

ENGINEERING AND PART CONSOLIDATION OFFERS LONG-TERM FINANCIAL IMPACT

CASE STUDY: HVAC | Commercial Air Conditioning

A commercial air conditioning manufacturer partnered with Optimas to re-engineer an electrical control box and significantly reduce part and manufacturing costs.

Annualized Real Results, Real Impact

\$425,000

**Inner Mounting
Plate Elimination**

\$60,000

**Labor
Reduction**

\$8,500

**Screw Consolidation/
Elimination**



Background

An existing customer invited Optimas to explore a cost saving initiative relating to an electrical control box in a commercial air conditioning unit. Prior innovation failed to develop a fastening solution which would yield cost savings.

The original design of the control box enclosure contains a large steel stamping along with an outer casing that is installed on the face of the cabinet. This acts as a sealed unit to prevent leaks and moisture.

The internal plate is designed and manufactured with a large range of pre-pierced holes to house every potential electrical component configuration. On average, the customer only used 30% of the holes built into the electrical control box.

Challenge

A cost-and labor-savings initiative that eliminated an under-used part of an electrical control box in a commercial air conditioning unit.

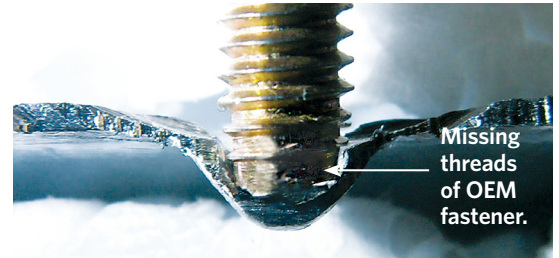
Action

Design a “dimple” style fastening system, including a range of sharp-crested, thread-forming screws, that engages on contact with walls and:

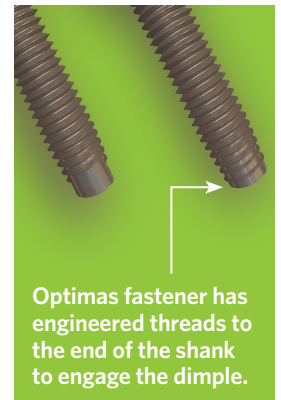
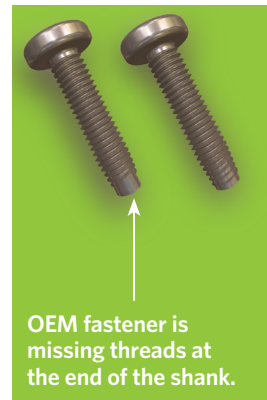
- Adheres to UL production requirements
- Eases the mounting process during manufacturing
- Allows for “change outs” in the field
- Ensures a watertight seal

Results

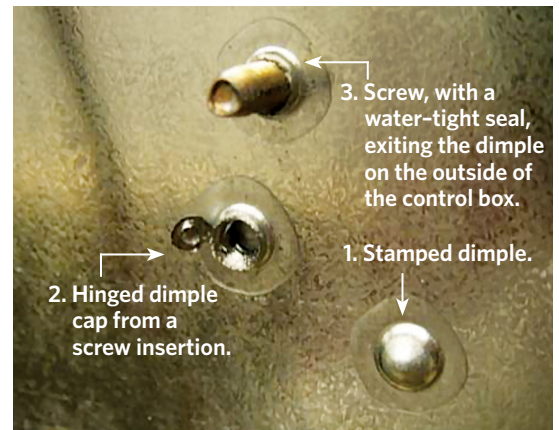
- **“Dimple” design eliminated the electrical control box inner panel** and passed UL, weather and transit testing.
- **Re-designed screws lowered the torque required for installation** compared to standard thread-forming fasteners.
- **Eliminated debris created or left in the joint** during the threading/installation.
- **Field repairs/additional components can be made with standard machine screws** installed into existing threads.



OEM Fastener: A standard trilobular screw can't engage with a dimple pressed into the stamped metal wall of an electrical control box.



New Fastener: Replaced a trilobular, thread-forming screw (left) with a trilobular, sharp-crested, thread-forming screw (right) to engage the dimple.



Optimas Solution: Fastened components to the inside wall of an electrical control box and met all manufacturing and field-use requirements.

ABOUT OPTIMAS

Optimas Solutions is a tech-enabled manufacturer/distributor that provides fasteners, inventory management services and production consumables that help global producers elevate efficiencies and reduce costs.

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