HESS Industries Ltd.

www.hessindltd.com
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SMARTER FASTENING INSTALLED IN YOUR DIE

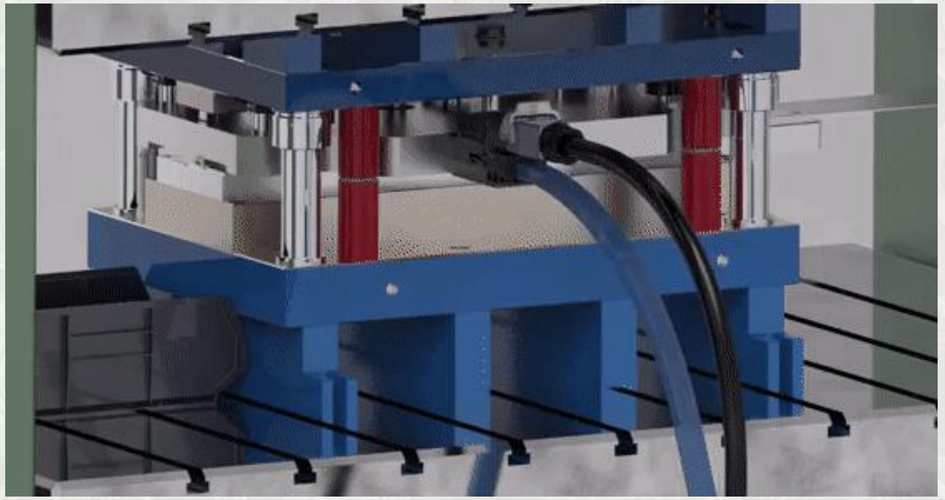
In-Die Fastening Gives Your Business the Competitive Advantage You Have Been Seeking

Ryan Hess
Co-Owner, Hess Industries Ltd.

What is In-Die Fastening?

In-die fastening is the process of automatically installing fasteners within the stamping die during the press stroke.

- Fasteners are fed, oriented, and inserted into the part inside the die
- Eliminates manual handling or secondary operations
- Enables precision, speed, and repeatability



Why In-Die Fastening Matters to Manufacturers

SAVES TIME	Fasteners are placed during the press stroke, eliminating secondary operations
REDUCES LABOR	Less manual insertion = fewer operators, less repetitive work
IMPROVES ACCURACY	Fasteners are consistently aligned and placed
COST SAVINGS	Saves thousands of dollars over time by improving process efficiency and part integrity

Traditional Fastening Methods and Their Limits

MANUAL INSERTION

- Labor-intensive and slow
- Increases labor costs
- Inconsistent due to human error

