



# bigHead<sup>®</sup>

## An introduction to bigHead: examples of bigHead usage and applications

The information in this document is given in good faith, without guarantee, for guidance purposes only.

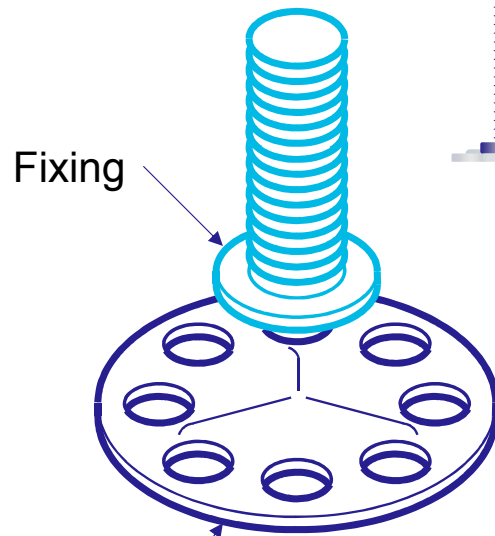
Application suitability must always be determined by appropriate testing and bigHead does not accept liability for any failure arising from use of their products.

Drawings and images within this document are for illustrative purposes only, are not to exact scale, and may differ from actual items.

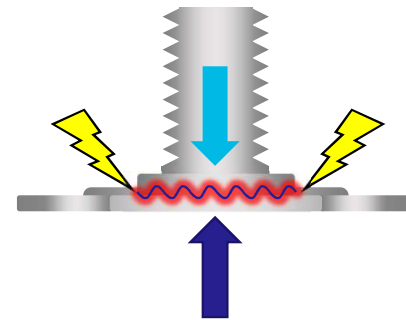
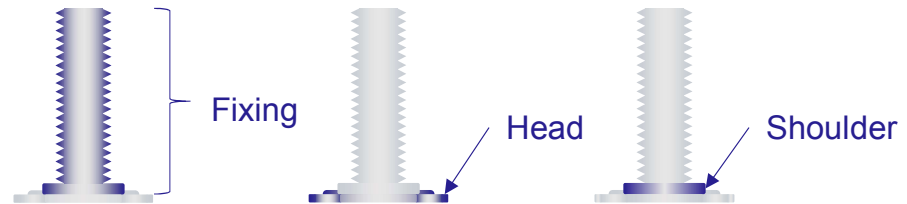
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# What is a bigHead?

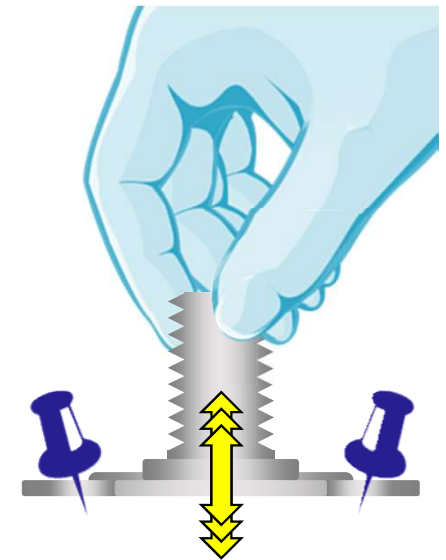
## Familiarisation with principal elements



Head



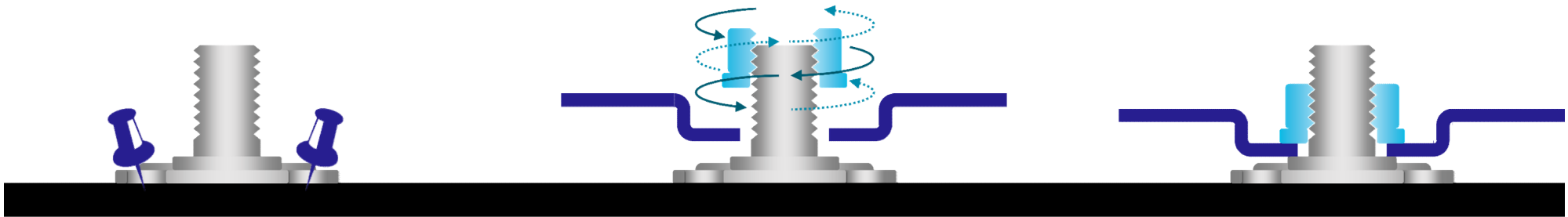
To make a bigHead, the fixings are welded to the Head...



