SHURIKEN™
SIMPLE BOLTED SPLICES

Shuriken is the built-in wrench that lets you make field-bolted HSS column splices and other one-sided connections with standard A325 and A490 bolts. No need for field welds or complicated one-sided connectors — Shuriken mounts quickly in the shop and bolts go in quickly in the field, no special tools required.

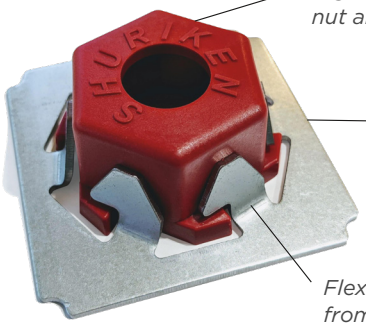
Shuriken Cuts Project Costs

Reduce tonnage by specifying HSS columns without worrying about field-welded splices. Design simple, compact, one-sided connections that don't rely on expensive proprietary fasteners.

Shuriken Expands Possibilities

Shuriken facilitates slip-critical bolted joints that were impossible until now, and it keeps nuts hidden so you can make beautiful bolted connections even when steel is exposed to view.

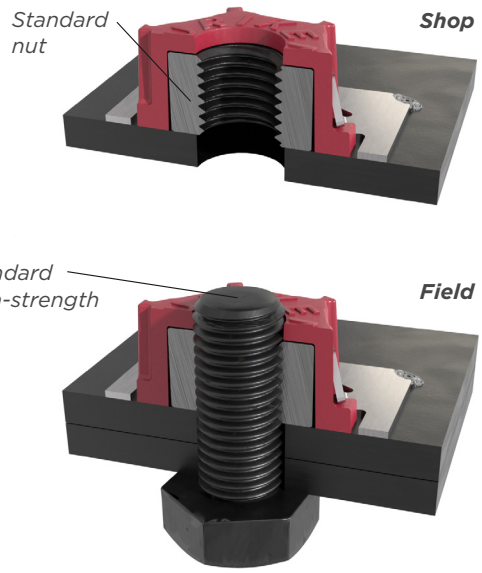
Field-bolted HSS splice



High-strength polymer cap holds nut and prevents it from rotating.

Steel ring transfers torque into substrate plate through tack welds.

Flexible tabs prevent cap from rotating while allowing lateral movement, preserving installation tolerances.

