# Die Setting Safety Meeting Kit

## WHAT’S AT STAKE

Die setters set up, maintain, and operate presses and cutting machines used to form and cut metal, plastic, and other materials into shapes for manufacturing. The die plate sets can be casting shapes, cutting implements, or press plates. Die plates are usually manually inserted into machinery and adjusted so the tooling will function properly and safely. Die setters require proper training and awareness of the hazards involved with this work.

## WHAT’S THE DANGER

**DIE SETTING HAZARDS**

**Set-Up Process:**

Most damage to progressive dies takes place during the die setup process: Half-cuts and -forms are made, causing the die to misalign and shear; start-up scrap often is left in the die, causing double metal to be introduced into the tool; pressure, stripper, and draw pads often are half-loaded and unbalanced.

**Processing**

During processing, machinery may eject flying particles, finished products, or scraps. This can injure workers. Machined products must be caught in baskets or trays that are guarded with mesh or other barriers. Barriers should function properly and remain in place during operation. When the product or scrap tray is emptied, it must be immediately replaced, or the machinery should be temporarily tagged out of service. Housekeeping and scrap removal job tasks require as much attention to detail as production duties.

**Pinch Point**

Pinch points in machinery can catch or crush body parts while setting the die plates, inserting product blanks, or removing scraps.

All pinch points of any machine and the cutting edges of all power-driven tools shall be properly guarded or provided with a device to prevent accidental contact with workers.

**Other Hazards**

At an energy-from-waste conversion or feedstock preparation site, these hazards can include shredding machinery, high-temperature combustion units and large mobile material handling machines capable of crushing someone walking nearby.

# HOW TO PROTECT YOURSELF

**ELECTRICAL INTERLOCKS/SAFETY BLOCKS BEST PRACTICES**

While OSHA does not require the use of safety blocks during die setting, safety-focused shops include them during die setting procedures as a best safety practice. Proper use of die safety blocks also satisfies federal lockout/tagout requirements for controlling mechanical energy. It is important to be aware that safety standards require the use of electrical interlocks with safety blocks since they are only designed to hold the static weight of the slide and upper die, not the driving force of the press itself.

Any time an employee needs to put their hands in the die area of a press or is required to work on the die, they must follow OSHA regulations without exception. At no time should the employee make any adjustments or service within the die space area without taking proper protection measures that meet OSHA and ANSI requirements. Safety blocks shall be interlocked with the machine to prevent actuation of hazardous motion of the machine. Interlock systems will satisfy this requirement. The electrical interlock system for die safety blocks must be interfaced into the control system so that when the plug is pulled, the power to the main drive motor and control is disconnected. If the machine has a

mechanical energy source, such as a flywheel, it must come to rest before the die block can be inserted.

**SAFETY FEATURES OF MACHINERY**

**Lockout – Tagout Procedures for Workers**

Die setters must be familiar with the process and safety features of machinery they operate. When performing set-up and maintenance this includes lockout/tagout.

Companies following the OSHA lockout-tagout standard for die setting have written policies and specific lockout-tagout die-change procedures. Designated and trained employees' lockout the press in accordance with the OSHA standard and their companies' written procedures. Companies also must identify and designate affected employees and instruct them on the purpose of lockout-tagout while stressing the importance of never removing a lock.

It is important to note the distinction between authorized and affected employees. For a required die change, authorized employees involved in the die change use a specific lock assigned to them to lock out the affected equipment. An authorized employee must notify affected employees prior to locking out the equipment and again after removing the locks.

Understanding hazardous energy and closely following company procedures related to lockout-tagout during die change are crucial. For example, on a part-revolution clutch press, OSHA wants the main power-disconnect switch and air supply to the clutch locked out.

**OTHER WORKER RESPONSIBILITY**

Workers should inspect machinery before operating it; brakes, clutches, and safety block/counter balance systems should be functional. Other safety features to inspect include anti-repeat devices that limit the machine to a single stroke and interlock features that prevent operation of the equipment if safeguards are not in place. Equipment that fails inspection should be tagged out of service and reported.

Properly functioning machine guards should be in place around all moving parts during operation. Worker should always be aware of where their hands and body parts are. Safety devices such as emergency stops, sensors, or operator restraints can prevent accidents – these should be used when available. Workers should wear tight-fitting clothing and secure jewelry and long hair.

**ERGONOMIC PROTECTION FOR WORKERS**

Many machine operators are on their feet much of the day. Frequent stretching and anti-fatigue mats can provide ergonomic relief. Die setters sometimes do heavy lifting; proper lifting techniques can prevent back strains and injuries. Personal protective equipment (PPE) such as safety glasses can protect the eyes from flying particles while earplugs protect against machine noise. Safety shoes can prevent slips and falls and protect the toes if a heavy load drops. If process materials emit fumes or dust, respiratory protection may be needed to protect the worker.

# FINAL WORD

Only through a keen awareness of hazards of die setter work, a rigorous training and an application of OSHA regulation can there be a full vetting of die setting safety.