Surface Technology, Inc.

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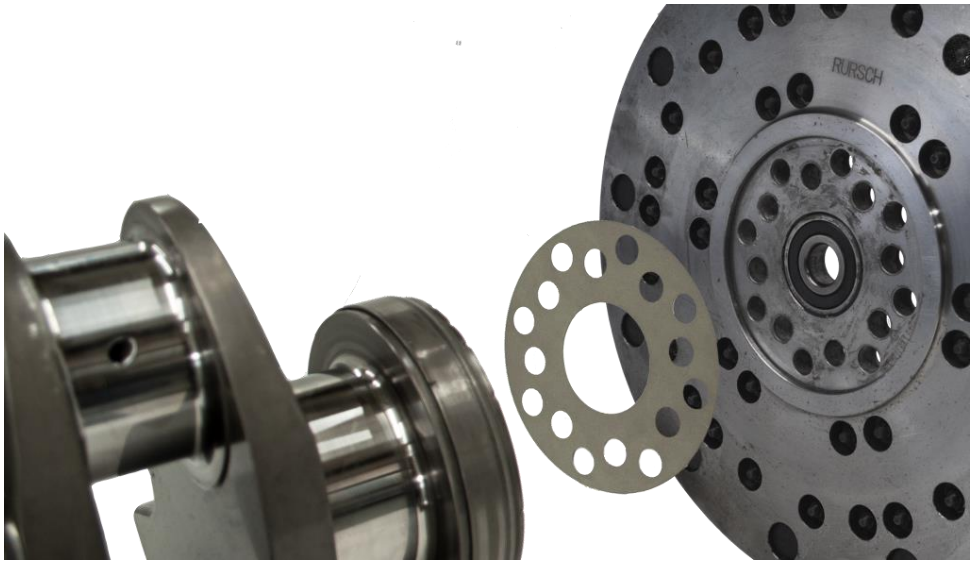
Ni-Grip® Friction Shims

Installation Guide



This guide applies across all industries. Follow these steps for all Ni-Grip® Friction Shim installations regardless of the application. Consult your Surface Technology, Inc. technical representative for any support on your specific application.

Step 1 — Inspect & Clean Mating Surfaces

Ensure all mating surfaces are free of dirt, grease, oil, and debris before assembly. Surface condition directly impacts shim performance. Contaminants between the diamond particles and the mating surface reduce the micro-form fit. Use a clean lint-free cloth and appropriate solvents to clean the mating surfaces If needed. *Note: Ni-Grip® shims are designed to work through e-coat, primer, and light oxide layers — aggressive surface prep is not required for coated surfaces.*

Step 2 — Select the Correct Ni-Grip® Shim

Match shim geometry precisely to the mating interface. Select the appropriate CDC® roughness grade (CDC®-8 through CDC®-80) based on contact pressure, surface finish, operating conditions, and required friction coefficient. Consult STI's technical team for grade selection support: **technicalservice@surfacetechnology.com** or **1 (609) 259-0099**.

Step 3 — Position Accurately

Use tabbed or clip variants to hold the shim in position during assembly — this prevents relative movement before bolt torque is applied. Maintain alignment throughout the assembly sequence. **Install one shim per interface only. Never layer or stack shims.**

Step 4 — Torque to Specification

Apply bolt loading to achieve ≥50 MPa contact pressure uniformly across the shim surface. Follow the applicable assembly standard for your industry:

- **Pressure equipment:** ASME PCC-1 cross-pattern torque sequence
- **Structural:** RCSC / Eurocode 3 tension control procedures
- **Wind energy:** IEC / DNV/GL turbine-specific bolt tightening procedures
- **General:** Manufacturer torquing specification

Use a calibrated torque wrench or tensioning tool. For safety-critical and HPHT joints, ultrasonic bolt load measurement can be used to verify actual load achieved.

Step 5 — Re-use Protocol

Inspect shims visually upon disassembly. Shims may be reused if:

- The diamond particle layer is intact across the shim surface
- The substrate shows no signs of deformation, cracking, or permanent distortion
- No signs of substrate corrosion or chemical attack

Clean thoroughly before re-installation. Discard any shim that fails inspection criteria. Contact STI's technical team if re-use suitability is uncertain.

READ BEFORE INSTALLATION

Never stack Ni-Grip® Friction Shims or use them as spacers. Use one shim per bolted interface only. Stacking fundamentally alters joint mechanics and invalidates all performance data. Do not use shims to fill an unintended gap as they are friction enhancement components, not dimensional spacers. Always follow the applicable industry bolt assembly standard. Failure to observe this warning may result in joint failure, loss of load, and serious safety consequences.

Ni-Grip® Friction Shims for Better Joints and Smarter Engineering

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