How to Connect Rebar Without Welding or Wire

By Todd Monahan

Many precasters don't realize there are alternatives to fastening rebar with wire ties or welding. You actually have the option of fastening rebar with polycarbonate rebar clip connectors, and there are good reasons to choose rebar clips as your solution. In fact, rebar clip connecting, rather than tying or welding, can be the better choice.

How to Connect Rebar without Welding or Wire

Rebar can be connected/fastened without welding or tie wire by using mechanical connectors such as rebar couplers or rebar clips like the Kodi Klip system, which securely fastens bars together without manual tools, tying, or heat.

What is Rebar Clip Connecting?

The Kodi Klip Connecting System uses lightweight air tools to affix non-metallic, molded polycarbonate clips (called Kodi Klips) to any cross, parallel, or vertical rebar joints, or rebar to strand. The clips provide a four-point rigid grip that guarantees a tight, perfect connection every time. The Made in America (MIA) clips use recycled polycarbonate that won't crack, break, deform, rust or degrade, and they won't scratch or damage epoxy-coated rebar or fiberglass reinforcement either. Finally, each size is brightly colored to make them easy to distinguish and inspect.

When Should You Choose Clip Connecting?

- **Anytime lack of strength or rigidity could be an issue**

  In many facilities, cages are built in one area of the plant and then moved to the pour location. Often, unless welded, the rebar cages will rack or twist, requiring additional time to be spent at the form to readjust (or completely rebuild) the cage. Also, many precasters find it necessary to add "sacrificial rebar" as diagonal stiffeners – an added cost that can be eliminated when using clips.

- **For a repetitive rebar structure building process, eg, making mats**

  Some types of non-metallic rebar fasteners enable you build directly on the ground without the rebar being lifted. Another benefit is being able to build your first mat or layer with a skilled worker

AIRMATIC
airmatic.com | 215.333.5600 | infocenter@airmatic.com

and proper measurements that will result in a jig which can be used for building the remaining mats or layers by less skilled workers. Further, because the rebar can be connected directly on a surface, there is no need to add dunnage material between each layer, meaning you save materials in addition to saving space and time.

- **When you need to comply with Made in America MIA regulations**

  Currently American-made steel and plastic-coated tie wire can be difficult and expensive to obtain from any manufacturer of automated tying tools. Many states require MIA steel products with MIA certifications of the products used. There is a waiver process, as well as a tracking system, for these states that fall under either of two categories: 1. For federally-funded projects, the formula is 0.1% or $2,500 of the total project, whichever is larger. 2. For state-funded projects (without federal money/involvement), the formula is 75/25. 75% of all steel used must be MIA. Fortunately, in either scenario the MIA non-metallic, polycarbonate clip rebar fasteners will qualify for product use, enabling customers to free up the foreign-made steel allowance for other products.

Where Should Rebar Clip Connecting be Used?

- **90º intersections, round bar, bent bar**

  Typically speaking, non-metallic rebar connectors are best used on 90º intersections due to the strength and "memory" of the polycarbonate. When straight bar is combined with round bar, as with "hoops" for products like light pole bases, the clips provide enough strength to keep the light pole base cages from collapsing – eliminating pinched-finger safety issues or the need for additional time and labor at the pour site for rebuild/repair tying. Another scenario in which non-metallic rebar fasteners excel is straight bar to bent bar fastening, such as with roadway barriers or septic tanks. The bend of the bar with the straight bar creates an extremely tight connection.

- **Fiberglass / basalt fiber / non-corrosive rebar options**

  Fiberglass, or FRP, rebar is a step away from steel rebar and a step toward much longer-lasting concrete. Currently, concrete life is limited by the life cycle of the steel rebar inside the concrete. Introducing non-corrosive rebar options, like fiberglass and basalt fiber rebar, combined with non-metallic rebar connectors, can replace all steel products in the concrete structure, resulting in a dramatically longer life for the concrete.

- **Epoxy-coated rebar / steel rebar**

  The cost of plastic-coated tie wire for automated tying tools can be very high (more than double the cost of "black" wire). Given this, the non-metallic rebar connectors may be less expensive per connection than the plastic-coated tie wire, even before considering the other cost savings.

Is Rebar Clip Connecting Expensive?

