

TAB 5 - DESIGNING WITH

DESIGNING WITH GROOVED PINS

Hinge and Axle Designs

Grooved Pins are widely used in hinge and axle applications where the grooved section locks the pin in place and the ungrooved portion of the pin becomes the bearing surface. By choosing an appropriate type, the pin may be captured at the end or in the center. If the pin is to be captured in the center, it is recommended that the hole size in the center element be the nominal diameter of the pin and that the center element contain a length of pin equal to at least two pin diameters. The yoke should avoid the grooves which extend along the central portion of the pin. If the pin is captured at the end, it is recommended that the yoke members be at least one pin diameter thick and that the center element avoid grooves near the end.

Shaft-Locking Pin Designs

A hole in a shaft should not exceed one-third of the shaft diameter, otherwise the shaft becomes too weak. Pin material and diameter should be selected so that the pin will shear before the shaft fails. Remember that the shaft diameter must be at least two pin diameters and that the pin must extend at least one pin diameter from the shaft. A safety factor of 8 has been assumed.

Engineering Support

Grooved Pins are engineered fasteners that play an important role in assembly design. Whether a pin of standard design is needed or one with special requirements, take advantage of our Customer Service Engineering Team. This responsive group of problem solvers is available to discuss special design needs and to help select the proper pin type for an application. Together with the factory-trained direct sales force, they form an experienced team to provide support through the entire design cycle.

Samples for Testing

No engineering design is complete without evaluating the application with the actual pin or an equivalent substitute. You can purchase trial packs of stocked Grooved Pins or contact Customer Service if you have questions about size, material, or other requirements.

Special Requirements

Special design requirements will be reviewed promptly by our engineers to provide feedback and recommendations. For any questions concerning alternate materials, finishes, straightness, or end configuration requirements, chat with our Customer Service team or submit a print [here](#) for a detailed discussion.