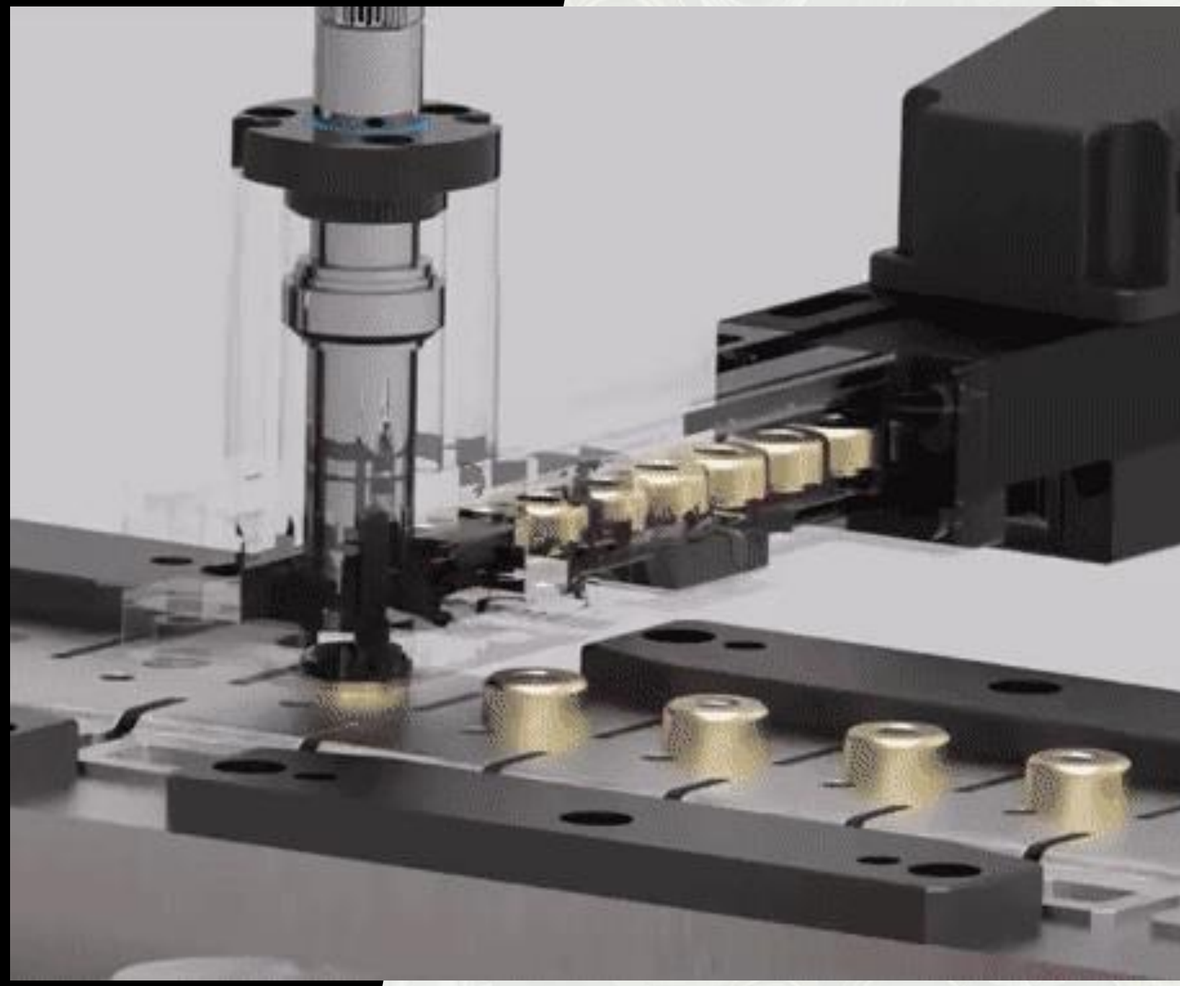
WELDING

- Heat distortion risk, especially on thin material
- Slower line speeds
- Inconsistent welds = potential quality issues

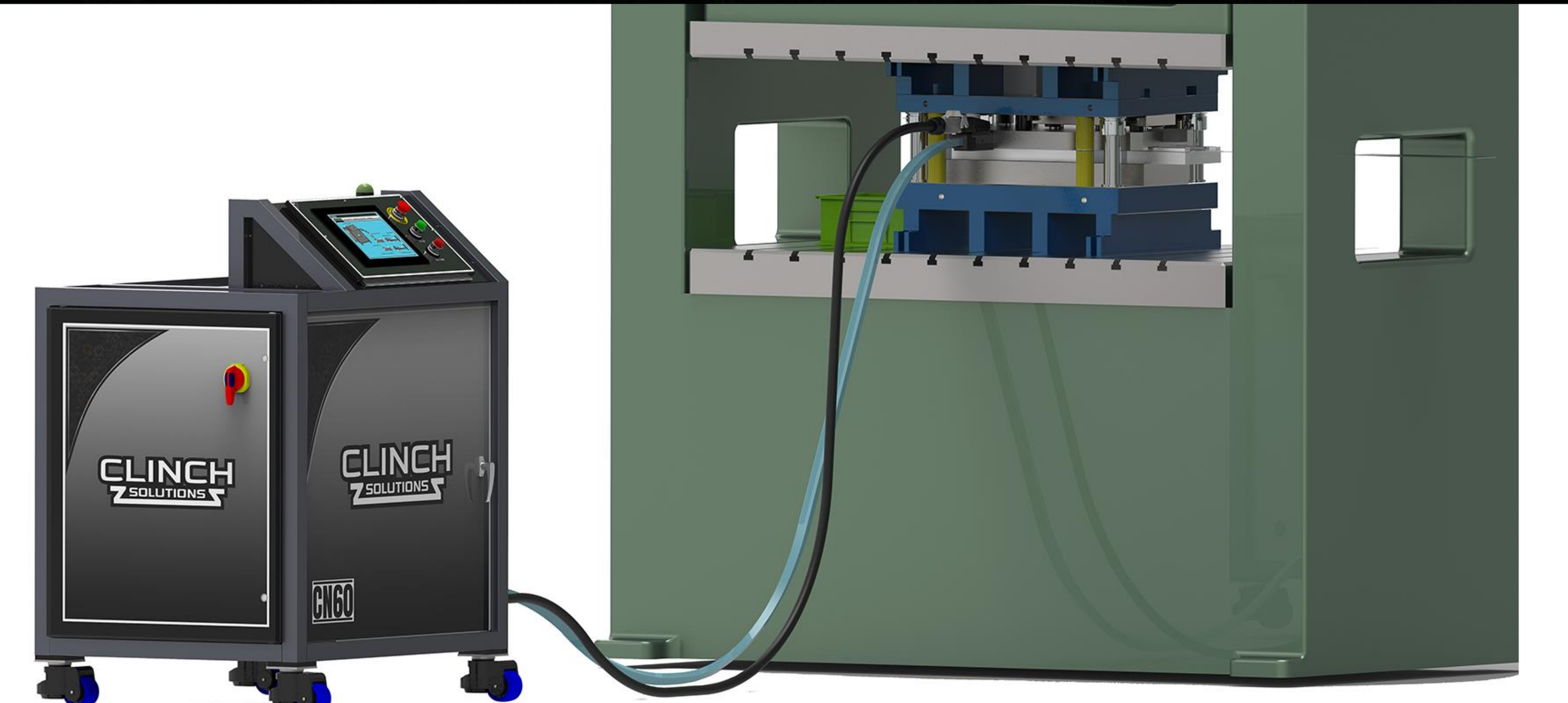
Our Solution:

In-Die Fastening, Built to Fit Your Press

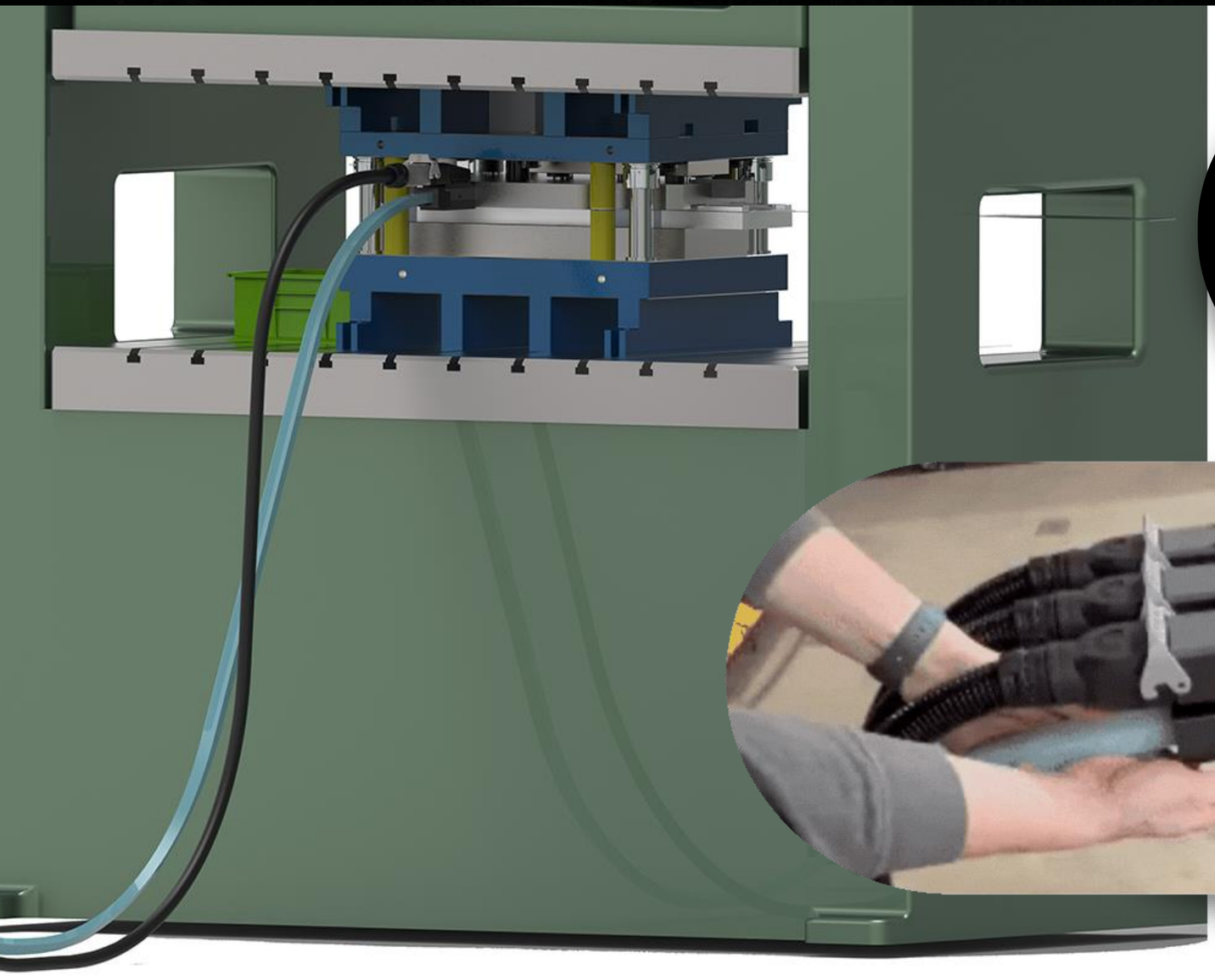
- Fully integrated into your existing stamping press
- Handles clinching nuts or studs automatically
- Custom-designed tooling built for your part and press
- Precise, repeatable fastener placement — no manual handling
- Ideal for high-volume production environments