...this creates the joint between fixings and Heads...

# Why use a bigHead?

## Some key reasons



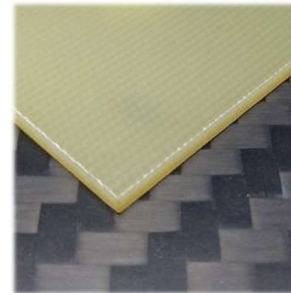
Create fixing/ attachment points on materials that do not tolerate drilling/ threading/ clamping.



Facilitate joining/ assembly (and disassembly) of components produced from dissimilar materials.



Mechanically fasten assemblies without the fastening being visible from the other side.



# What do bigHead offer?

## Quick introduction



### Core range

3 Heads + selection of stud or collar fixings in predefined lengths  
Carbon steel with bright zinc plate (BZP) finish or unfinished stainless steel (316)



### Extended range

Wider range of Head types and fixing geometries  
Non circular heads, Tyrap variants



### Specialisation

Designed to meet a customer specific need or application  
Manufactured & supplied on an engineered-to-order basis



### Process solutions

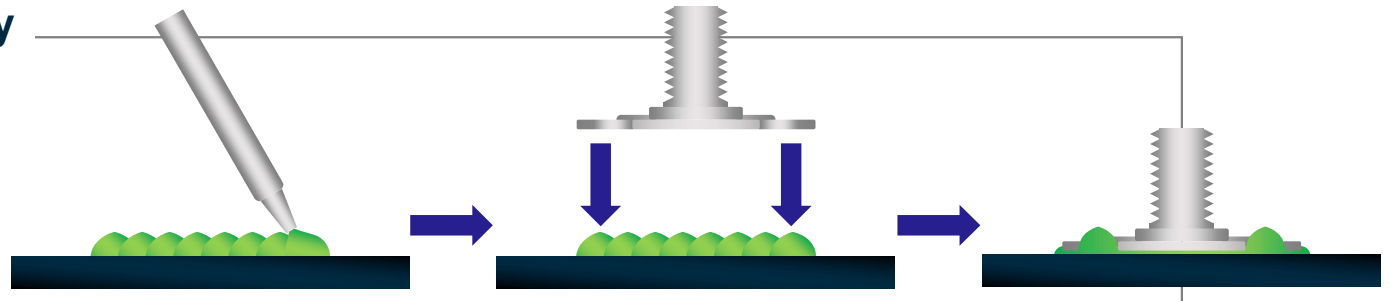
bigHead process and product systems that resolve specific customer challenges

