

# BosScrew™

The only screw specifically designed  
not to loosen in plastic applications.

See the Difference.  
Feel the Difference.  
Realize the Value.



**BOSSCREW**

Engineered to not loosen  
over time, with temperature  
changes, under vibration.

Another Fastening Breakthrough from

**TW Shakeproof**

# Benefits of BosScrew™



## Won't Loosen



Unlike standard screws, BosScrew turns plastic creep into an asset. The boss material cold flows into features on the BosScrew thread to produce an anti-loosening interlock.

## No Additional Hardware Required



BosScrew performance creates a mating of surfaces superior to metal-to-metal options. Avoid the expense of unnecessary inserts, washers and nuts. And avoid unnecessary assembly time.

## Removable and Reusable



The BosScrew advantage is repeatable and serviceable. Use, remove, and reuse again with the same superior performance.

## Higher Assembly Strip Torques



BosScrew is installer friendly. Assembly is made more tolerant by a greater "Drive-to-Strip" window and a unique torque robbing effect after clamp load is reached.

## No Complicated Calculations



Refer to our simple chart for your selected BosScrew size and factor in the BosScrew length to determine the proper boss dimensions.

# BosScrew™

Save Time, Save Components,  
Save Money

## Interlocking in Plastic

Once clamp load is applied to the joint, the BOSSCREW™ creates an interlocking relation between the screw and the plastic. As shown in the illustration, after the BOSSCREW™ is tightened, the plastic has a natural tendency to flow into the BOSSCREW™ pressure flank. Time, temperature and vibration only strengthen the interlock without sacrificing serviceability.



Cold flow of plastic creates a unique interlock with the BOSSCREW™ pressure flank.

## Realize the Value - BOSSCREW™ Engineered Advantages:

- Eliminates the need for metal sleeves
- No need to add a spring component to the joint
- No flat washer required
- Utilizes standard clearance hole diameters
- Permits design of shorter bosses
- Stronger cross-sectional area than any other screw developed for use in plastics
- Allows for increased clamp load at assembly
- No need to increase stiffness of plastic by adding a filler
- Utilizes standard fastener head diameters
- Enables part consolidation
- No counterbore required

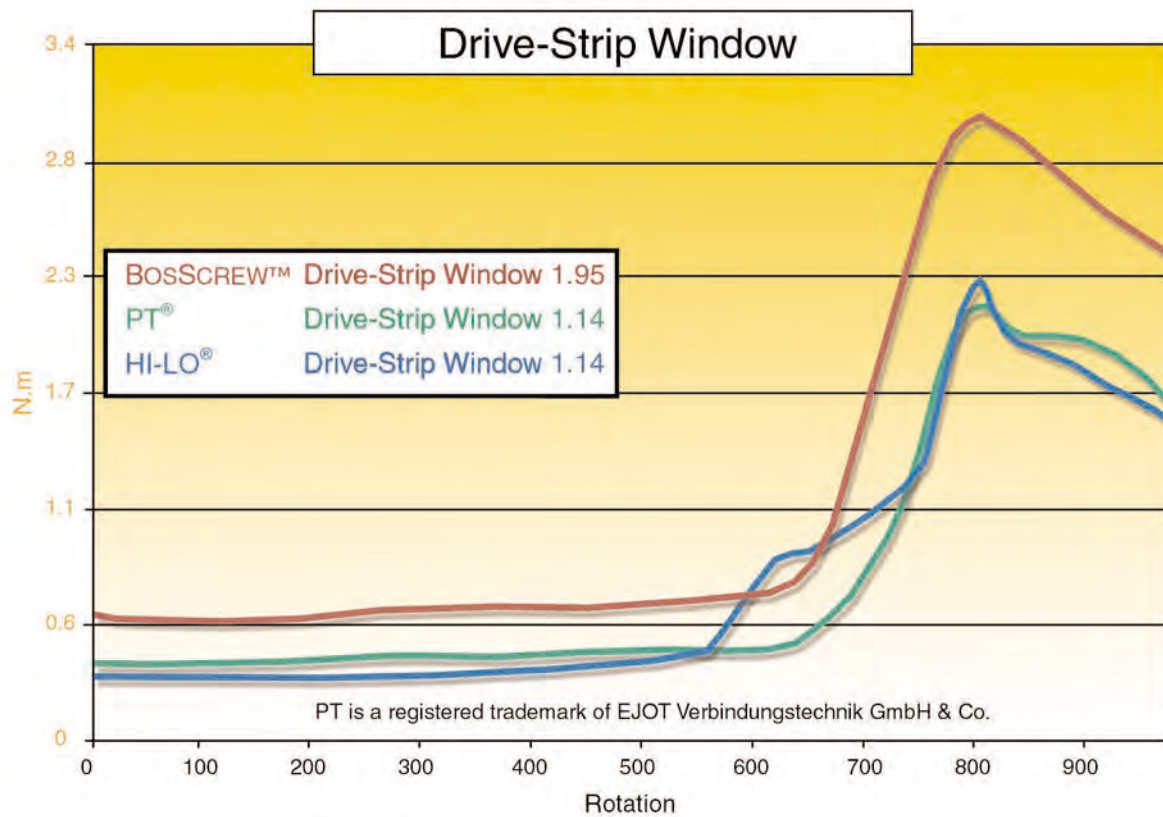
## Performance Improvements with BOSSCREW™ % Improvement using the M4 ITW BosScrew™ against M4 HI-LO® and PT® screws

