

# FASTENERS & FIXINGS

# SPOTLIGHT

## STAR FASTENERS

## Huck® Fasteners designed for use in composite panel

Sandwich panels, also known as composite panels are generally characterised by their performance characteristics. They are made by bonding two thin facings to a lightweight core material using adhesive bonding. The core separates the two skins providing strength and durability and offers very little increase in weight, producing a highly efficient panel structure. Manufactured from a wide variety of materials including foam, polypropylene or aluminium honeycomb core and glass fibre reinforced plastic (GRP) or aluminium facings, these panels are now used in a wide range of applications. The technology is not a new one, for years these panels have been used in the manufacture of civilian and military aircraft, and its success and benefits in this field has made it desirable across a wide range of industries seeking to apply its advantages to their applications.

Sandwich panels are now the preferred material in efforts to lightweight vehicles and are used in a multitude of industries and applications including, emergency vehicles, light truck construction, commercial vehicle trailers, event vehicles, containers, housings, wind power housings, potable structures, welfare units, in fact application possibilities are endless. Technological and design innovation has advanced rapidly and unique and flexible manufacturing processes have made it possible for the material to be extremely tough and lightweight, they are now being used as a high-strength alternative to traditional materials such as aluminium and steel.

The strength of the composite panel often depends on its overall size, the surface material used and the density of the cells inside it. New product design and fabrication methods involving composite materials alter typical fastener material requirements. This is where Star Fasteners knowledge and expertise is often called upon by design teams and engineers. Initial consultation encompasses a complete assessment of the application and materials to be used. Once this has been established the joint geometry and the range of stresses imposed can be determined, selecting an appropriate fastener ensures that stress levels on both the fastener and material are kept sufficiently low so as not to cause fatigue problems.



Huck® Encapsulated  
Hucktainer



Thanks to its high pull-out strength, Penta-Lok is suited for use within thin materials or delicate composites.

### ADVANTAGES OF USING HUCK FASTENERS IN COMPOSITE PANELS

**Simple joint configuration** – speedy, low skilled assembly process compared to a purely bonded system which requires a controlled application environment.

**Easy to disassemble if required** – if a repair is necessary often the fastener can be removed, the panel replaced without damage to the adjoining panels / surrounding structure.

**Inspection is straightforward** – quick and easy visual inspection once installed.

**Few thickness limitations** – the Huck fasteners product range caters for a large variety of joint thicknesses. Correctly

installed mechanical fasteners do not distort or penetrate the appearance of the panels and are weather and water resistant.

**Environmentally sustainable** – approximately 90% of the automotive scrap can be recycled into other products. Huck fasteners offer a secure fastening solution that can also be recycled when they reach the end of their useful life.

**Fastener longevity** – as well as quality plated steel fasteners, plastic encapsulated heads, aluminium and stainless-steel varieties ensure a long life of the finished structure.

**Mechanical fixing** - offer structural integrity to a build; their mechanical properties offer reliable performance.

**Time efficient** – time associated with the assembly process can be a major factor. Both the 2-piece Huckbolts and structural blind fasteners combine unmatched speed of assembly.

**No special training required** – Huck engineered fasteners do not require any special installation training for someone to become proficient in installing them.

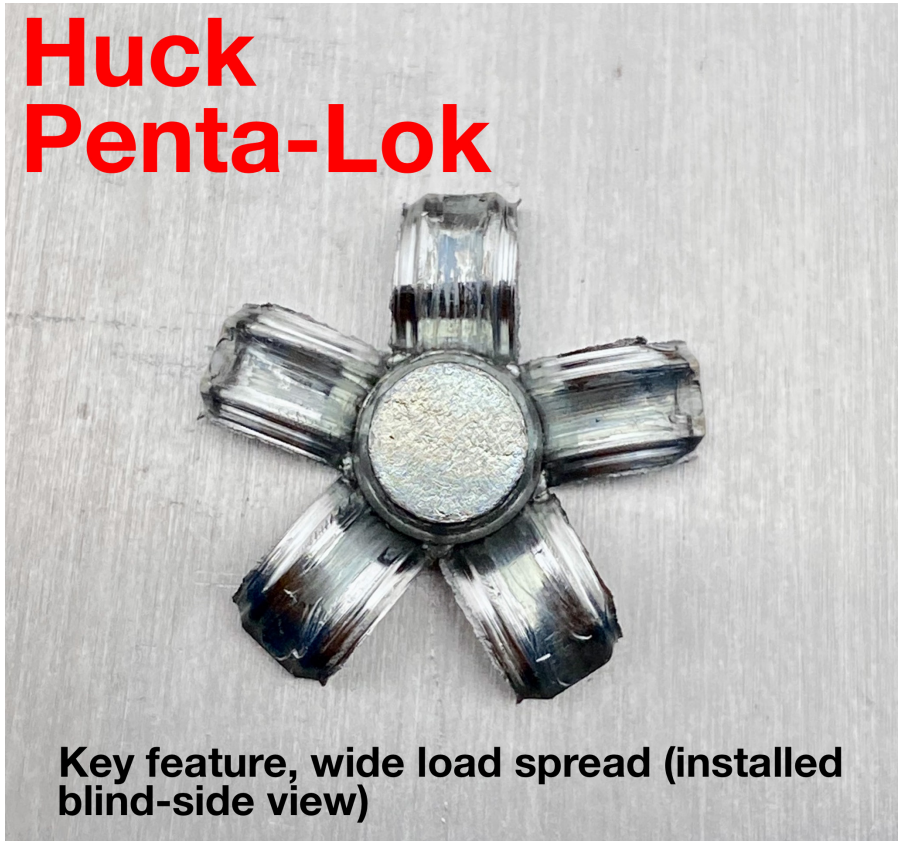
**High Pin retention in structural blind fasteners** – prevents possibility of noise or vibration in dynamic assemblies.