# Typical installations of bigHeads

## Adhesively bonded or embedded



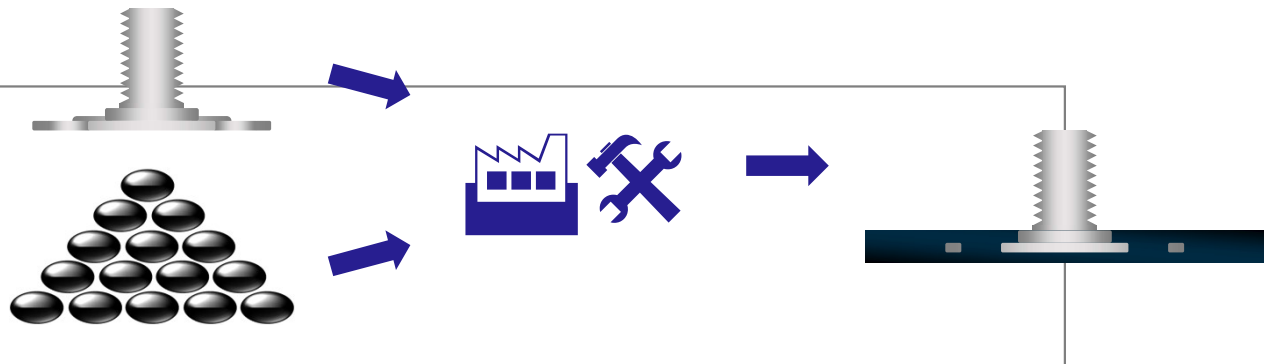
**Adhesively bonded**



Attachment of bigHeads after the component production (Post-process)



**Embedded**



Integration of bigHeads during the component production (Co-process)

# Fastening with bigHeads

## Typical assembly fastening techniques



Adhesively bonded collar fixing bigHead on component

Adjoining component fitted over bigHead collar, retained by screw and washer

Screw tightened into bigHead collar to secure assembly

Completed assembly



Embedded stud fixing bigHead within component

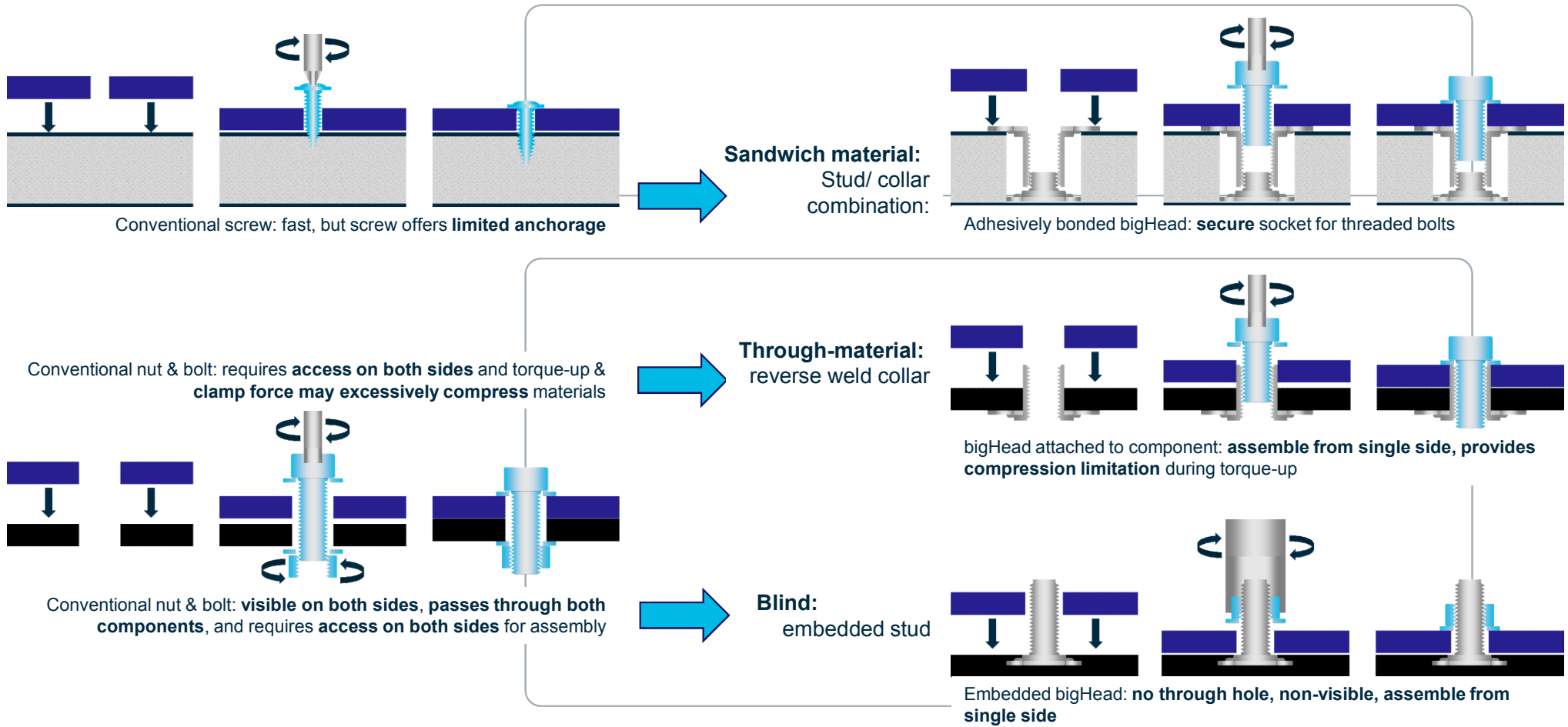
Adjoining component fitted over bigHead stud, retained by nut and washer

