



24-Point Designer's Checklist

It is very important to verify all aspects of your self-clinching fastener process. We have devised this 24-point Designer's Checklist to help you with your journey to make you successful:

- 1 Collaborate with your fastener supplier to make sure you have the proper fastener for your project. This is a very important step, as your unit will be designed around these parameters. Here are some things to consider:
 - Push-out
 - Torque
 - Size
 - Plating requirements
 - Thread locking features
 - Installation Torque requirements.
- 2 Make sure that the correct sample fasteners are sent to Hess Industries to build and test your unit (5000 min.) This step is crucial because these fasteners will be the secret sauce in designing every inch of your unit for top-notch speed and efficiency. Just a heads-up, any changes to the fastener might call for tweaks in the system and will need to be quoted at that time.
- 3 When looking at your strip layout, check the part geometry to make sure your fastener is not located too close to a bend or form where the displaced material is going to pull away from the clinch during any forming or cutting processes.
- 4 Identify the station for a pre-piercing fastener hole. Check the fastener manufacturer for the correct hole size. This is very important to make sure that you have a strong clinch.
- 5 Do not coin the pre-pierced hole after the piercing operation, Any displacement of material will affect clinch integrity and will result in a lower push-out.
- 6 Design significant space around the Clinch Fastening Station to allow for the Fastening Head. Evaluate the need for tailored tooling designs for multiple fastener installations. Evaluate dimensional integrity when pressing multiple fasteners simultaneously.

The Clinch die head operates by utilizing the motion of your stripper or lifter to activate the fastener. Depending on the orientation of your fastener to the part, the head can be mounted in two ways: top-down on a stripper plate or bottom-up on a lifter plate. For the purpose of this checklist, we will focus on the top-down stripper plate mounted configuration. It's important to note that if you choose the bottom-up lifter plate mount, everything will be inverted.

Refer to the sign off drawing given to you during the design process to carefully check and confirm the heights of your unit.

- 7 Verify the travel of the stripper plate matches the travel of the anvil (see sign-off for these dimensions).
- 8 Make sure your tool has a guided stripper in place to ensure proper guiding for the Clinch Fastener System.
- 9 Confirm that the bore of your stripper fits the body of the Clinch cylinder and is a slip fit, but not too loose. It is essentially your locator as there are no other dowels for location.
- 10 Validate that you are using the four M6 mounting holes for fastening your Clinch nut head to the stripper.
- 11 Verify that there are pockets in the stripper that have adequate clearance for the fastener in every station of the exit end of your die. These pockets need to have clearance around them and should not be used to restrike the fastener. If restriking the fastener is necessary, please do this with a solid punch with clearance through the stripper.
- 12 Ensuring precise alignment between your Clinch die head and tooling is crucial to prevent system damage and ensure proper clinching. To check this alignment, you can create a step pin that matches the diameter of your Clinch nut head and steps down to the diameter of your lower anvil. Once you have the step pin, you can use it to verify the alignment on the bench using safe practices.
- 13 Dry run the stripper to double check there are no interferences around the Clinch Head area.
- 14 Check that a nitrogen cylinder is installed above each of the Clinch Heads to provide a safety mechanism for a double nut situation. View our video on our website for more clarification. <http://www.clinch.solutions>
- 15 Refer to the fastener manufacturer's specifications to determine the tonnage requirements for installing your Clinch fastener. It is recommended to set the nitrogen cylinder tonnage at 1 ¼ times this value to provide a safety factor. (round up to the next highest tonnage)

cylinder) To conveniently adjust the anvil pressure, you may consider connecting your nitrogen cylinders to a manifold system that can be easily changed at the front of your die. This setup allows for smoother adjustments and ensures optimal control over the pressure applied to the anvil.

- 16 Confirm that the travel distance of the nitrogen cylinder is equivalent to 2-3 times the thickness of a fastener. This recommendation is crucial to prevent any damage in cases where double or triple fasteners may enter the head simultaneously.
- 17 Dry run your Clinch Nut Head to check the timing of the anvil with the timing of your shut height of the die on the stop blocks. You can use a piece of molding clay to check the height of the nut to make sure you are not putting too much pressure on the anvil when there is a nut in the head.
- 18 Ensure that there is an anvil located in the Clinching Station under the Clinch Head, which serves as a shim-able detail during the clinching operation.
- 19 For smaller fasteners, you will need to provide an air activated pin in your anvil to hold the fastener through the entire clinching process to achieve rate. (M4 & M5 Nuts). View our video on our website for more clarification. <http://www.clinch.solutions>
- 20 **Pressroom Layout:** Determine the position of the feed system in relation to the press.
 - Consider the feed controls accessibility for the operator.
 - Evaluate the levelness of the floor for optimal feed rates.
 - Design the die layout for optimal feed-tube routing.
- 21 Ensure easy access for in-press maintenance and repair. It's important to have full clearance around the Clinch Solutions System, including the ability to periodically open access doors.
- 22 Make sure there's plenty of clean and dry air ready for the Clinch Solutions System at the press. You'll need a dedicated airline of at least ¾"-1". Keep in mind, each system uses a substantial amount of air.
- 23 Please confirm that there's a nearby 110-volt single-phase power source for the press, specifically close to the Clinch Solutions System. Ensure it's a dedicated 20 Amp line.
- 24 Feel free to ask our team any questions you have about the Clinch Solutions process. No question is too simple, and we're here to help. Remember, the only "silly" question is the one left unasked.