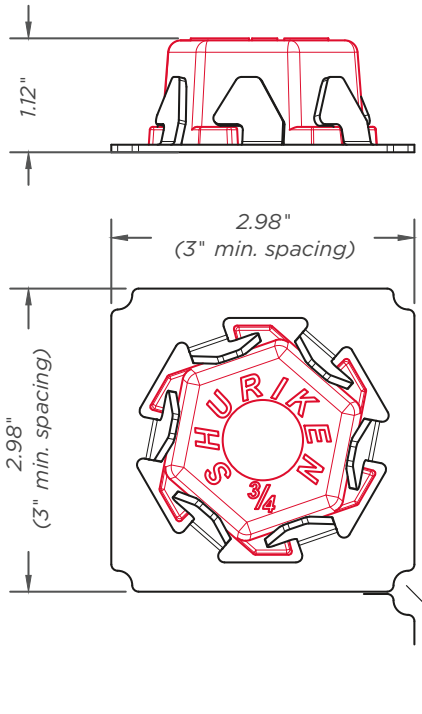


To learn more, go to
atlastube.com/shuriken

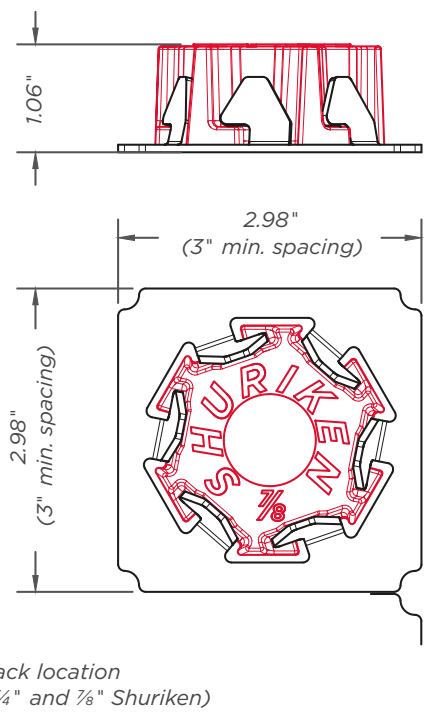
Shuriken™
BETTER BOLTED CONNECTIONS

DIMENSIONS AND SPACING

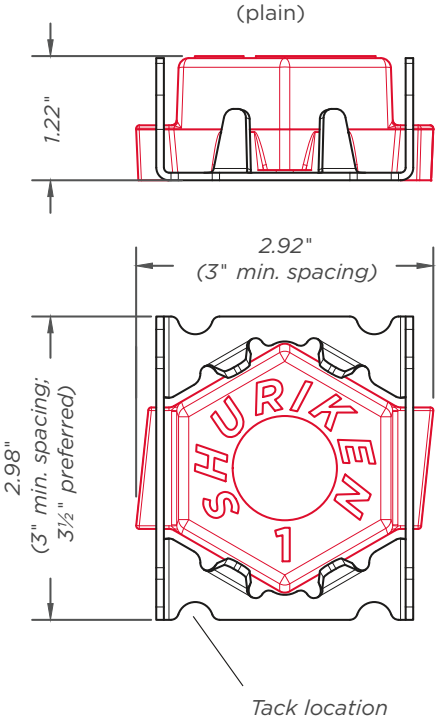
¾" SHURIKEN
(plain; zinc-plated)



⅞" SHURIKEN
(plain; zinc-plated)



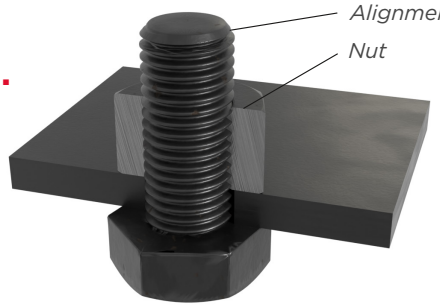
1" SHURIKEN
(plain)



INSTALLATION PROCEDURE

⅞" SIZE SHOWN

1.



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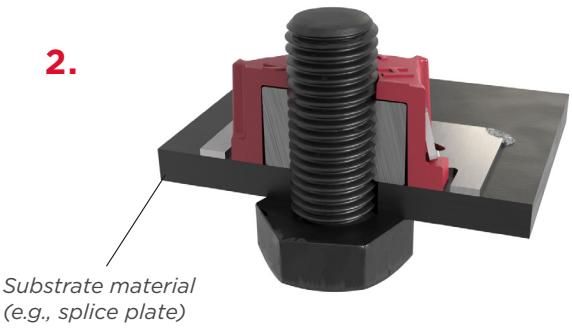

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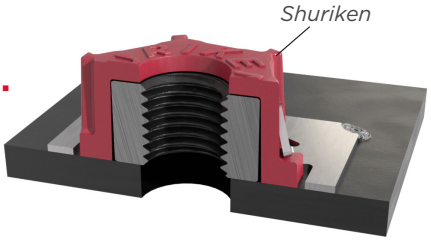

