3M™ Friction Shims

3M™ Friction Shims create possibilities for lightweight compact design while increasing potential load and peak torque in bolt connections.

Features
- Increases the coefficient of static friction
- Function of 3M™ Friction Shims is not affected by an oil film
- Can be easily retrofitted
- Prevents fretting
- Highly reproducible
- Good corrosion resistance
- Color option for distinctive appearance
- Shim geometries according to customer specification

Application
- Frictional joints
- Flange joints
- Joints with central bolt
- Bolt connections
- Fastener systems
- Shaft-to-collar connections

Storage
Dry storage recommended

Additional information
Relevant patents:
EP 0961038 B1
US 6347905 B1
JP 3547645 B2

Variables influencing the coefficient of static friction
- Counterpart: Surface roughness, Material properties
- Coating: Diamond grain size, Diamond concentration, Foil / direct coating
- Load: Type of load, Static/dynamic
- Environment: Dry/lubricated, Additional adhesive
- Assembly: Surface pressure, Principally reusable after disassembly

Diagram of an 3M™ Friction Shim

Tribosystem with 3M™ Friction Shim

Typical coefficients of static friction with and without 3M™ Friction Shims

Results of series of tests on the coefficient of static friction (the shaded areas of the bars show the variation)
Processing

When 3M™ Friction Shims are used please note:

• Contamination may impair the correct function of the shim.
• Folding the shim will damage it.
• For maximum performance the mating surfaces must have roughness values Rz as given in the technical data sheet.
• Contact pressure of at least 50 MPa is recommended.
• When designing the joint ensure that the counterparts to be joined are in full contact.
• The coefficient of static friction depends on a large number of different parameters. It is therefore always advisable to carry out application tests with assistance from 3M Technical Ceramics.