Let’s Take A Look at How the Process Works



How In-Die Fastening Works



Clinch Heads are installed into the stripper of the die during the build process

These heads are connected to our Clinch Solutions Feed System using quick-change couplers

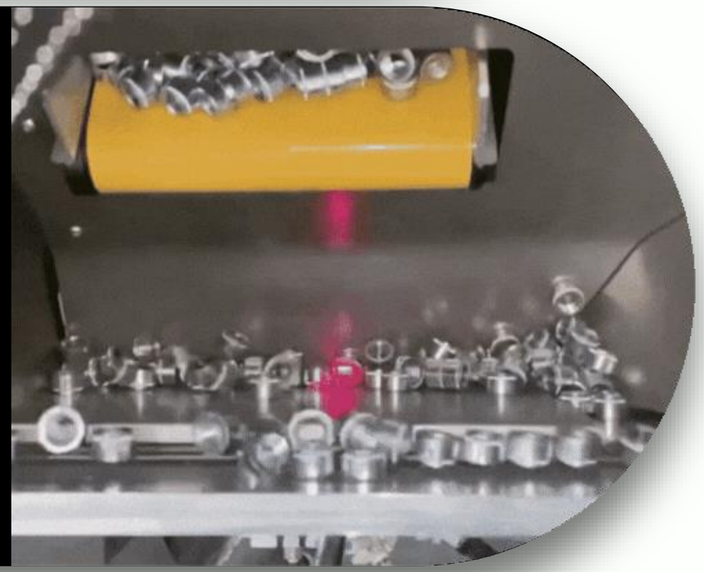
How In-Die Fastening Works

The press operator puts the clinch fasteners into the hopper in the Feed System, from there the system does the rest

