

# Why use adhesives?

## Did you know

**1950s**

3M has been manufacturing and specifying structural adhesives for our customers since the 1950s



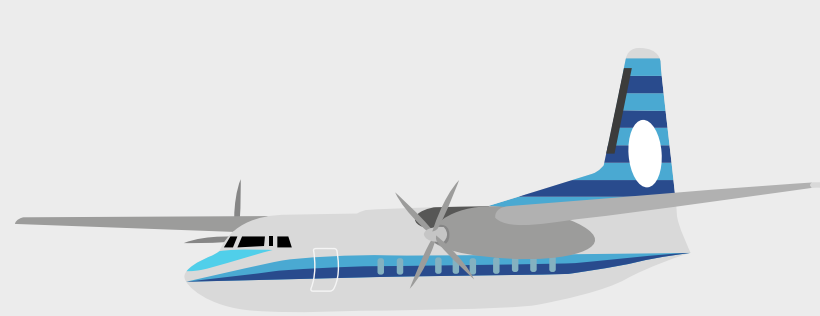
One of the earlier applications of structural adhesives is the use of 3M 2216 B/A in the Fokker Friendship F27



This application used 15 linear metres of adhesive in its fuselage construction.

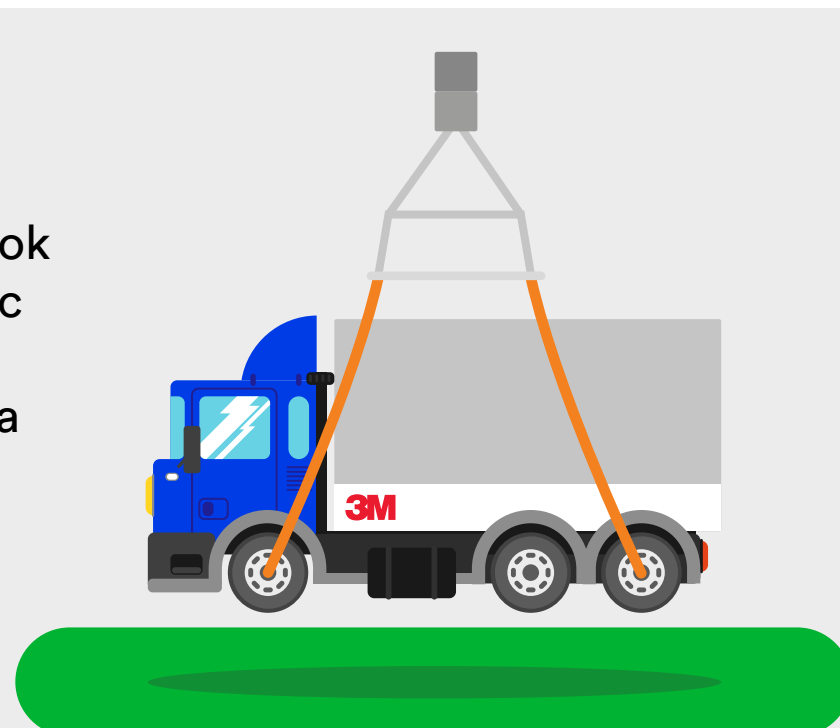
**1958**

This aircraft was first brought into service in 1958. 800 were built



Many are still in service

In 2012 3M entered the Guinness Book of Records for suspending a 10 metric ton truck from a crane for one hour a meter above the ground...using only a structural adhesive applied to a surface 7cm in diameter!



**More uniform stress distribution**  
(eliminate stress concentrations)



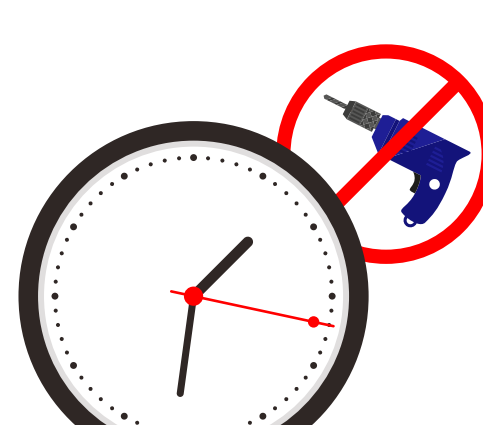
**No damage to substrates**  
(eliminate holes, prevent thermal damage, maintain protective coatings)



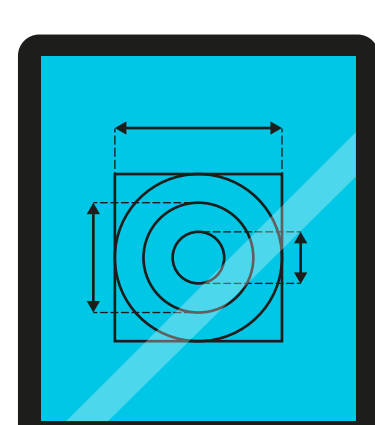
**Weight reduction**  
(allow thinner gauge substrates)  
**no readthrough**



