

Set Screw Installation Guide

Tip: Set your PDF viewer to "Actual size" before printing to maintain scale.

Step-by-Step Installation Procedure

1. Clean All Surfaces

- Remove oil, grease, dirt from shaft surface
- Clean threads in tapped hole with brush or compressed air
- Wipe set screw threads clean
- Ensure no debris that could cause false torque reading

2. Inspect Components

- Check tapped hole threads for damage or cross-threading
- Verify set screw threads are not damaged
- Ensure hex socket is not rounded or damaged
- Confirm collar/hub bore is perpendicular to set screw axis
- Check shaft for proper preparation (dimple/hole if needed)

3. Select Correct Hex Key

- Choose proper size hex key (Allen wrench) for socket
- Key must fit snugly with no play
- Replace worn hex keys - they round out sockets
- Use quality hardened steel hex keys
- Ball-end hex keys useful for angled access

4. Position Component on Shaft

- Slide collar/hub to desired position
- Align set screw with shaft feature (dimple/hole) if applicable
- Ensure proper clearance for rotation if applicable
- Mark position if multiple assemblies required

5. Start Set Screw by Hand

- Thread set screw into tapped hole by hand first
- This prevents cross-threading
- Should turn smoothly with minimal resistance
- If binding occurs, back out and restart

6. Apply Threadlocker (If Needed)

- For vibration-prone applications, apply medium-strength threadlocker
- Loctite 243 (blue) recommended for most applications
- Apply small drop to threads before installation
- Not needed for static, non-vibration applications
- Allow cure time per manufacturer specifications

7. Tighten to Specification

- Use hex key to tighten to recommended torque
- For critical applications, use torque wrench with hex socket adapter
- Stop at specified torque - do not over-tighten
- Tighten gradually, not in one forceful turn

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8. Multiple Set Screw Pattern

- If using 2 set screws: tighten opposite screws alternately
- If using 3+ screws: use star/cross pattern
- First pass: snug all screws
- Second pass: torque to specification in pattern
- This distributes clamping force evenly

9. Verify Position and Security

- Check component position after tightening
- May shift slightly under clamping force
- Attempt to rotate component by hand (if applicable)
- For critical assemblies, mark position for inspection

10. Post-Installation Check

- After initial operation period (100-1000 cycles), re-check torque
- Set screws may seat and require slight retightening
- Inspect for any loosening or component movement
- Establish regular inspection schedule for critical applications

Common Installation Errors to Avoid

Error	Consequence	Prevention
Using worn hex key	Rounds out socket, impossible removal	Replace worn keys, use quality tools
Over-tightening	Stripped threads, sheared point	Use torque specifications, not "feel"
Wrong point for application	Poor grip or excessive shaft damage	Match point to material and use case
No threadlocker on vibration	Set screw loosens, component failure	Always use threadlocker for rotating parts
Dirty threads	False torque reading, poor engagement	Clean thoroughly before installation
Cross-threading	Damaged threads, weak hold	Start by hand, ensure smooth threading
Insufficient thread depth	Reduced holding power, pullout risk	Verify minimum 1× diameter engagement
Misaligned dimple/hole	Point misses feature, reduced grip	Align carefully before tightening

Shaft Preparation for Cone and Dog Points

Cone Point Dimple Preparation:

- Use 118° center drill or 90° twist drill
- Dimple depth: 0.5 to 1 times set screw diameter
- Center dimple precisely where set screw will contact
- Deburr edges after drilling
- Multiple set screws: space dimples evenly around shaft

Dog Point Hole Preparation:

- Drill hole matching dog point diameter (typically +0.001" tolerance)
- Hole depth: dog point length + 1/16" minimum clearance
- Must be precisely perpendicular to shaft axis
- Drill press recommended for accuracy
- Deburr hole entrance carefully

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General Shaft Surface:

- Remove rust, scale, or heavy oxidation from contact area
- Smooth out rough spots that could prevent proper seating
- Clean surface with solvent before assembly
- For soft shafts, consider harder point styles to prevent embedding

Required Tools and Materials

Tool/Material	Purpose	Notes
Hex key set (SAE/Metric)	Drive set screws	Quality hardened steel keys
Torque wrench + hex adapter	Verify torque on critical apps	Optional but recommended
Threadlocker (Loctite 243)	Prevent vibration loosening	Medium strength, blue
Cleaning solvent	Clean threads and surfaces	Brake cleaner or degreaser
Wire brush or compressed air	Clean tapped holes	Remove debris from threads
Center drill (118°)	Create cone point dimples	For cone point installations
Drill press	Accurate dog point holes	For dog point installations
Deburring tool	Remove sharp edges	After drilling dimples/holes

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