



A Guide to Selecting the Right
Rigid Clamp Coupling for
Your Application

Introduction

Rigid clamp couplings are mechanical elements designed to clamp onto and connect—i.e., couple—the driving shaft to the driven shaft in equipment assemblies. By joining the two components together, they enable the transfer of rotary motion that drives operations in automation, motion control, power transmission, and other systems.

These critical parts are available in numerous variations, differing in regard to style, configuration, and construction material to suit use in different applications. While the broad selection ensures that industry professionals will find one that meets their needs, it also makes identifying the ideal one challenging and time-consuming. Companies with highly specific or unique requirements may find it even more difficult. Partnering with an experienced manufacturer can help facilitate both the selection and sourcing processes.

At Stafford Manufacturing, we have extensive experience in the manufacture and distribution of rigid shaft couplings for industrial and consumer applications. We've put together the following guide to help customers select the right rigid clamp coupling for their needs.

Key Selection Considerations for Rigid Clamp Couplings

When beginning the selection process for rigid clamp couplings, the three key questions to ask are:

- 1. Are rigid shaft couplings appropriate for the application?** Rigid shaft couplings are suitable for systems with unsupported shafts. In systems with supported shafts, any misalignment can cause damage to the shaft supports or coupling.
- 2. Do the couplings require keyways?** Keyways facilitate the maintenance of radial alignment between the shaft components. They also accommodate higher torque loads. If neither of these factors is critical, then keyways—which often come with added design and construction costs—may be unnecessary.
- 3. Why choose a clamp-style coupling over a set screw-style coupling?** Compared to set screw-style couplings, clamp-style couplings are less likely to damage shafts. Additionally, they are appropriate for use on hardened and thin-walled tubing and come in one-piece, two-piece, and three-piece styles to suit different applications.

In addition to the answers to the questions above, some of the other design elements to consider when selecting a rigid clamp coupling for an application include:

- **Shaft shape:** Couplings are designed to fit around round, square, or hex shaft ends.
- **Material:** Stafford offers all its standard couplings in 1215 Steel and most in 303 Stainless, but also offers Weldable Steel (1018, 1026), Aluminum, Brass and 316 Stainless
- **Clamping screw:** Clamping screws come in English or metric varieties.
- **Shaft size combination:** Some coupling needs can be fulfilled with off-the-shelf products. However, customers with highly unique specifications may require re-machinable or custom coupling solutions for their equipment.
- **Standard-duty vs. heavy-duty:** For most applications, a standard-duty coupling is sufficient. However, for more demanding applications, heavy-duty couplings are available.

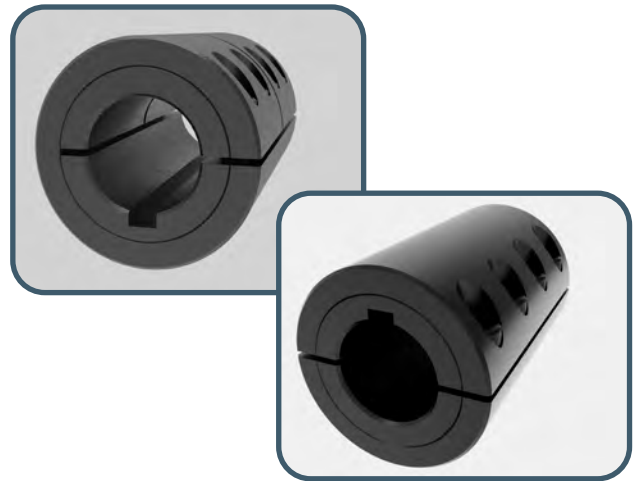
Regardless of whether a standard or custom rigid clamp coupling design is chosen, an experienced coupling manufacturer should be able to fulfill the customer's request.

Rigid Clamp Coupling Solutions at Stafford Manufacturing

At Stafford Manufacturing, our team has the knowledge and skills to provide rigid clamp coupling solutions that exactly meet our customers' application requirements. We offer standard, re-machinable, customizable, and fully custom couplings. Below we provide more detail on our capabilities in these capacities.

