

# 3M™ Friction Shims

Formerly known as EKagrip®

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



Structure of 3M™ Friction Shim

## 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

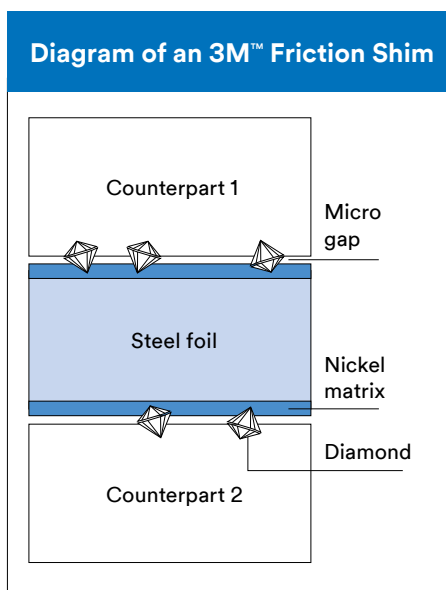
- Frictional joints
- Flange joints
- Joints with central bolt
- Bolt connections
- Fastener systems
- Shaft-to-collar connections

## Storage

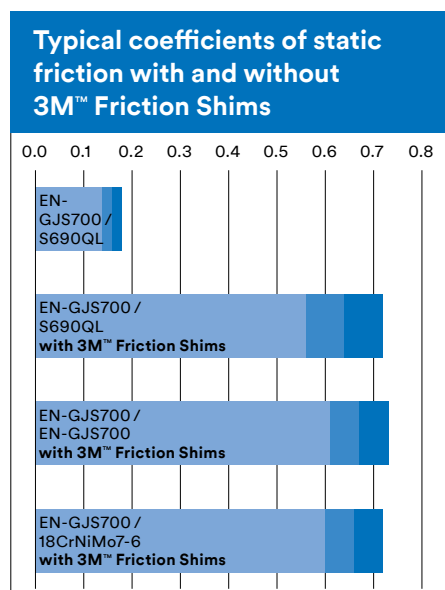
Dry storage recommended

## Additional information

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



Tribosystem with 3M™ Friction Shim



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

### Variables influencing the coefficient of static friction

Counterpart	<ul style="list-style-type: none"> <li>• Surface roughness</li> <li>• Material properties</li> </ul>
Coating	<ul style="list-style-type: none"> <li>• Diamond grain size</li> <li>• Diamond concentration</li> <li>• Foil / direct coating</li> </ul>
Load	<ul style="list-style-type: none"> <li>• Type of load</li> <li>• Static/dynamic</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Dry/lubricated</li> <li>• Additional adhesive</li> </ul>
Assembly	<ul style="list-style-type: none"> <li>• Surface pressure</li> <li>• Principally reusable after disassembly</li> </ul>

## 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.

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The management system has been certified according to DIN EN ISO 9001, DIN EN ISO 50001, DIN EN ISO 14001.

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