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- Can single-thread fastening joints support higher clamp loads?
- HYB vs. multi-thread
- Cross thread prevention
- Assembly speed
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# HYB-Fasteners

Single-threaded (Si) u-nuts are widely used with sheet-metal screw applications. A common installation issue in using Si fasteners is the inability to support increased clamp loads or higher torque. Production Spring has resolved this common issue. Our team has developed a new hybrid fastener, **HYB-Fastener**.

The **HYB-Fastener** combines multi-thread barrel technology with single-thread technology to make a faultless solution to support higher clamp loads and torque using single-threaded fasteners.

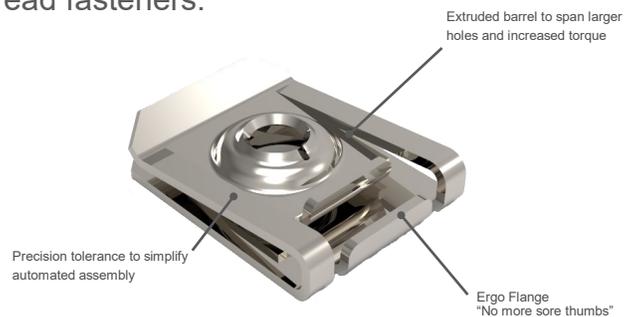
We recognize some applications produce softer fastener joints (plastics, fiberboard, thermal) that may require higher tightening clamp loads and torque to secure the application. In addition, in the manufacturing environment, standardizing automated assembly equipment to be used with machine or single threads is highly desirable in order to eliminate quality concerns in stripping threads and potential production disruptions.

Production Spring solves these issues. OEM feedback has been **HYB-Fastener** can support 57% increased torque and 40% higher proof load compared to traditional, single-thread fasteners.

- *Embossment design helps support & span over larger panel holes*
- *Automation friendly*
- *Supports higher installation torque requirements*
- *Supports greater clamp load*
- *Equal in strength of M4.2 multi-threaded fasteners*



*Traditional Single-Threaded Fastener*



*New ergo friendly HYB-Fastener with high clamp and torque capabilities*

## HYB-Fasteners

### Q: How are HYB-Fasteners able to support higher torque and clamp loads?

A: The bubble draw profile provides mechanical bridging over application panel holes. This increase bridging structure prevents the threads from collapsing or inverting within the panel holes. Hence, offering greater strength.

### Q: Are HYB-Fasteners difficult to install?

A: No, HYB-Fasteners have been designed with ergo friendly features. Our designs include a large flange surface area on the back fold section of the units. This is not common on commodity units in the industry. In addition, our support legs allow for greater cantilever advantages to help reduce installation efforts.

### Q: Can HYB-Fastener be used in automation?

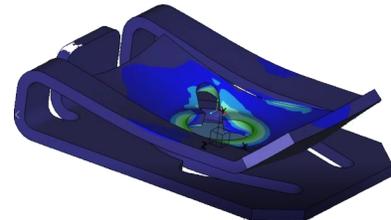
A: Yes, PS manufacturing maintain tight tolerances to ensure no downtime occurs in using these in automation.

### Q: Are HYB-Fasteners as strong as multi-thread fasteners?

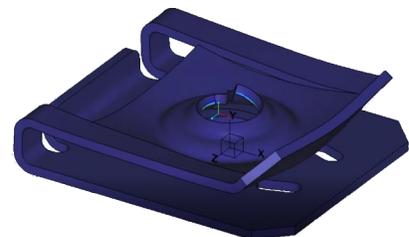
A: Test data shows HYB-Fasteners are comparable in strength to multi-thread systems. The common failure mode is generally with the application screws and not the units. However, in machine thread applications, multi-thread systems are stronger.

<b>Fastener Engineering Lab Report #19054</b>					
To: Stephen Davidson					
From: Fastener Engineer / Raghav Ramesh					
Model Year:	2019	Vehicle Line:	DS		
Joint Name (Test Title):	LT FRT LINER TO FLOOR	Date Submitted:	2/26/2019 4:28:44 PM		
Fastener Application Engineer:	Raghav Ramesh	Phone Number:			
Requesting Engineer:	Stephen Davidson	Phone Number:			
Driven Fastener Part No:	065 927AA	Driven Fastener Desc.:	TYP.B.PT.FLAT.WASH.HEX.DRIVE.PF-SAFETY		
Mating Fastener Part No:	NA	Mating Fastener Desc.:			
<b>Joint Component Information</b>					
<u>Objective</u>					
Test production spring production tooled u-nuts for DT TR					
<u>Job Description</u>					
Run test to failure to develop torque. current torque spec 2.2/2.5/3.3Nm					
<u>Tools Used In The Test</u>					
Atlas Copco 1 (Primary) S/N: AAA393820					
ATLAS COPCO PISTOL (2 - 12 Nm Capacity) S/N: ST32-10-10					
Torque transducer (200 in.lbs) S/N: 9451					
Failure Mode:	Strip out	Other:	Screw fastener strip		
Minimum Failure Torque (Nm):	5.01				
Minimum Yield Torque (Nm):	3.70				
Maximum Allowable Torque (Nm):	2.96				
Tightening Strategy: A:Standard Torque					
Torque Tolerance Class B: +/-10%					
Minimum Dynamic Torque	2.25	Dynamic Torque Target	2.50	Maximum Dynamic Torque	2.75
Minimum Residual	1.90	Residual Target	2.35	Maximum Residual	2.80
Minimum Audit (Nm)		Snug Torque (Nm)			
Minimum Angle		Target Angle		Maximum Angle	
Minimum Micron		Target Micron		Maximum Micron	

FEA Test Results show Production Spring **HYB-Fasteners** are far superior in performance compared to traditional single-thread systems



Traditional Single-Thread Fasteners collapse when needing higher torque efforts



New **HYB-Fastener** 57% Stronger than traditional single-thread systems