Nut tightened onto bigHead stud to secure assembly

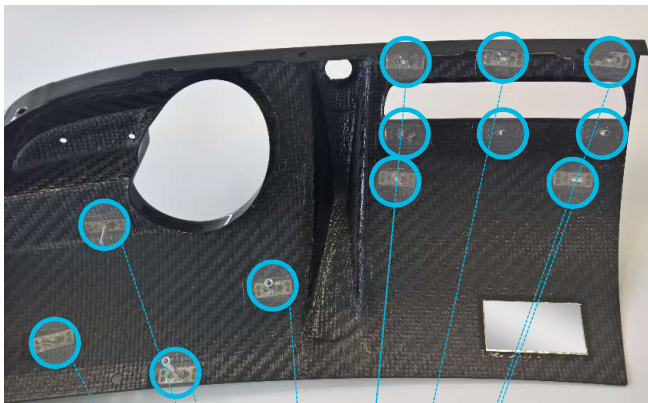
Completed assembly

# Fastening with bigHeads

## Further examples of fastening assemblies with bigHeads

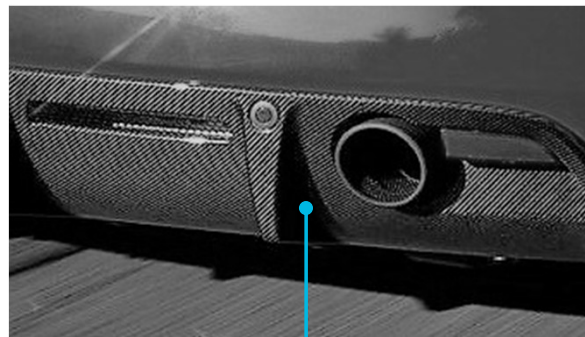


# bigHead application/ usage example post-process, automotive exterior components

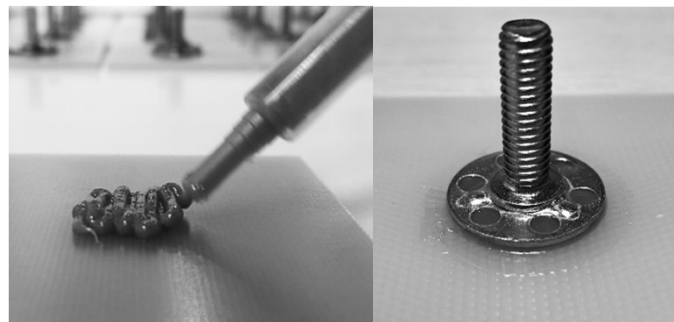


bigHeads used for creating fastening/ attachment points on composite component:

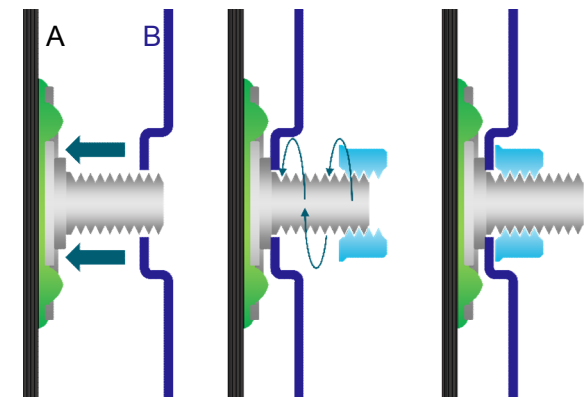
**Design requirement:** create metallic threaded fixing/ attachment points on a carbon fibre reinforced polymer composite material, without creating through-holes, and without visibility of fastening locations from unfastened side