Typically, these non-metallic rebar connectors are applied with a power tool. There is a cost for the tool, but it's significantly less than an automated tying tool. The price per connector is usually higher than a standard piece of tie wire but the application speed and added strength to the rebar structure quickly offset the costs of hand wire tying or automated tool wire tying. Non-metallic rebar fasteners allow the work to be done in the shortest time period and provide incredibly strong connections.

Rebar Connection FAQs

Q: What are the main advantages of using KODI KLIP® Rebar Connectors over wire-tying rebar?
A: KODI KLIPs significantly reduce installation time – by up to 80% – compared to hand-tying. They offer consistent, secure connections, reduce worker fatigue, and improve jobsite safety by eliminating wire scraps and repetitive wrist motion injuries.

Q: How do KODI KLIPs compare to welding for securing rebar intersections?
A: KODI KLIPs are faster, safer, and easier to install than welding. They don't require skilled labor, fire permits, or post-inspection for weld integrity, making them ideal for precast plants and job sites with tight schedules or safety constraints.

Q: Are KODI KLIPs strong enough to replace tie wire or welds in structural applications?
A: Yes. Independent lab tests and field usage confirm that KODI KLIPs meet or exceed strength requirements for typical reinforcement assemblies, especially in precast and non-seismic work where speed and consistency are critical.

Q: Can KODI KLIPs be used in all types of rebar sizes and configurations?
A: KODI offers Klips for a wide range of bar sizes and angles. They're especially effective in repetitive setups like cages, mats, and grids found in precast concrete and flatwork. Specialized Klips accommodate multiple bar intersections.

Q: Do I need a special tool to install KODI KLIPs?
A: Yes. KODI KLIPs are installed using a lightweight, battery-operated or pneumatic KODI gun, which drives the Klip securely in seconds with minimal effort – no twisting or welding required.

Q: How do KODI KLIPs affect jobsite safety?
A: They eliminate exposed tie wire ends that can cause cuts and snags. Crews also avoid repetitive motion injuries and welding-related risks. KODI KLIPs promote a cleaner, safer work area.

Q: Are KODI KLIPs more expensive than tie wire?
A: On a per-piece basis, yes – but labor savings, faster production, reduced injuries, and higher quality control usually result in a lower total installed cost compared to tying or welding.

AIRMATIC
airmatic.com | 215.333.5600 | infocenter@airmatic.com

Q: Where are KODI KLIPs most commonly used?
A: They're widely used in precast concrete manufacturing, tilt-up construction, foundation work, and highway/bridge decking – anywhere repetitive rebar connections are made and productivity matters.

Q: Can KODI KLIPs be used in outdoor or harsh jobsite environments?
A: Yes. KODI KLIPs are made from corrosion-resistant polycarbonate, making them suitable for use in both indoor and outdoor conditions. They hold up well in heat, cold, rain, mud, and dusty environments, and are designed for rugged jobsite use.

Q: Will using KODI KLIPs speed up overall project timelines?
A: Absolutely. Faster rebar assembly means shorter forming and pouring cycles, allowing crews to move through projects more quickly. Precasters and contractors regularly see measurable productivity gains when switching from tying or welding to Klipping.

Q: Are there any training or learning curves involved in switching to KODI KLIPs?
A: Minimal. Crews typically master the KODI KLIP gun in under an hour. Since the process is intuitive and ergonomic, precasters and contractors consistently see improved quality and fewer installation errors compared to hand-tying.

In Conclusion…

There are numerous and varied benefits to using non-metallic rebar fastener clips on most jobs. Eliminating hand tying reduces repetitive use injuries from the twisting motion. Increasing connection strength drastically reduces the chance of a pinch or collapse injury. Eliminating steel ties altogether reduces the number of cuts/scrapes/infections. And, if MIA issues matter on your job, problem solved!

If you're ready to consider non-metallic rebar fastener clips at your plant, give us a call at +215-333-5600 and we'll arrange a demonstration or trial.

Todd Monahan, a Concrete Products Territory Manager at Airmatic, has more than 15 years of experience in the Precast Concrete Industry.

Thanks for reading our post. If you'd like learn more about rebar cutting, bending, or fastening, please contact one of our experts at +215-333-5600 or at infocenter@airmatic.com.