	Material			
	ABS Unfilled	Polypropylene unfilled	Acetal unfilled	30% Glass Filled PBT
Drive Strip Window	<b>+66%</b>	<b>+48%</b>	<b>+35%</b>	<b>+59%</b>
Ambient Backout (Torque to Loosen)	<b>+86%</b>	<b>+134%</b>	<b>+139%</b>	<b>+36%</b>
Heat Cycled Backout (Torque to Loosen)	<b>+447%</b>	<b>+331%</b>	<b>+247%</b>	<b>+73%</b>

# Drive-Strip Performance

## Improved Drive-Strip Performance

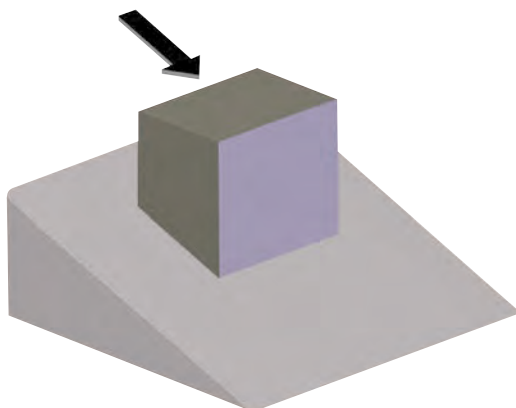
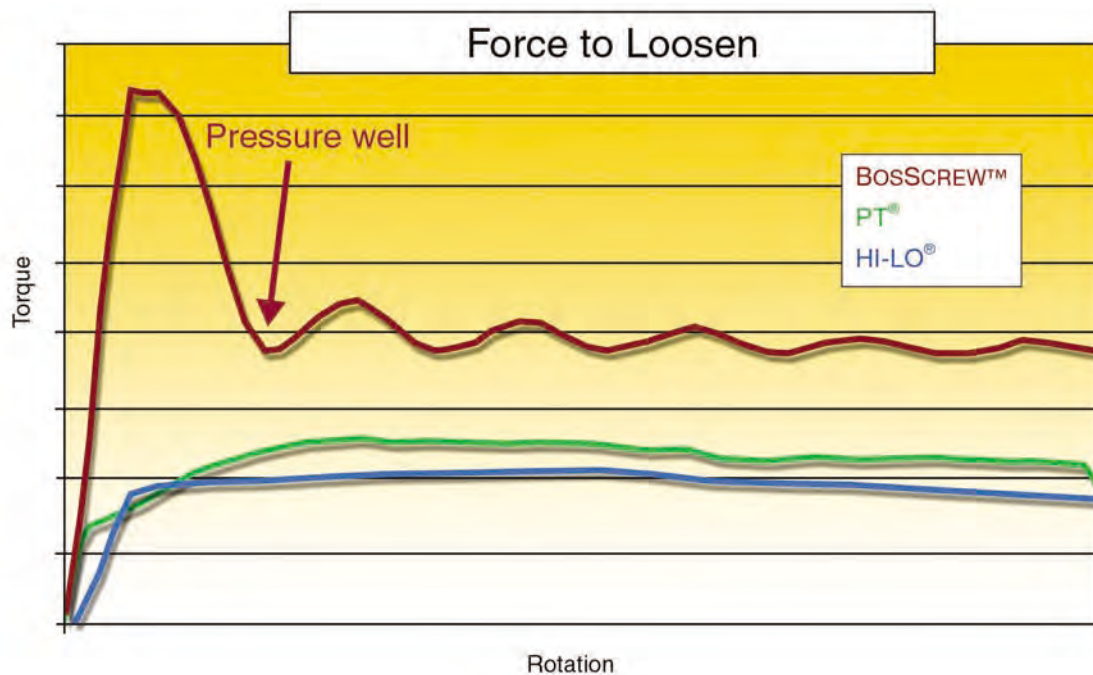
The BOSCREW™ provides the highest Drive-Strip window in the industry. The pressure flank feature absorbs torque while the screw is seating in the joint.