Vehicle images: NetCarShow.com



**Integration concept:** bigHeads adhesively bonded onto component after completion of composite laminating and curing (post-process integration)



**Assembly concept:** Attachment between component A & B made by passing bigHead fixing through hole and securing with nut/ washer



# bigHead application/ usage example co-process, automotive interior components

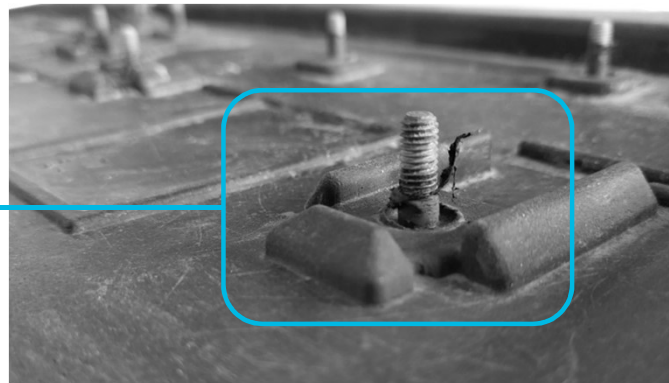


Vehicle images: NetCarShow.com

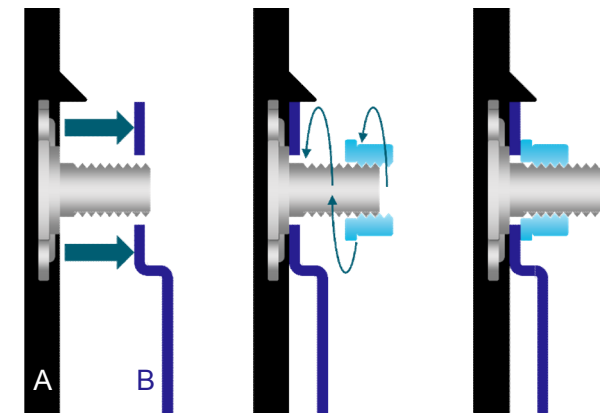
bigHeads used for creating fixing/ fastening points on b-surface of interior trim panel:



**Design requirement:** create threaded fixing points, without through-holes, and without visibility of fastening locations from unfastened side

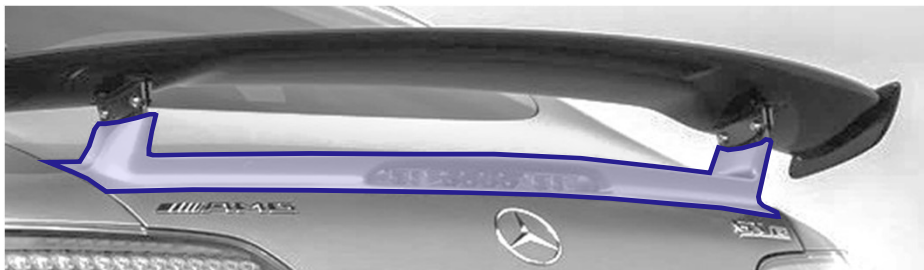


**Integration concept:** bigHeads embedded into panel by co-processing with component materials during moulding/ forming process



**Assembly concept:** Component (A) fastened in place by passing bigHead fixing through adjoining component (B) and securing with nut/ washer