Huck Penta-Lok installed in load restraint



# Huck Penta-Lok



Key feature, wide load spread (installed blind-side view)

**Hucktainer®** is a two-piece specialty fastener that has been designed specifically for composite board, fiberglass reinforced plywood (FRP) and metal clad composite panel applications. It is a popular choice for commercial trailer manufacturers, as its direct-tension installation process provides consistent clamp which reduces the potential for crushing or crazing of the panel. This accurate tension ensures a secure, durable connection, time after time.

Star Fasteners have brought to the market a coloured encapsulated Hucktainer.

## SIX UNIQUE ADVANTAGES OF HUCKTAINERS' COLOUR ENCAPSULATED HEAD.

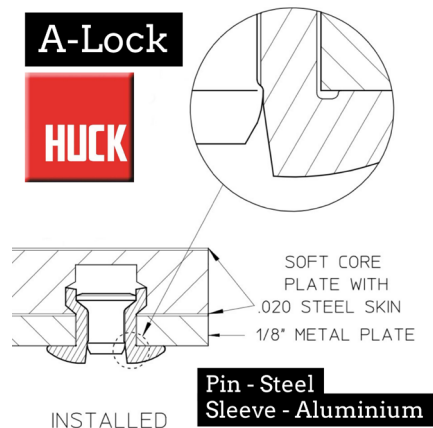
- Colour matched to any colour of your choice
- Low minimum order quantity and fast turnaround.
- Plastic encapsulated, UV resistant head reduces corrosion.
- Helps to prevent weather ingress.
- Increased head diameter spreads the load; helps eliminate panel crushing.
- Neat appearance gives a professional finish and blends seamlessly with the livery / panel colour.

**Penta-Lok™** structural fastener has come to the market driven by the need for a fastener specifically designed for the lightweight panel market. Thanks to its

high pull-out strength, Penta-Lok is suited for use within thin materials or delicate composites. Customers specific focus is often to fasten Load-Lok® / load restraint systems and other components to the lightweight panels.

The Huck Penta-Lok is an easy-to-install, 6.4mm diameter, all steel (body and mandrel) plated, peel structural fastener with superior blind side strength. It has a neat domed head and its positive mechanical pin retention ensures structural integrity. Its uniquely engineered peel system installs with ease into shallow panels. If the tip of the body is inserted into material (minimum 8mm composite / honeycomb / foam core panel) the Penta-Lok will do the rest. The installation process seats the flange to the surface of the material as it claws itself in on the blind side; resulting in a supportive load spread of approximately 16mm.

It is a perfect fastener to use in conjunction with adhesives and sealants. Using the Huck Penta-Lok in key areas of a build enables quick panel stability; no need for as many clamps or tape and the project can immediately be moved onto the next production process allowing the adhesive to effectively cure. The longevity of a finished product is undoubtedly connected to the quality of materials used. Huck fasteners are a proven, versatile, quality fastening solution.



**A-Lock™** blind rivets also provide robust fastening of metal to wood, FRP, plastics and fiberglass without through holes. They expand on the blindside when installed and lock themselves into the application. Once locked in place they offer superior pull-out strength and vibration resistance.

As well as being the largest UK stockist of the Huck® fastener brand and an authorised tool service and repair workshop, Star Fasteners stock a comprehensive range of rivets. These include standard, sealed, multi-grip and many specials for bespoke applications and are available in a wide range of materials and finishes. An in-house powder coating service ensures that any stock item can be coloured to meet customers' requirements and despatched at short notice.