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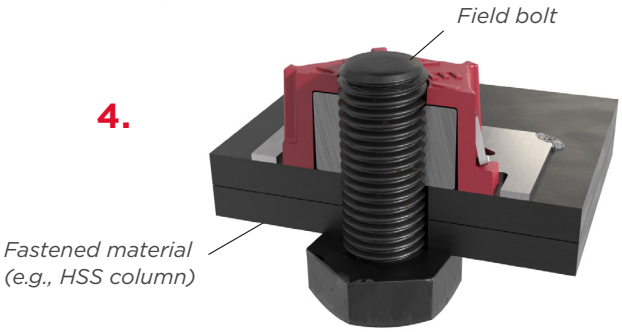
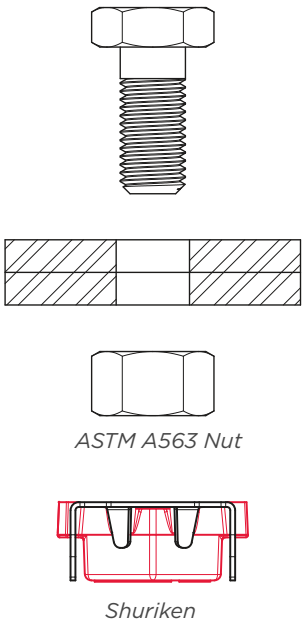
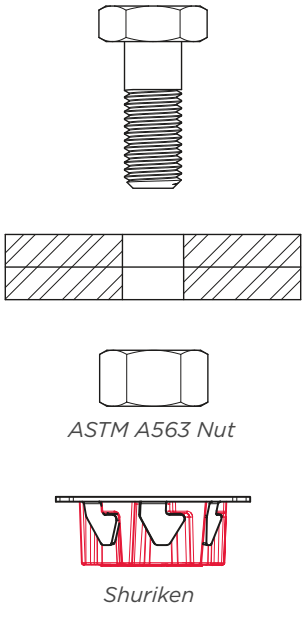
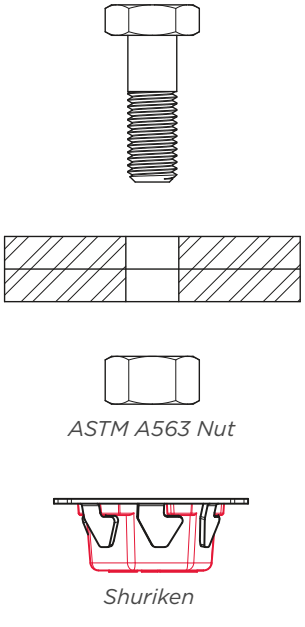


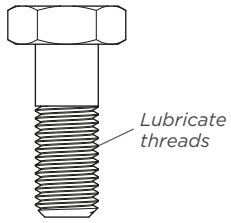
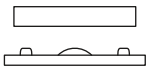
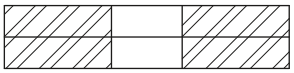
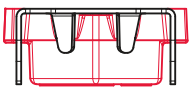
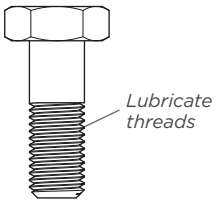
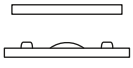
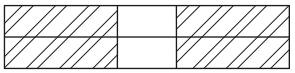
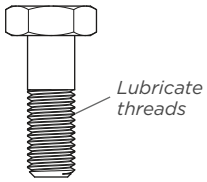
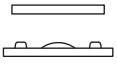
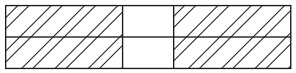
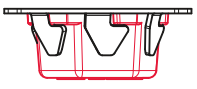
1. Insert an alignment bolt and hand tighten with a nut (washer optional for ¾" bolts).
2. Place Shuriken over the nut and tack weld the steel ring to the substrate plate at all four corners.
3. Remove the alignment bolt.
4. Erect the steel and install field bolts from the accessible side.

BOLTING CONFIGURATIONS

SNUG TIGHT

1"	7/8"	3/4"
ASTM A325 or A490 Bolt  ASTM A563 Nut Shuriken	ASTM A325 or A490 Bolt  ASTM A563 Nut Shuriken	ASTM A325 or A490 Bolt  ASTM A563 Nut Shuriken

PRETENSIONED

1"	7/8"	3/4"
ASTM A325 or A490 Bolt  Lubricate threads ASTM F436 ***Extra Thick Washer***  ASTM F959 DTI  ASTM A563 Nut  Shuriken	ASTM A325 or A490 Bolt  Lubricate threads ASTM F436 Washer  ASTM F959 DTI  ASTM A563 Nut  Shuriken	ASTM A325 or A490 Bolt  Lubricate threads ASTM F436 Washer  ASTM F959 DTI  Optional ASTM F436 Washer ASTM A563 Nut  Shuriken

See Technical Notes on page 4

TECHNICAL NOTES

Codes and Standards

Bolts installed with Shuriken are subject to the codes and standards that govern the project in which the bolts are installed. The instructions and information presented here shall not be deemed to waive or supersede any requirement of the governing codes and standards.