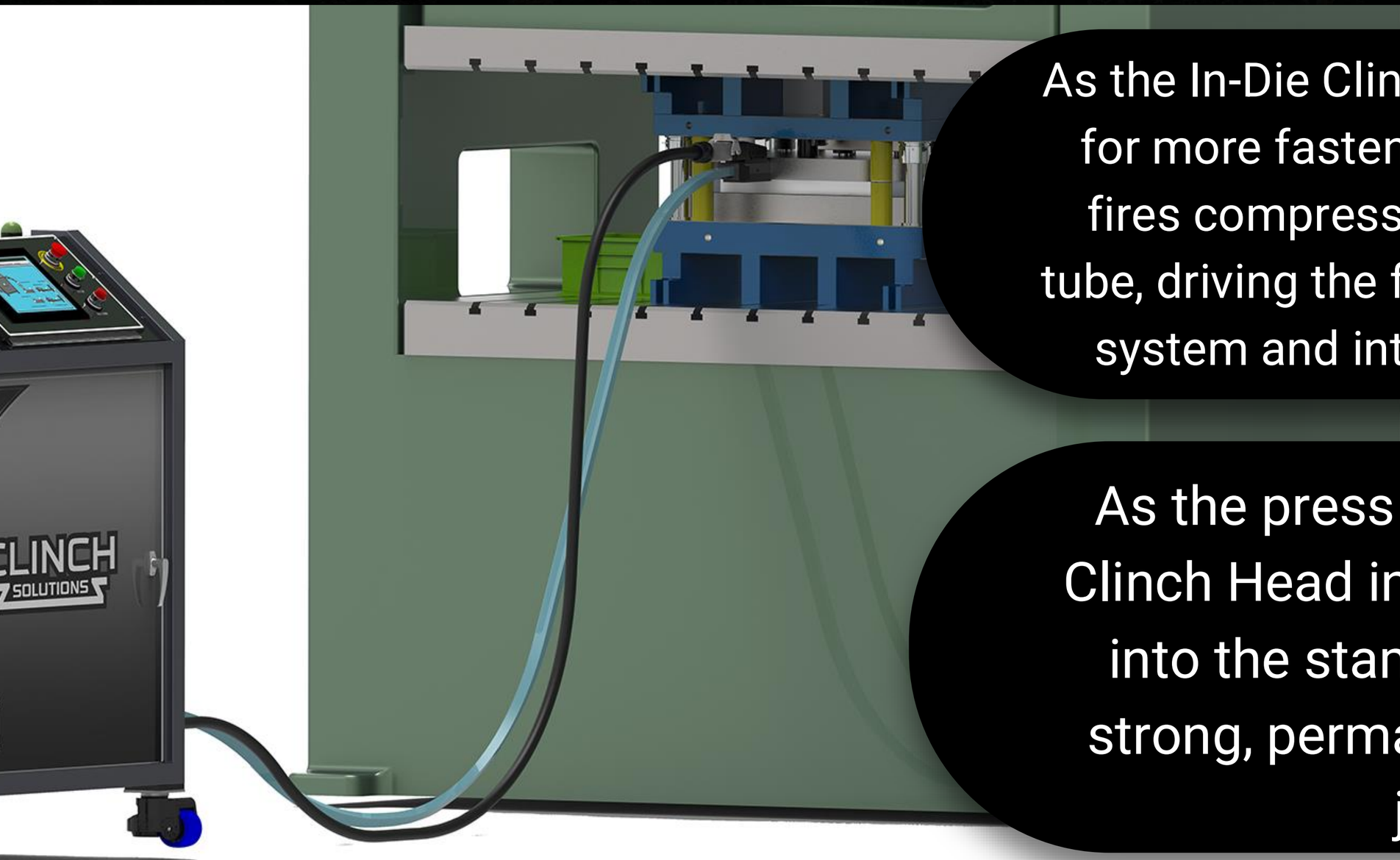
How In-Die Fastening Works

The fasteners go on a ride through a conveyor system and into a slide feeder hopper

