



**3M** Science.  
Applied to Life.™

# The Engineers' Guide to Assembly Solutions

Chapter 2

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Production Efficiency

# Increase your production efficiency

Engineers traditionally specify welding and mechanical fastening systems such as bolts, nuts, rivets and screws to join parts together in their designs. Nowadays, designers and engineers are realizing the benefits of adhesive bonding technology and how it can enable novel designs while simplifying manufacturing processes.

In chapter one, we talked about how Canadian manufacturers benefit from using adhesive bonding technology to deliver high-quality, long-lasting products.

In this chapter, we focus on how you can eliminate extra steps associated with mechanical fastening systems, such as drilling and post-finishing, and how adhesives and tapes can help you increase production efficiency.

Ready to transition to adhesive joining?

***[Read our white paper to learn what's involved.](#)*** ▶



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## Kejian Zhang



As an application development specialist, Kejian Zhang strives to solve even the toughest manufacturing challenges. He is passionate about enabling manufacturers across Canada to incorporate new technology into designs, optimize assembly processes, and improve productivity. Kejian is dedicated to inspiring future engineers, and is a regular presenter at universities and professional associations.

# Challenges:

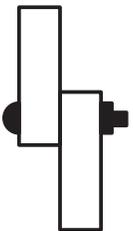
## Disadvantages of mechanical fastening systems

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Here are examples of how welding and mechanical fastening systems can lower your production efficiency.

# Common challenges with mechanical fastening systems

Below are some of the common challenges you may face when joining parts together with welding and mechanical fastening systems such as bolts, nuts, rivets and screws.



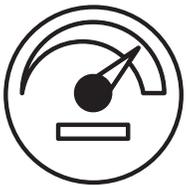
## Prevents lightweighting materials

Thicker materials may be used to hide imperfections and can result in heavier product weight.



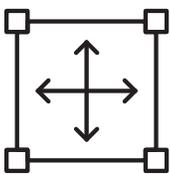
## Decreases overall aesthetics

The use of bolts, nuts, rivets and screws can impact the overall aesthetic design.



## Involves extra steps

Additional post-finishing processes can extend the manufacturing throughput time.



## Presents design limitations

Welding dissimilar materials to achieve specific designs can be challenging or impossible.

# Solutions:

## Benefits of adhesive bonding technology

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Here are examples of how adhesive bonding technology can increase production efficiency.



## Customer Testimonial: Defined Designs

Defined Designs – the creators of Guerrilla Cube, an all-in-one mobile marketing display – improved production efficiency and saved 20% on labour costs by using 3M™ VHB™ Tape.

[Learn why they chose 3M™ VHB™ Tape](#) ▷



[3M™ VHB™ Tape Featured Products](#) ▷

## How adhesives and tapes can improve production

You can use adhesive bonding technology instead of mechanical fastening systems to create novel designs, eliminate post-finishing steps, and bond and seal parts simultaneously.

[Learn about the benefits of adhesives and tapes](#) ▷



△ 3M™ VHB™ Tape



△ 3M™ Scotch-Weld™  
Epoxy Adhesive  
DP420NS

## More resources

**3M™ VHB™ Tapes**  
Technical Data Sheet

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**3M™ Scotch-Weld™  
DP420NS Black**  
Technical Data Sheet

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## High-temperature bonding

Bond lightweight metals or bond dissimilar materials and improve assembly time with 3M™ VHB™ GPH Tape – 3M’s solution to high-temperature bonding.

[Learn about 3M™ VHB™ GPH Tape](#) ▷



△ 3M™ VHB™ General Purpose High Temperature Tape

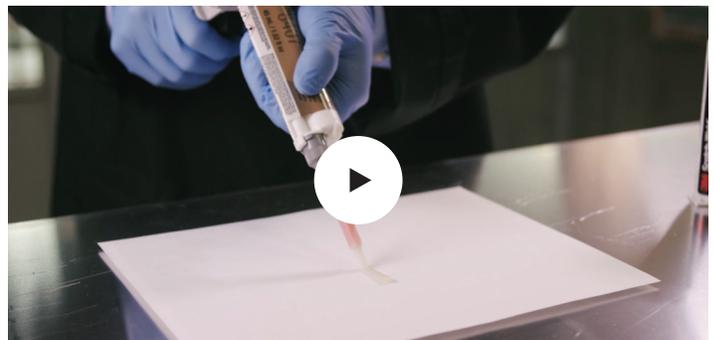


△ 3M™ Scotch-Weld™ Metal Bonder Acrylic Adhesive DP8407NS

## Bond metals prior to liquid painting and powder coating

Bonding metals with a structural adhesive prior to liquid painting and powder coating can improve the manufacturing process and help create a stronger bond.

[Read our white paper](#) ▷



**WATCH:** Changing what’s possible for bonding metal assemblies ▷

## More resources

**3M™ VHB™ General Purpose High Temperature Tape**  
Technical Data Sheet

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**3M™ Scotch-Weld™ DP8407NS Technical Data Sheet**

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# Explore solving your design challenges with adhesives and tapes



Find out if 3M adhesives and tapes can help you improve your manufacturing process and have a positive impact on your bottom line.

Explore assembly solutions offered by 3M. →

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