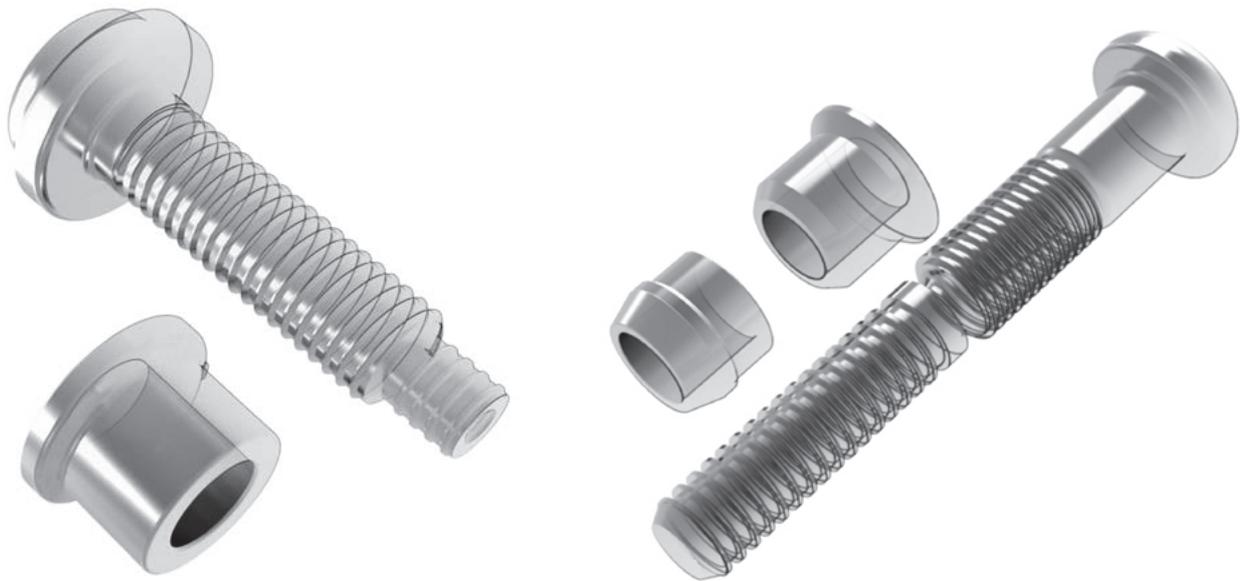


# VISUAL VERIFICATION

STAR FASTENERS

## NEW INNOVATION FOR LOCKBOLTS



Star Fasteners has developed a clever colour changing indicator that visually verifies that Lockbolts have been installed correctly.

The new red coating helps to improve final product quality checks, crucially making pre-assembled, uninstalled fasteners much easier to identify. Dan Starbuck, Director at Star Fasteners explains “we were asked by a customer to remove welding from their production process in a safety critical application. We worked with them to specify in a Lockbolt pin and collar fastener. They were so pleased with the outcome as manufacture time was halved and health and safety issues associated with welding were completely removed. There was just one concern and that was at the final quality inspection stage (PDI). Their question of how can we tell that a Lockbolt has been installed completely needed to be addressed. To a trained eye this is simple, but the customer wanted further assurance. We developed the Lockbolt colour changing collar coating to give a clear visual warning; if the collar is red it is an instant indication that the fastener hasn’t been correctly installed or fully swaged”

The Lockbolt fastener is a two-part fastening system that consists of a pin and collar, “Lockbolts are installed using a direct tension technique in which the pin is pulled and the collar is simultaneously

swaged into the locking grooves of the pin. The material is clamped together, which creates structure and strength.”

In most cases, Lockbolts can replace welding. They are faster, safer, more productive and an environmentally friendly alternative method of joining. Advanced, two-piece fasteners are installed using a torque-free, direct-tension, swaged-on method, providing for a reliable installation. This method of joining ensures a consistent clamp which is the key to a strong, reliable hold – so users know that the joint is permanent and vibration-resistant.

The patent pending colour changing Lockbolt collar coating is applied by Star Fasteners. A visible change occurs when the collar is swaged, in this case from red (uninstalled) to silver (installed). The firm explains: “It’s a definite visual that the fastener has been installed correctly. The bright red colouring, which you can see when the collar has not been swaged is very easy to see. If for example a fastener has been accidentally missed in the production process, the nose assembly is damaged or is becoming worn, or a collar has only been part swaged, then the red coating can be used as a precursory visual indicator, great for quality control purposes.

Some Lockbolt collars have swage bumps or bar indicators on the flange, these are partially flattened on installation, but

cannot necessarily be easily seen from a distance or in low light. Operators and quality managers have to be fully aware of their correct installation and if necessary, carry out additional checks using a swage gauge to identify fasteners that have not been correctly installed. The advantage of Star Fasteners’ method means operators do not require that level of familiarity. All they need to know is that a red collar has not yet been installed”.

While a new development, the colour changing Lockbolt collar has proved to be popular and is already in use with a number of chassis builders. With the implications of product recalls in terms of time, monetary cost and brand reputation, this innovation appears likely to be a requirement in automotive production and safety critical applications.

In fact, potential applications for the colour changing Lockbolt collar are as varied as they are for a standard Lockbolt, including solar and wind power, agricultural and commercial vehicles and machinery, rail, bridge building, screening equipment, portable / steel framed buildings and other industrial applications.

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