

Fastener System Comparison

rivets vs. welding and spot welding

As with everything in life, the better something is made, the longer it will last. With such a variety of ways to construct a cabinet, it's important to know what the differences are and the strengths and weaknesses of each in order to make an informed decision.

Construction materials and fastening methods are critical to the strength and integrity of any product. Our casework combines steel-core construction with a riveted fastener system. This is one of the reasons we believe Steel Solutions USA has the best casework furniture in the industry.

Below is a quick list to understanding the differences between fasteners and why Steel Solutions USA prefers a riveted fastener system over other methods.



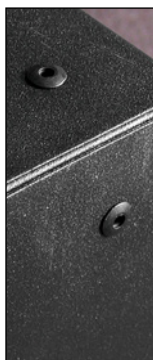
Disadvantages of Welding:

- Harmful radiations (light), fumes, and spatter
- Residual stresses and distortion of the work pieces
- Jigs and fixtures are generally required to hold and position parts to be welded.
- Welding heat produces metallurgical changes. The structure of the welded joint is not the same as that of the parent metal.
- A welded joint needs stress relief heat treatment.
- Often contain defects in the joint making it less predictable than other methods
- Problems caused by faulty bolts are relatively rare, problems caused by bad welds are fairly common.
- Welding very thin sheets is difficult.



Disadvantages of Spot Welding:

- Warping and a loss of fatigue strength can occur around the spot-weld location.
- The appearance of the joint is often rather ugly, and there can be cracks.
- The metal may also become less resistant to corrosion.
- Cannot join dissimilar materials



Benefits of Rivets vs. Spot Welding

- Rivets have the same static tensile and peel strength but offer twice the fatigue life.
- Process monitoring can be visually done with rivets while spot welds cannot. (You can have bad spot welds without knowing it.)
- Rivets do not require heat. Heat can alter the metallurgical properties and make the product vulnerable to corrosion.
- Rivets allow for reusability and recycling. Components can easily be removed with rivet construction and replaced offering reduced replacement costs, and the flexibility to reconfigure existing installations.

- High joint strength allows the end user to reduce the number of fastening points, further reducing manufacturing cost while maintaining a consistent quality product.
- Rivets are environmentally friendly and do not produce any harmful fumes or odors.

Below is a chart comparing the strengths and weaknesses of various fastener systems. The information has been displayed two ways to give an overview of each fastener's performance. View the information by written results, or use the color coded index for a quick reference to the overall performance.

Fastener Comparison Chart

rivets, spot welding, adhesives and bolts

FASTENER COMPARISON CHART		
Rating System:		
Please note that values of high, low, yes, and no can be rated as either excellent or poor depending on the question.	★★★★	excellent
	★★★	good
	★★	fair
	★	poor

* FASTENER SYSTEM COMPARISON				
Feature	Blind Rivets	Spot Welding	Adhesives	Bolts
Hole alignment needed	yes	no	no	yes
Joining dissimilar materials	yes	no	yes	yes
Joining coated materials	yes	no	yes	yes
Joining 3 or more sheets	good	poor	possible	good
Joining sheets with different thickness	good	poor	good	good
Maximum joint thickness	high	low	no limit	high
Leak-proof joint	possible	partial	yes	possible
Corrosion resistance	good	poor	high	good
Fatigue strength	high	low	medium	high
Aesthetic quality	medium	high	high	low
Access required for joining	one side	two sides	one/two sides	one/two sides
Reliability	high	medium	medium	high
Ease of inspection	good	poor	poor	fair
Joint removability	fair	poor	poor	good
Automated assembly	possible	possible	possible	possible
Compatible with other joining methods	yes	yes	yes	yes
Energy requirement	low	high	low	low
Environmental impact	low	high	high	low
Cost	low	high	high	low

* Based on laboratory testing and various in-service applications. Testing is required on your application to determine its optimal fastening method.