Procedures

Preliminary Steps
(BEFORE INSERTION OR REMOVAL OF DIES)

To prevent operator injury and/or damage to your press brake, it is essential to follow the proper die-change procedures as outlined in your press brake manufacturer's operation manual.

Die Insertion
(AFTER FOLLOWING PRELIMINARY STEPS ABOVE)

NEVER PLACE HANDS BETWEEN DIES WHEN INSERTING DIES. When using bending type dies that are equipped with tongues, insert them from the side of the machine. Loosen all ram clamps and die holder set screws. First insert the lower die approximately its full length, allowing it to remain extended past the end of the bed by several inches. Check the distance remaining between the ram and the lower die to determine if the upper die can be properly inserted. Adjust the shut height as required so that the distance remaining will permit placement of the upper die on the lower die, with the tongue of the upper die almost fully (but loosely) engaged into the ram clamp.

The upper die can now be carried to the machine and set to rest in the extended portion of the lower die with the tongue guided into the slot.

After this alignment and partial insertion of the upper die has been made, support the upper die and push the upper die in to line up with the lower die. Now push the set of dies to the center of the machine for balanced machine loading.

Run the adjustment down so that the dies touch but do not "stall out" the adjustment motor. This will force the upper tongue into full engagement.

Tighten the ram clamps and the set screws in the lower holder. Run up the adjustment to accommodate at least twice the stock thickness.

Start the machine and cycle the brake to the top of its stroke.

Die Setting
(AFTER FOLLOWING PRELIMINARY STEPS ABOVE)

Insert a sample sheet and form a part.

Readjust the ram as required.

Approach the setting slowly.

It may be necessary to form several sample sheets before making an acceptable part.

This procedure will avoid the possibility of adjusting dies too closely, resulting in overloading the machine, and will avoid the possibility of jamming the machine at the bottom of the stroke.

Over-adjustment of the ram is to be avoided.

Where deflection becomes a problem, the dies should be shimmed to compensate for machine deflection or crowned toward the center of the machine.

It is not necessarily true that bringing the adjustment down might improve the part.

If the die is already bottoming out in some places, additional adjustments will merely increase the deflection of the machine and may make the part worse rather than improve the part.

Die Removal
(AFTER FOLLOWING PRELIMINARY STEPS)

NEVER PLACE HANDS BETWEEN DIES WHEN REMOVING DIES.

Check remaining distance between upper and lower die.

Run adjustment of ram down to reduce this clearance to several thousandths.

Unclamp the upper ram clamps and the lower die holder set screws.

Adjust ram upward slightly and check to be certain that the upper die will remain resting in the lower die. If it does not, the ram clamp may require further loosening. When a hook tongue is used, be certain the upper die is not hanging from the hook.

If further adjustment is required to permit removal, adjust ram upward so that the die is loose but well confined.

With the upper die tongue partially disengaged and guided in the loosened ram clamp, push both upper and lower die a short distance out of the end of the machine. Push with the hands placed on end of dies, never between.

Position die table (if used for small dies) or sling at end of machine, adjusted to proper height to accept the upper die.

Push upper die over table or into double sling with part of the die remaining in ram.

Secure die from falling from table or reposition each sling to allow complete removal of die without falling.

If both dies are removed together and stored as a set, it is advisable to use a sling to prevent falling of upper die from lower die. As a precaution, use steel band loops around the set, or straps to hold them in engagement.

Tonnage Requirements

The tonnage requirement is determined by the quality of the bend and whether it is a true air bend or whether some die bottoming takes place.

To the extent that bottoming takes place, the tonnage will increase correspondingly. Bottoming tonnage can be quite high. Accurate determination of bottoming tonnage can only be done by instrumentation and measurement.

Increased tonnage always results in increased frame deflection or "gapping."

Safety Warning

We do all we can to supply dies that will form material to your specification. Since we have no control over how the dies are actually put to use, it must be understood that it is the user who has the responsibility of making certain that a proper application with due regard to safety in operation is followed. Safety and industrial standards must be considered to insure that point of operation protection is effective.

Our dies are never intended to be used in equipment without means provided for preventing hands or other parts of the body from entering or remaining in the die space at any time.

When using brake die tooling, compliance with all safety requirements as outlined by the American National Standards Institute Bulletin A.N.S.I. #B11-3 as well as other local, state and federal standards which may apply, should be adhered to. A copy of A.N.S.I. #B11-3 may be obtained from American National Standards Institute Inc. at 1430 Broadway, NY, NY 10018.