**Time-saving**  
(no pre-drilling holes, no weld grinding for flatness)



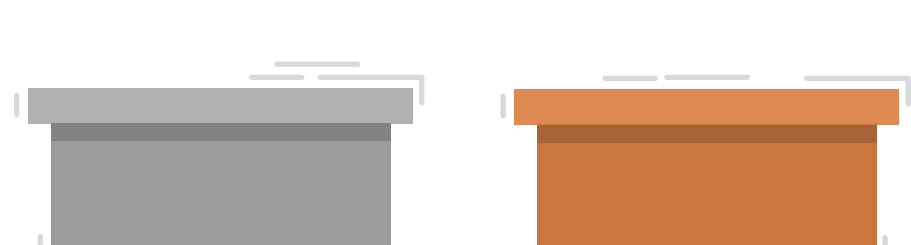
**Provide improved appearance and freedom to design**



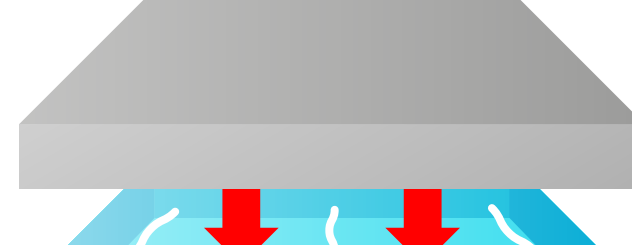
**Bond and seal simultaneously**



**Damp sound and vibration**



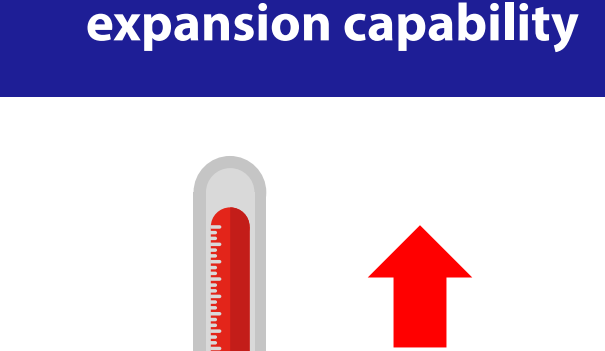
**Bond dissimilar materials**



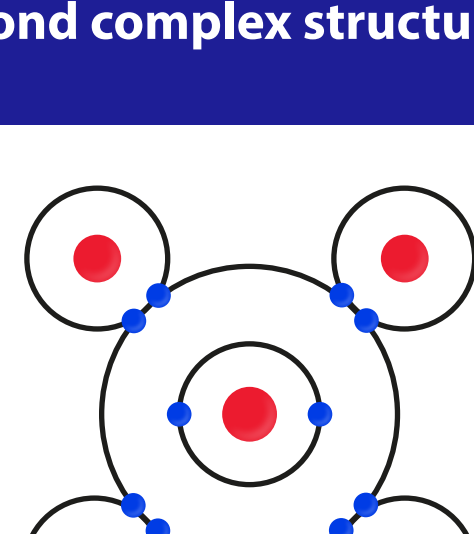
**Reduce galvanic corrosion, both with dissimilar metals**



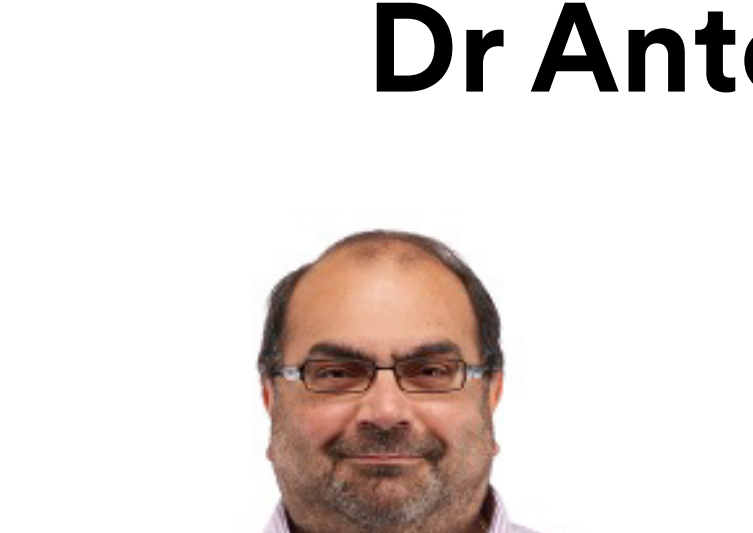
**Provide some thermal expansion capability**



**Bond complex structures**



## Dr Antonio Pagliuca says...



*"Adhesive bonding has a number of key advantages, especially for bonding dissimilar materials, which can free designers and engineers from the constraints of mechanical methods of attachments."*

Senior Technical Specialist – Application Engineering – 3M  
PhD: Joining Technology Research Centre, Oxford

Ask an expert by contacting us at [bondingsolutions.uk@mmm.com](mailto:bondingsolutions.uk@mmm.com)

### Sources

Video: 3M Beyond Limits Bonding World Record 2012  
Presentation: Joining of Aluminium and Vehicle Structures With Adhesives - Edwin Eve 2016