Shuriken Attachment

Tack welds attaching Shuriken to the substrate material must engage the full thickness of the steel ring for the full width of the reentrant corner at the weld location. Electrodes shall be 70 ksi, minimum. Shuriken does not participate in the structural load path, so the welds attaching Shuriken to the structure are generally not subject to special inspection. However, welds that are undersized, of low strength or of poor quality may prevent bolts from being pretensioned.

Bolt Lubrication

Apply stick wax or other lubrication to the threads of bolts to be pretensioned (not required for snug tight applications).

Lubrication and Corrosion Protection

To ensure bolt assemblies can be properly pretensioned, take care to ensure proper lubrication and prevent corrosion. When practical, pieces such as splice plates to which Shuriken is attached should be stored indoors in a sealed container until the time of erection. If piece size or other circumstances prevent such storage, non-water soluble, corrosion-inhibiting lubricant may be applied to the nut threads at the time of Shuriken installation. Nuts installed within Shuriken that are stored outdoors, in high humidity, or for long periods should be protected from water, dust and other particulates to the greatest extent practical. All fastener assemblies shall undergo preinstallation verification in accordance with the Specification for Structural Joints Using High-Strength Bolts, published by the Research Council on Structural Connections (RCSC).

Surface Preparation

Keep steel surfaces underlying Shuriken free of oil, grease or other materials.

HSS Seams

When Shuriken is attached to plates connected to the interior of an HSS member (e.g., HSS column splices), the seam on the interior of the HSS member shall be ground flat in locations where a plate will contact the seam.

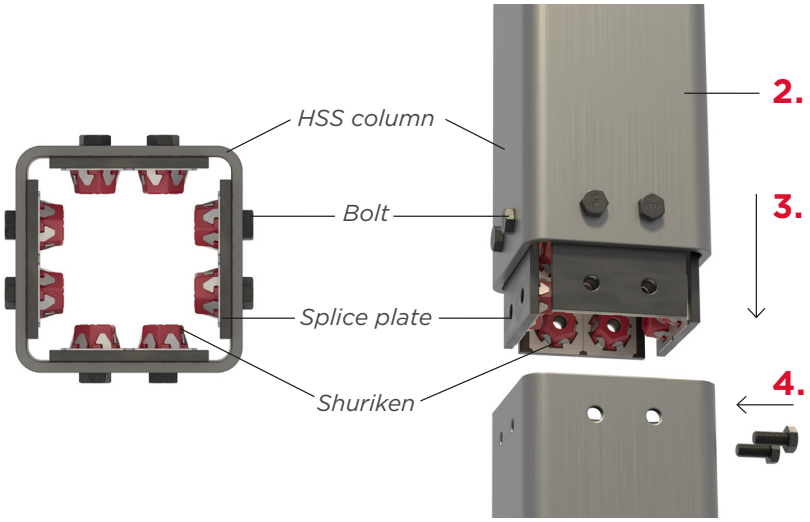
Misaligned Installation and Drifting

Shuriken is designed to accommodate misaligned bolts. In cases where misalignment makes it difficult to engage the threads of the nut and bolt, a spud wrench or other means may be used to manually shift the nut and enclosing plastic cap within the steel ring. When using Shuriken with large members, or in other cases where drifting forces are expected to be large, a dedicated hole for drifting in addition to the bolt holes is suggested to prevent Shuriken from being dislodged by drifting forces.

Cyclically Loaded Elements

When Shuriken is used with members designed for fatigue, within the protected zones of applicable seismic systems, or in any other case where tack welds may affect the performance of the underlying structures, Shuriken should be attached to a mounting plate independent of the underlying structural elements.

EXAMPLE CONNECTION — HSS COLUMN SPLICE



1. Install Shuriken on splice plates per procedure shown on page 2.
2. Insert splice plates into upper column shaft and install upper bolts snug tight.
3. Lower upper column shaft onto lower column shaft. Loosen upper bolts if required to fit splice plates within lower shaft.
4. Install lower bolts snug tight and fully pretension all bolts if required.

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