

Over specified fastener causes major inefficiencies at Automotive Tier Supplier. Emhart Teknologies bumps costs down by developing a custom POP® rivet for costly bumper assembly.

Application:
Automotive Bumper Assembly

Challenge

A leading auto-tier supplier needed to reduce costs associated with its bumper assembly. The original design used a structural blind rivet with an extremely high break force mandrel. As a result, an expensive custom-designed and mechanically-driven rivet tool was required to set rivets, because the mandrel break force exceeded the limitations of conventional hydraulic tools. This special machinery required frequent and costly maintenance, resulting in slowed production and excessive down time.

Customer Requirements

- Positive mandrel head retention
- Rattle resistance
- Adequate shear strength
- Minimum 240 hours resistance to salt spray

Solution

Emhart Application Engineers determined the current blind rivet was over specified for the application, resulting in unnecessarily high costs and slowed production. They proposed a unique POP® open-end rivet design as an alternative, which offered increased shear strength versus conventional open-end rivets of the same diameter. This was achieved by designing the mandrel to remain in the shear plane upon installation.

Features & Benefits

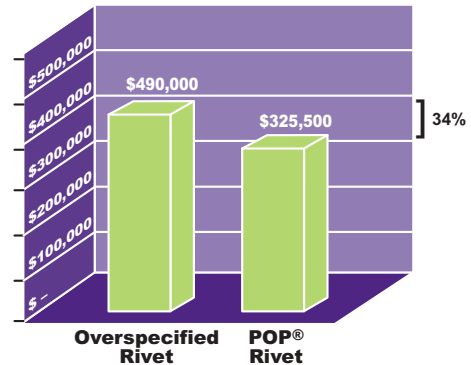
The POP® solution developed by Emhart easily met the customer's specifications. It enabled the setting of rivets with Emhart's MCS5400, a lightweight, ergonomically friendly and reliable hydraulic tool. The rivet was equipped with a unique mandrel head designed with a mechanical locking feature, providing adequate push out strength and rattle resistance. A special finish was applied to the rivet body to meet salt spray requirements.



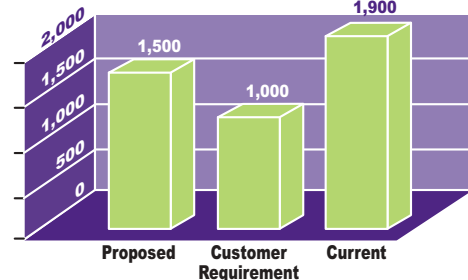
Cost Benefit Analysis

PROJECT DATA	Overspecified Rivet	POP Rivet
Number of rivets per bumper assembly	.8	.8
Total cost per assembly	\$.784	\$.520
Total number of assemblies per year	625,000	625,000
Total cost per year	\$490,000	\$325,000
Net savings per year		\$165,000

Total Annual Cost Comparison



Shear Strength (lbs.)



Pushout Strength (lbs.)