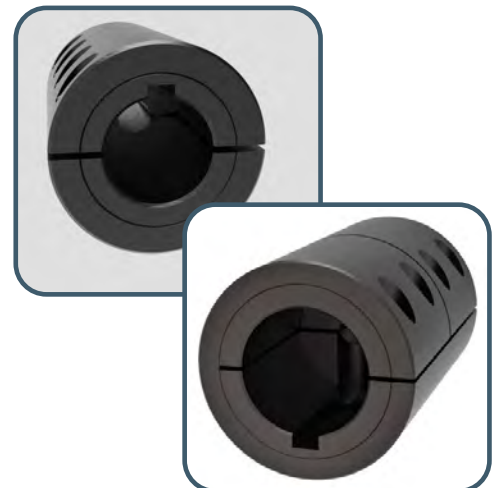
Standard Couplings

Standard rigid clamp couplings come in hundreds of variations—differing in regard to bore style and size, keyway presence, material, and more—to ensure that the majority of applications have near-immediate access to an appropriate solution. We maintain a broad inventory of standard couplings that encompasses a wide range of shaft size combinations, torque capabilities, shaft shapes, and materials. They are ideal for use by contract manufacturers, original equipment manufacturers (OEMs), and end users.



Re-Machinable Couplings

In some applications, a standard coupling is close to—but not quite—the perfect solution. For the off-the-shelf product to meet the exact specifications required, small alterations are needed. Re-machinable couplings are designed for these situations. In re-machinable couplings, one side features a finished bore hole, while the other side has a pilot hole. The unfinished side can be machined in-house to the desired bore size and configuration. This design allows these couplings to serve as an effective, efficient, and economical solution for facilities with coupling needs that are not entirely met by standard products.



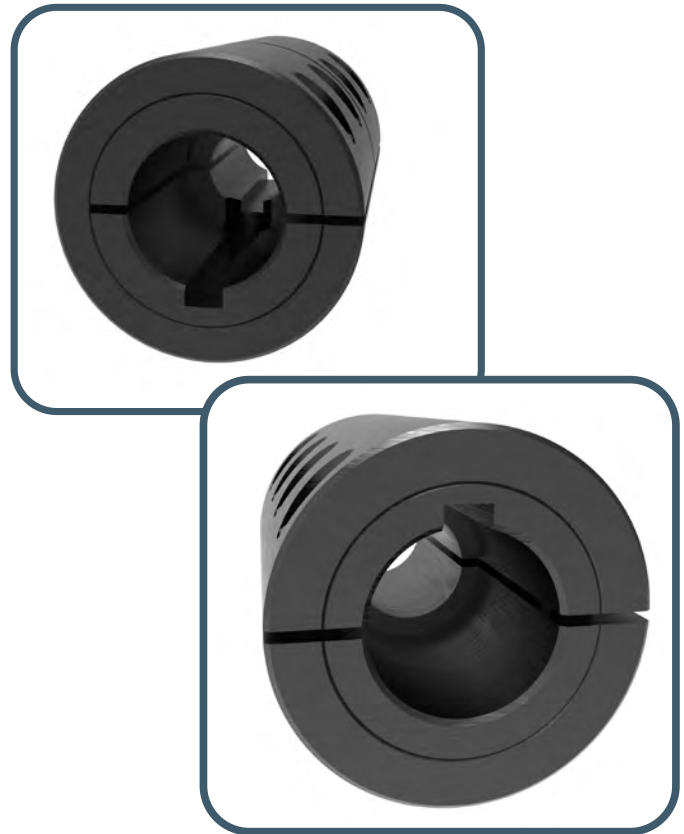
Customizable Couplings

For customers with specific or unique coupling requirements that are not sufficiently satisfied with standard or re-machinable products, coupling manufacturers may offer customization capabilities for low production volumes. In such arrangements, the customer can choose the specific bore style and size, keyway, and other design elements for the couplings based on an à la carte menu. With these specifications in hand, the manufacturer then selects an appropriate coupling blank in a semi-finished state from their inventory and processes it to have the desired dimensions and features.

This solution offers greater control over the coupling design without sacrificing quality, affordability, or timely delivery. It is ideal for customers that need small quantities or quick turnaround of custom couplings.