The slide feeder orientates the fastener and moves it to the distribution hub



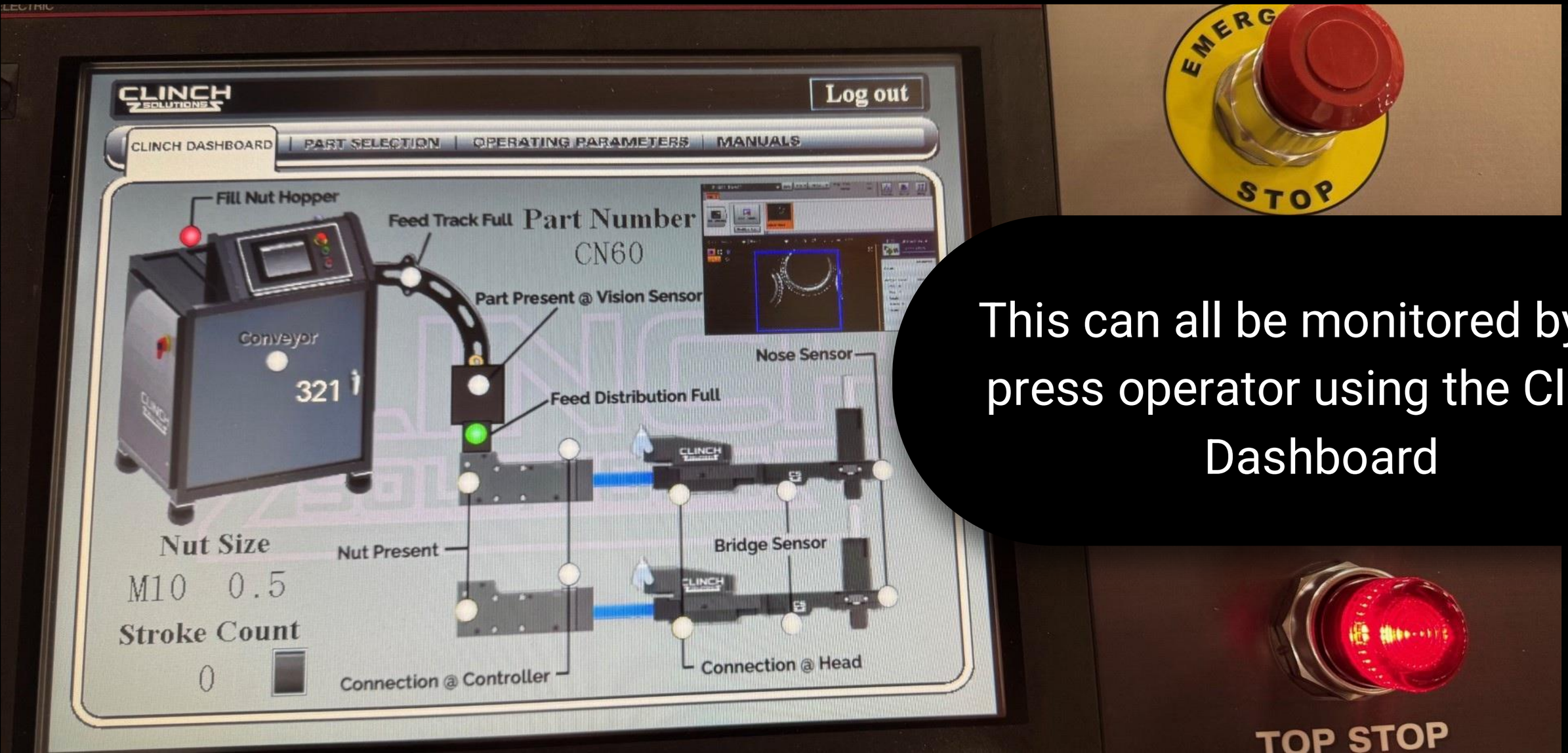
How In-Die Fastening Works



As the In-Die Clinch Head sensors call for more fasteners, an air solenoid fires compressed air into the shot tube, driving the fasteners through the system and into the Clinch Head.

As the press cycles, the In-Die Clinch Head installs the fastener into the stamping- creating a strong, permanent mechanical joint.

How In-Die Fastening Works



This can all be monitored by the press operator using the Clinch Dashboard

Fastener Selection is Critical

The system is built around the specific fastener you choose.

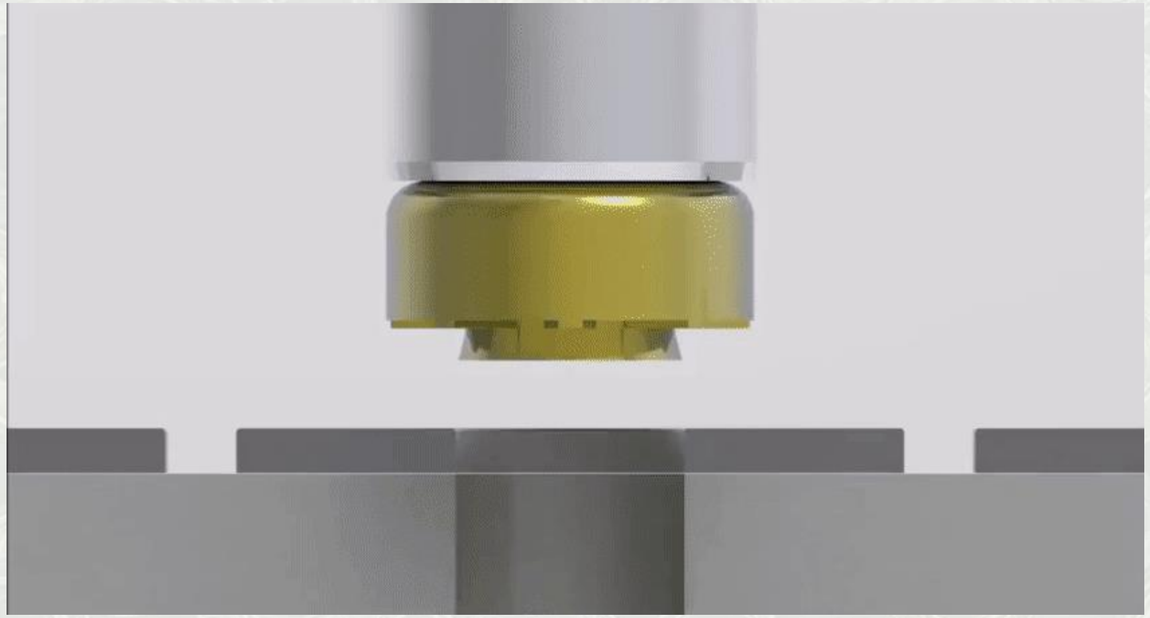
It’s critical to finalize your fastener choice before beginning to design your system.

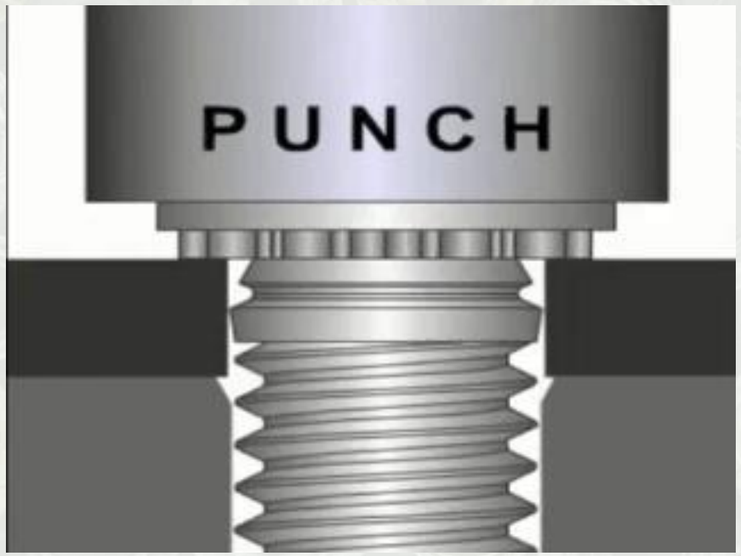
Clinch Nuts

Clinch Stud

Clinch Nuts

- Clinch nuts are pressed into pre-punched holes in sheet metal
- During installation, the force of the press causes metal to flow into grooves or undercuts in the nut
- This creates a strong mechanical bond — no welding or tapping required





