

# Improve Die Protection on a Strip Feed Press

Die protection helps prevent damage to the tool and die during stamping press operation. Effective die protection has proven itself over the past decades in numerous plants. There are several methods of die protection, including using limit switches, vision systems and touch probes. However, for high-speed, non-contact applications, inductive proximity sensors are often ideal. Inductive proximity sensors are designed to sense metal – they use electricity to sense the eddy currents on the metal target and when detected, the sensor triggers an output. They can detect or minimize problems during the stamping process without having to touch the part and provide shorter reaction times than other methods, making them suited for faster production speeds. Vision systems are more expensive and are often subject to shock and vibration. In addition, lenses are prone to being compromised with dirt/debris and possibly even broken during stamping applications.



## The Challenge – Proper Feeding on Strip Feed Press

Strip feed presses are used to stamp a variety of metals and parts. On an automated strip feed press, properly moving material through the forming process is important for maximizing throughput as well as preventing unnecessary damage to the die. Reliable control and feeding of linear strips of metal are critical. Die protection sensors help monitor the movement and position of the die and material and send a signal to stop the press before damage occurs.

## Mounting Makes a Difference

The first thing to determine when incorporating sensors in a die protection application is the location of the sensors needed to prevent damage. When sheets of metal are used on a strip feed press, inductive sensors can be installed near the material to monitor its movement, including detecting a misfeed, overfeed or shortfeed – common problems. More complex stamping process may benefit from numerous sensors being placed at critical feed locations.

## Sensor Installation Tips

- Embedding the proximity sensor in the lower die underneath the material is a preferred method. It's then possible to detect many material positions, including bends, through holes or the leading or trailing edge of the stock. There may also be times where a lateral approach is required and in those instances non-embeddable would be appropriate.
- Sometimes when retrofitting a die, it may not be possible to embed the sensor. In those cases, there may be locations where you can top or side mount a sensor. Care needs to be taken with this approach as the sensor and wiring is exposed and could be damaged more easily.

- Mount the sensor near the part eject. Making sure every part exits the process correctly can save from having parts stack up in a location that will cause a system fault or damage.

## Numerous Benefits of Die Protection

- Quality assurance/error proofing for parts
- Significant reduction in downtime
- Allows for press speed optimization of up to 30% faster
- Measure process variability
- Capture event errors for root cause determination
- Increase customer confidence in quality

## The Solution

Inductive sensors such as the 8mm barrel family ensures rugged and reliable die protection. This compact inductive sensor is ideal for small part strip feed applications to make sure the material has moved forward, to determine that the part has been ejected, or to verify the cams are in the correct position. Multiple barrel lengths are available for tight machine spacing. These mechanically robust sensors have a thick brass or stainless steel barrel and one-piece housing. These can also be flush mounted to help eliminate sensor damage during the application.



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### More Information

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