Our coupling customization options include:

- **Style:** one-piece, two-piece, and three-piece
- **Bore shape:** straight or stepped
- **Keyway presence:** with or without

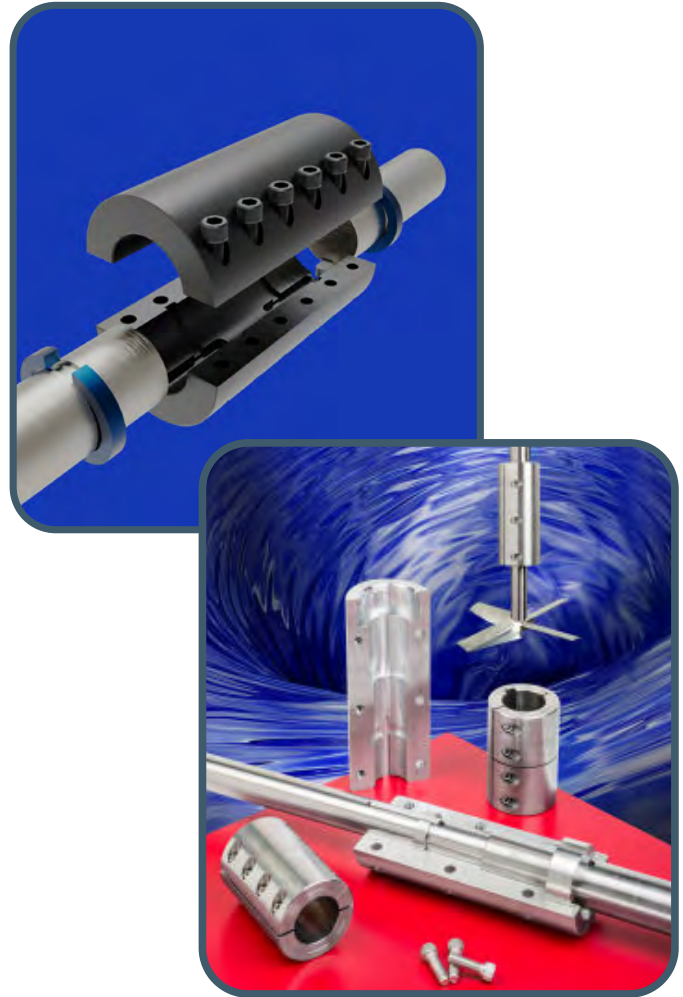


Fully Custom Couplings

If standard, re-machinable, and customizable couplings cannot fulfill a coupling need, then a fully custom coupling solution is required. For such solutions, the customer has the freedom to tailor every aspect of the coupling to suit their application. As such, it is essential to partner with a manufacturer that has the skills and tools to get the job done right.

At Stafford Manufacturing, we readily and regularly welcome requests for fully custom rigid couplings. Our team accommodates projects that involve the following:

- **Material:** alloy steel, aluminum, brass, copper, Hastelloy, stainless steel, titanium, and more
- **Size:** OD as low as 0.5 inches (for small parts) and OD up to 14 inches (for large parts)
- **Surface treatments and finishes:** plating, bright dip, electropolishing, and anodizing
- **Production volume:** One to 1000+



Stafford often works with customers to produce rigid clamp couplings to their specific requirements which may include:

- Extra clamp screws or very large clamp screws for greatly enhanced torque capacity
- Annular Keyways to provide location and positive hold in the axial direction
- Integral features such as flats and flanges – for component mounting

For additional information about our custom coupling capabilities, [visit our custom manufacturing page](#).

Stafford Manufacturing: The Rigid Shaft Coupling Experts

Rigid shaft couplings play a critical role in many industrial systems. As such, it is important to choose ones that fully meet all system requirements and restrictions. Achieving this goal, however, necessitates partnering with a knowledgeable and experienced supplier who can help select and source the optimal design for the given application.

At Stafford Manufacturing, we are well-equipped to help customers find or create the right rigid clamp coupling for their needs. Our design engineers consider numerous factors, including the intended application, application environment, maintenance requirements, and more, to ensure we develop and deliver optimal solutions.

To learn more about couplings or our coupling products and services, [check out our resource library](#) or [contact us](#) today. To get pricing details, [request a quote](#). Most RFQs receive an answer in 24 hours or less. Once a sketch, print, or description is submitted, we work quickly to turn it into a finished product.





About Stafford

Stafford Manufacturing Corp. is a manufacturer and distributor of shaft collars, rigid shaft couplings and specialty mechanical components used in power transmission, motion control, automation, and other OEM and MRO applications in both industrial and consumer products.

[Contact us](#) today or [request a quote](#) to start the production of your new custom part. We respond to RFQs within 24 hours or less.

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