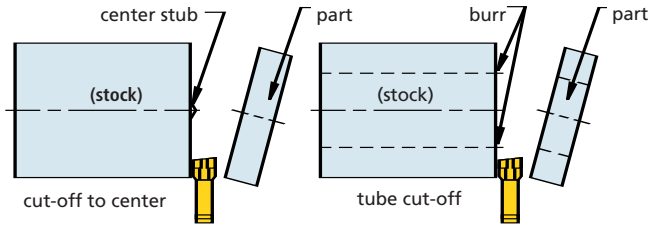
Definitions and Guidelines

1. width of cut (W) = width of the insert
2. lead angle = 0° (neutral) 6°, 10°, 15°, 16° (RH or LH)

To reduce the burr of cut-off faces:

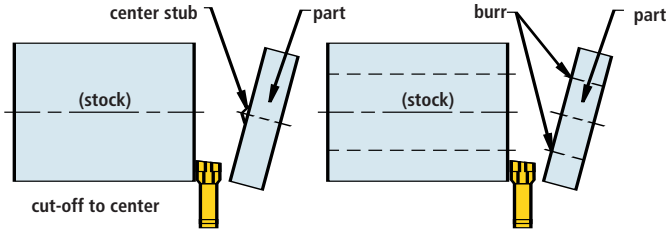
- To reduce burr formation on the part, use lead angle type insert (figure 1 & 2). Lead angle on a cut-off insert reduces the burr that remains on the part, but decreases tool life and increases tool side deflection and possibly cycle time.

fig. 1
insert selection **right-hand lead**



Right-hand lead insert leaves center stub or burr on stock and produces clean part.

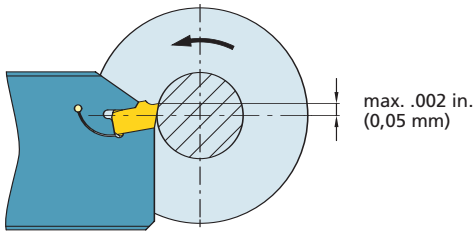
fig. 2
insert selection **left-hand lead**



Left-hand lead insert leaves center stub or burr on part and produces clean stock surface.

- Check tool height and maintain on center with part diameter.
- The cutting edge height should be within ±.004 in. (0,1 mm) to the center; recommended cutting position is .002 in. (0,05 mm) above center.

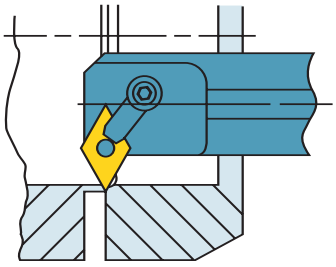
fig. 3
Above center:



- If 0° lead angle is mandatory, use the narrowest possible cut-off insert and blade. This will minimize the center stub or cut-off burr length. Decrease the feed rate to .002 in. (0,05 mm) or less at the point where diameter equals insert width.

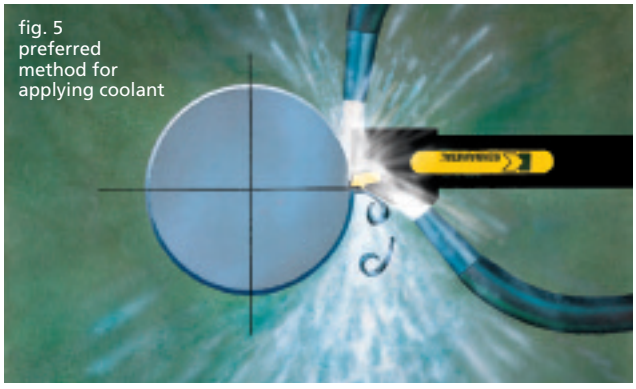
- On tubing-type parts that require a chamfer on the ID, align ID chamfer tool with cut-off surface. This will enable the chamfering operation to actually separate the part from the bar (see figure 4). Note the part may drop onto the chamfering bar which, in this case, will act like a part's catcher.

fig. 4
internal chamfer line up



To improve surface finish of cut-off faces:

- Use insert with 0° lead angle.
- Increase coolant flow or improve application technique, as shown in figure 5.
- Decrease the feed rate near the break-through point of the cut.
- Check that the grooving tool is set at a right angle.
- Use blades with the greatest possible face height and smallest possible cutting width.
- Increase the speed.



- Mount cut-off tool upside down. This allows gravity to remove chips and avoids cutting the chips twice. Another benefit from mounting the tool upside down is preventing chips from wedging between the tool insert and the groove side walls, which galls the side wall surfaces.

A2 and A3 compatibility:

A2 and A3 inserts can be interchangeably used on all screw-clamping holders within the following guidelines:

- A2 inserts can be used in A3 holders with equal seat sizes.
- A3 inserts CANNOT be used in self-clamping cut-off blades.
- A2 inserts are NOT recommended for face grooving toolholders.
- A2 inserts can be used in A3 modular blades if the guidelines noted above are followed.