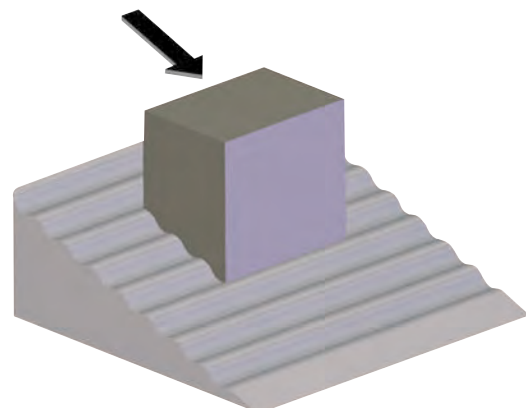
M4 screws tested into an ABS boss having a 3.5mm pilot hole with 2 dia. engagement length.

# Prevents Loosening of Screws

The pressure flank features of the BOSSCREW™ interlock with the plastic. The natural creep characteristic of plastics cold flows and forms many pressure wells after seating. These pressure wells create uphill battles that effectively require torque to be imparted on the screw before it can loosen. Vibration and force have met a new and formidable challenge: BOSSCREW™



Standard Screw Technology (Incline Plane)

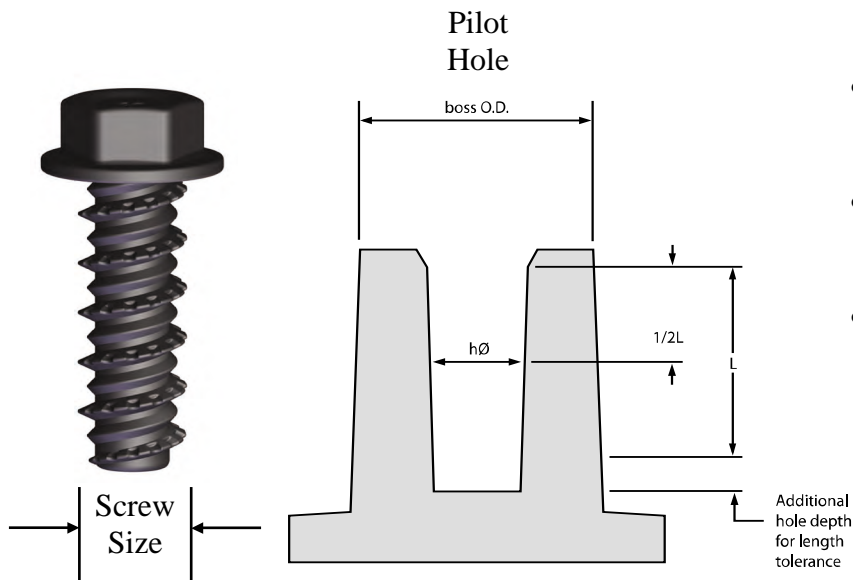


The BOSSCREW™ Advantage (Interlock)

The screw and plastic form an interlock to eliminate loosening.

# Boss

## Design Guidelines



- ID of hole should be chamfered to assist screw lead-in
- Hole ID to be measured at  $1/2$  length of fastener
- Draft of plastic boss should be  $1/2^\circ$  per side

**No complicated calculations. One formula for all plastics.**

Acetyl, Nylon, ABS, PBT, etc...		
Screw Size	Mean Pilot Hole Diameter	Recommended Boss Outside Diameter
<b>M3</b>	<b>2.4mm</b>	<b>5.4mm</b>
<b>M3.5</b>	<b>3.1mm</b>	<b>7.0mm</b>
<b>M4</b>	<b>3.5mm</b>	<b>7.9mm</b>
<b>M5</b>	<b>3.9mm</b>	<b>8.8mm</b>
<b>M6</b>	<b>4.8mm</b>	<b>10.8mm</b>

Specifications may vary by application

- BosScrew should be driven 1 to 2 times its OD into a plastic boss.  
(Traditional screws require  $2\frac{1}{2}$  to 3 times it's OD.)