# bigHead application/ usage example co-process, automotive exterior components



Vehicle images: NetCarShow.com

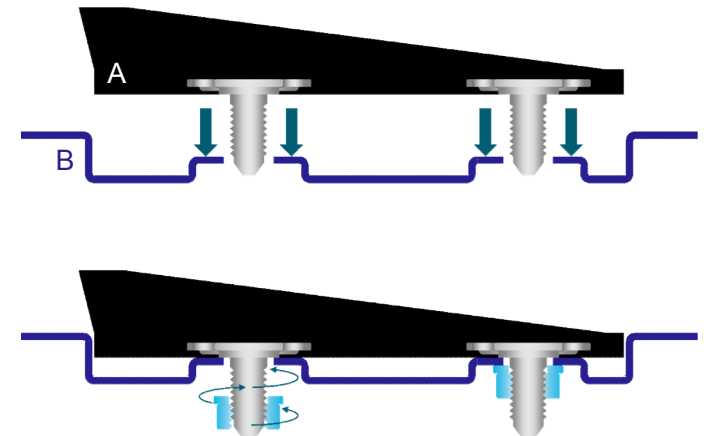
bigHeads used for creating fastening points for attaching aero support to trunk closure:



**Design requirement:** create reliable, non-visible threaded fixing points, without through-holes, and with possibility to disassemble if/ when required

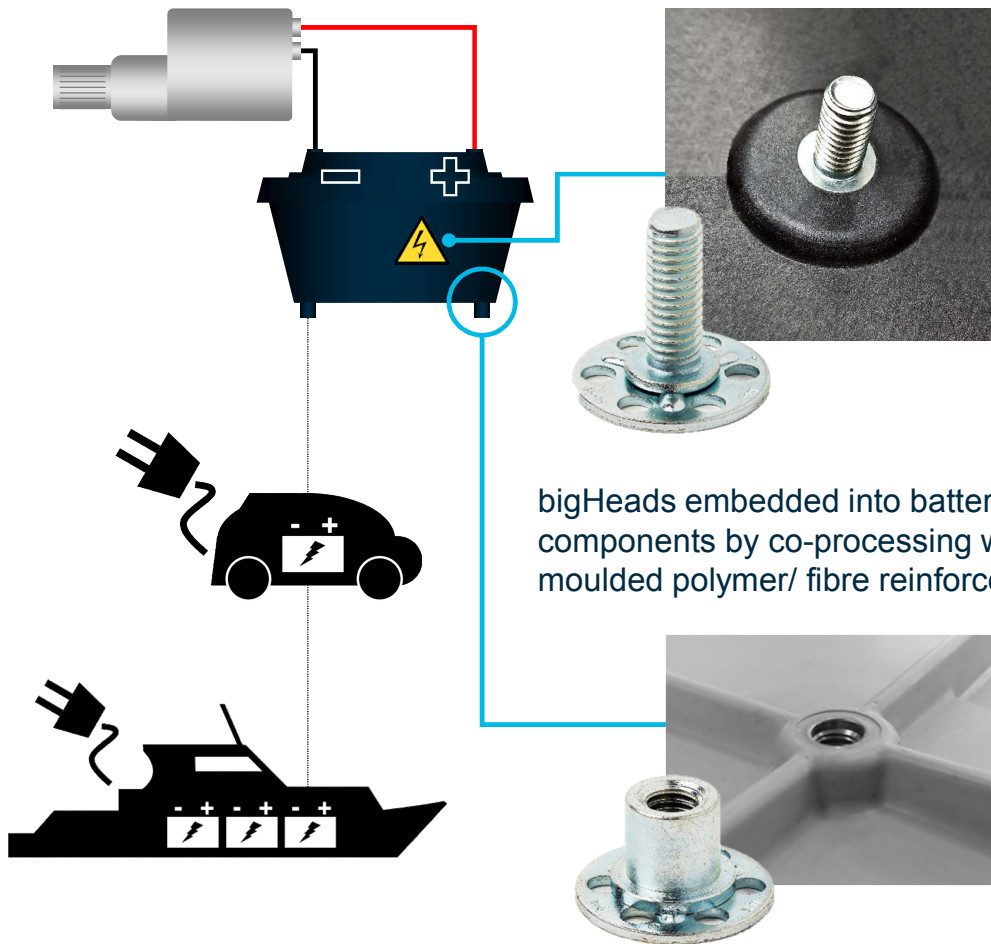


**Integration concept:** bigHeads embedded into aero support component by co-processing with polyurethane (PU) material during moulding