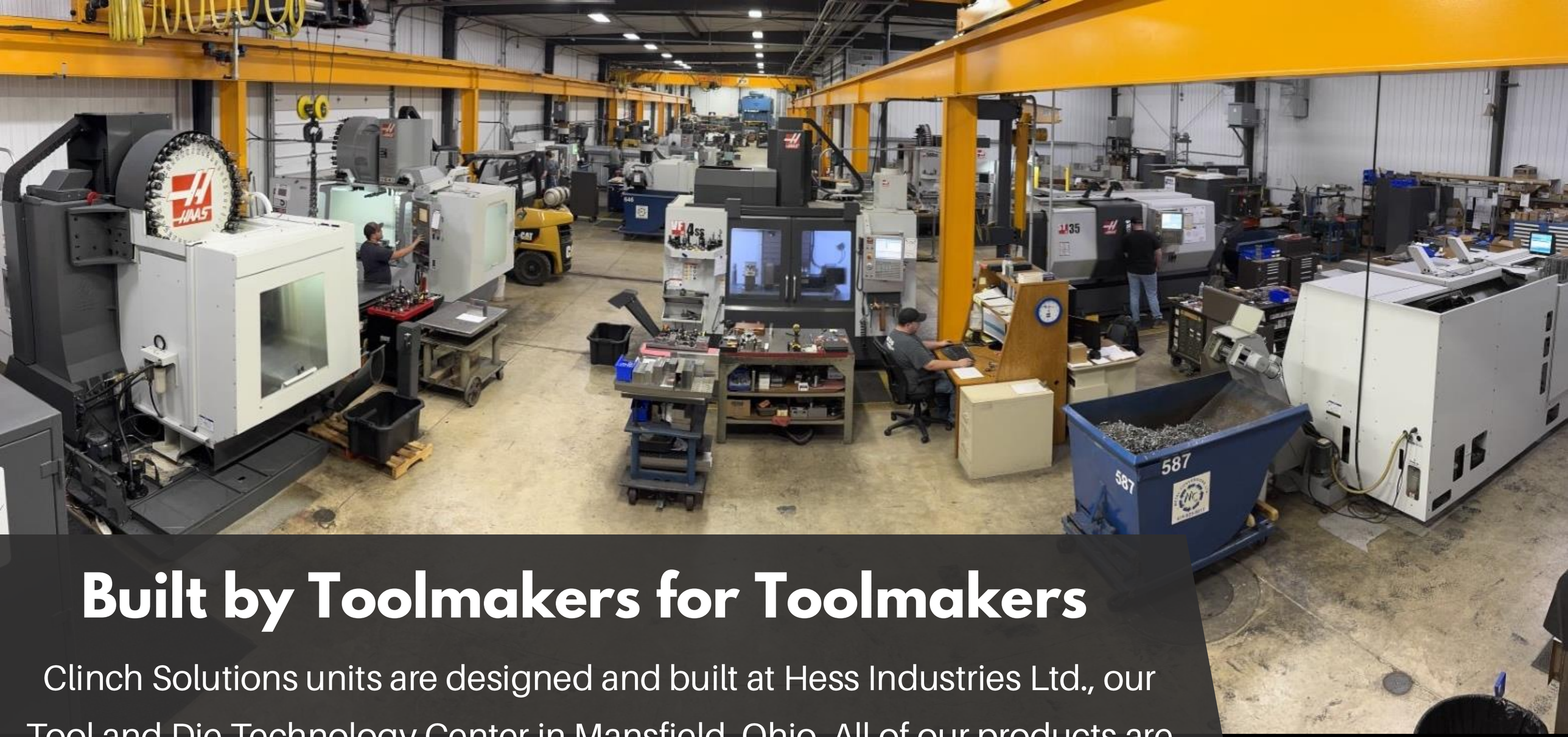
Video courtesy of Genevieve Sampson, YouTube

Clinch Stud

- Clinch studs are externally threaded fasteners pressed into pre-punched holes in sheet metal
- Similar to clinch nuts, the press forces displaced metal to flow into the undercuts on the stud base

