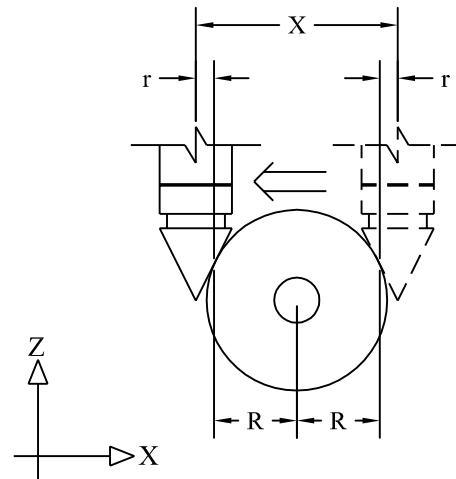
The centerline of the part is at r+R, halfway between the current zero and $X=2(r+R)$ (a known value). The 'centerline' function on the DRO sets the zero to the value of X/2.

Note: No offset for the edgefinder's radius is required using this method. The reason is as follows. consider that r is the error (or offset) in the DRO's reading. The first point of contact is -r from the recorded zero. The second point of contact is +r from the DRO reading. When these points are averaged to obtain the centerline position, the errors cancel!