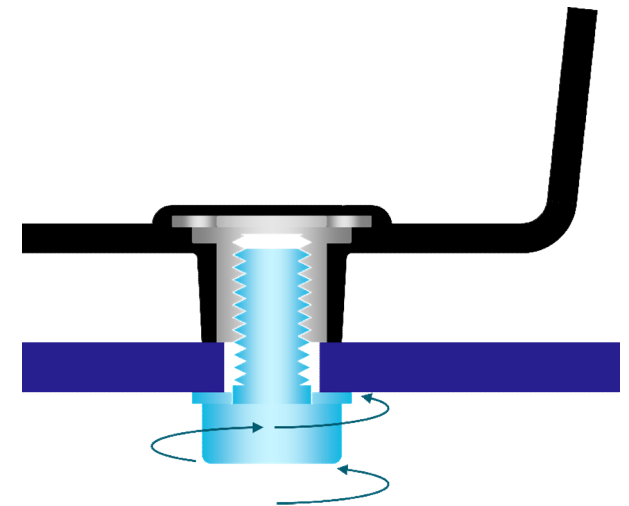
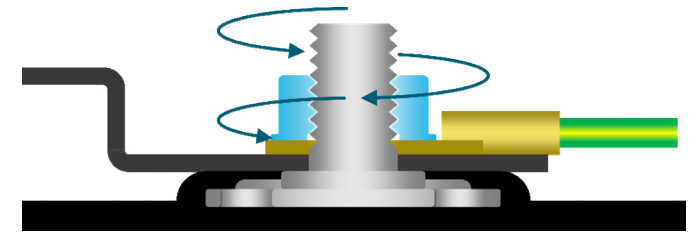
**Assembly concept:** Component (A) fastened in place by passing bigHead fixing through adjoining component (B) and securing with nut/ washer

# bigHead application/ usage example **co-process, battery boxes for propulsion systems**



**Design requirement:**  
provision of threaded stud connection points for mounting/ securing electrical components within the battery box – without through-hole or secondary installation operation

**Design requirement:**  
provision of threaded sockets for use as attachment points for mounting/ securing the battery box in place – without through-hole or secondary installation operation



## bigHead application/ usage example nacelle spinner fastener



Wind turbine image: Siemens-Gamesa

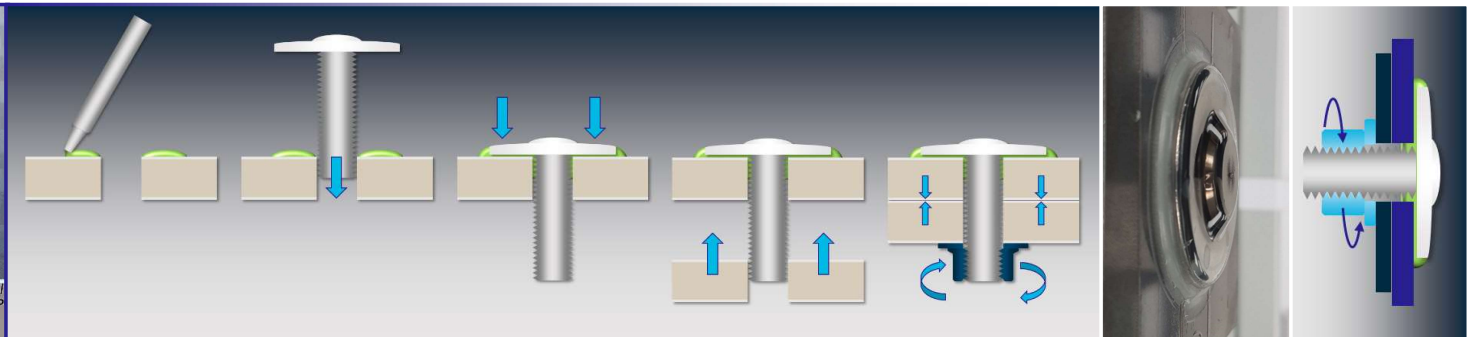
Bespoke design of bigHead studs used to fasten wind turbine nacelle spinner skin panels in place