Clinch Stud

- Built on the same principle as in-die clinch nuts — fasteners are pressed in during the stamping process
- Unlike clinch nuts, the stud system feeds the fastener, sideways thru the shot tube and rotates it into the Pneumatic Fingers in the head. The fingers are then advanced over the anvil. As the anvil pushes the stud into the part, the fingers expand out of the anvil's way to perform an accurate installation.
- Slightly slower process than the clinch nut process due to the extra motion of the fingers



Built by Toolmakers for Toolmakers

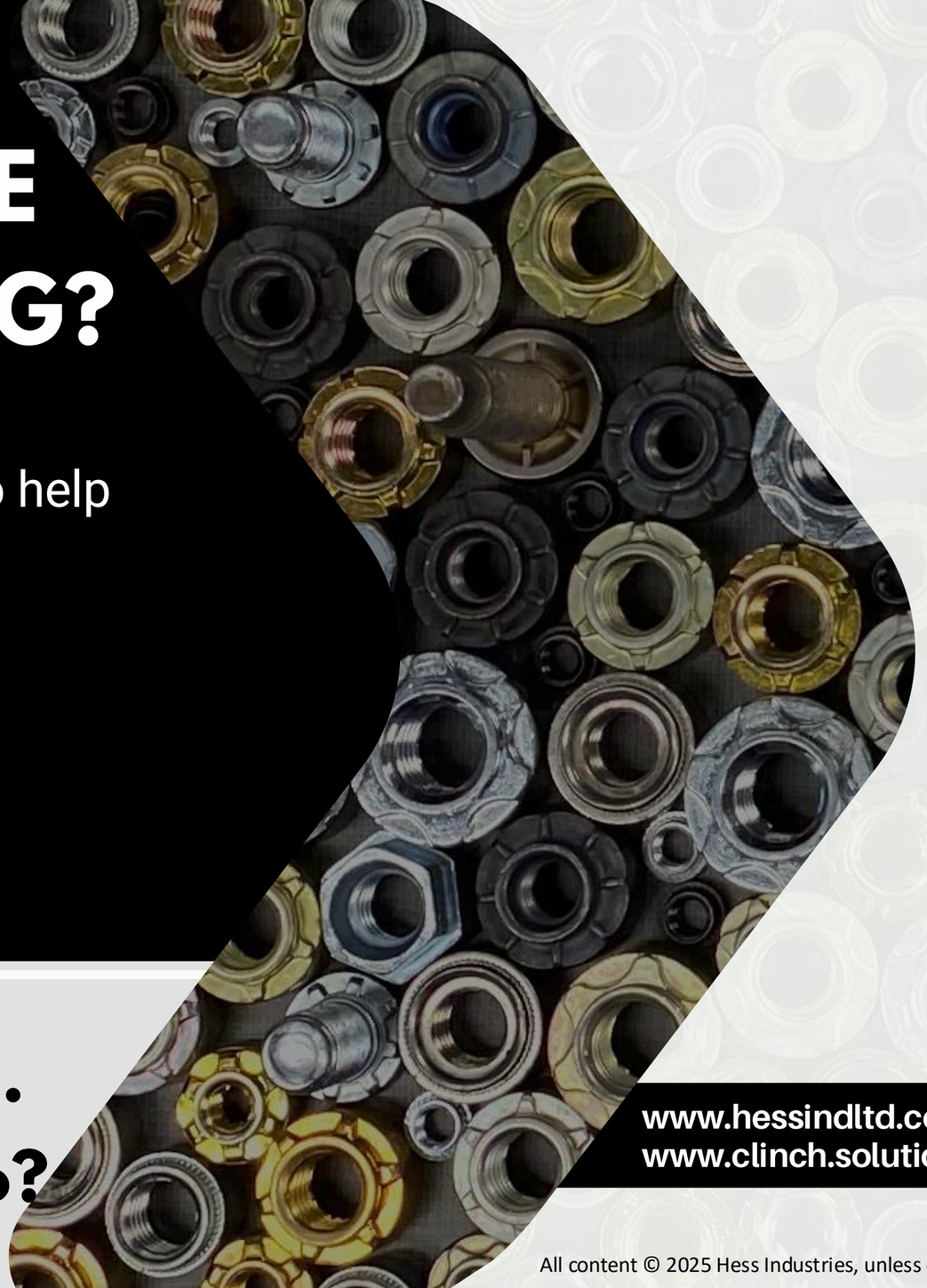
Clinch Solutions units are designed and built at Hess Industries Ltd., our Tool and Die Technology Center in Mansfield, Ohio. All of our products are built by our team of toolmakers utilizing state of the art CNC equipment.

WANT TO LEARN MORE ABOUT IN-DIE FASTENING?

From evaluation to system design, we're here to help you explore what's possible.

CLINCH SOLUTIONS

Visit www.clinch.solutions to learn more.



If your press is already running... why not install your fasteners too?

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