- Reverse welded 316 stainless steel bigHead with M16 threaded stud
- Polymer over-moulded cap

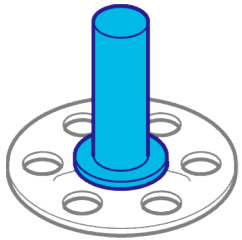
bigHead is adhesively bonded onto outer side, with threaded stud passing through the material

Why is the bigHead designed/ used in this way?

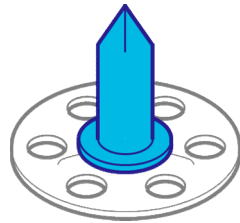
- Polymer cap protects the metallic components from weathering exposure, reduces visual impact
- Adhesively bonding the bigHead in place creates a weatherproof seal – no additional sealing washers or grommets required
- The installation creates a single sided access fastening solution – assembly can be tightened, or disassembled to allow skin panel removal, from inside the nacelle
- The bigHead remains in place during assembly/ disassembly – avoids bolts or screws falling out during component handling/ movement



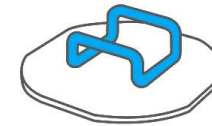
# bigHead product examples and other specialist fastening examples



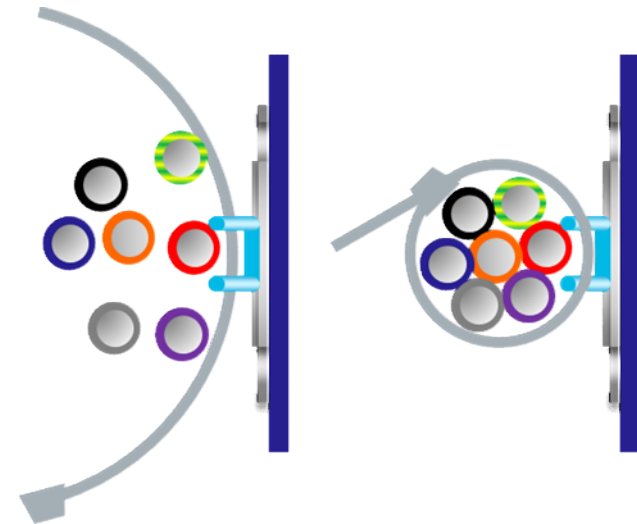
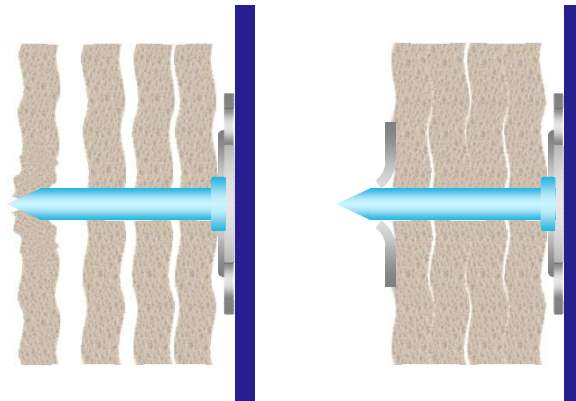
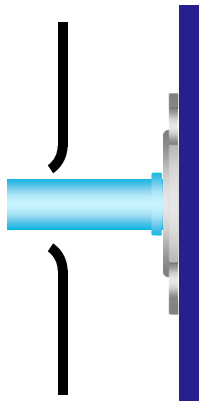
Plain pin:  
Locator pin



Nail fixing (together with spring clip):  
Insulation blanket retention



Cable tyrap fixing:  
Cable retention





# We're here to help...

## Get in touch

We're here to help. Whether you have a technical question you need answering or some products you'd like to order, we welcome your call.

We're open from 8am to 4.15pm UK time Monday to Thursday. On Fridays we close at 3pm.

## Sales and product enquiries

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