

STANDARD OPERATING PROCEDURE INSERT SCREW CLAMPING & DECLAMPING

A. PREPARATION

Step	Activity	Operating Procedure	Key Precaution
1	Select Correct Torx Key / Driver 	- Identify insert screw size: T8 / T10 / T15 / T20 (common). - Use correct flag-type or L-type Torx key.	 Wrong Torx size can damage the screw head.
2	Ensure Machine Safety 	- Stop spindle completely. - Move tool away from job. - Switch machine to Manual/Setup Mode.	 Never change an insert while the spindle is running.
3	Inspect Components 	- Check insert pocket for chips, dust and coolant residue. - Inspect screw head for damage or rounding. - Verify insert is clean, dry and undamaged.	 Do not install damaged components.

C. CLAMPING PROCEDURE (MOUNTING INSERT)

Step	Operation	Procedure	Acceptance / Precaution
1	Position Insert 	- Place insert in the correct orientation. - Turning: cutting edge toward job - Milling: insert seated on land - U-drill: inner/outer inserts in correct pockets	 Insert must sit flat without rocking.
2	Insert Screw 	- Align screw with insert hole. - Start threading by hand where possible. - Screw should rotate freely for 1-2 turns.	 Prevent cross-threading.
3	Tighten Screw 	- Keep Torx key perpendicular to screw head. - Rotate clockwise gradually.	Insert firmly seated No movement Screw head flush Do not overtighten.
4	Final Seating Check 	- Optionally tap insert lightly with wooden handle/plastic tool. - Re-check screw tightness.	 Confirm insert is flat with no visible gap.

E. COMMON MISTAKES TO AVOID

No.	Common Mistake	Possible Result
01	 Using wrong size Torx	Destroys screw head
02	 Overtightening screw	Breaks screw or insert
03	 Dirty pocket	Poor insert seating → breakage
04	 Tightening at an angle	Strips screw head
05	 Reusing worn screws	Failure during machining

B. DECLAMPING PROCEDURE (REMOVING INSERT)

Step	Operation	Procedure	Key Check / Precaution
1	Clean Screw Head 	- Gently blow air to clean the Torx recess. - Remove packed chips.	 Torx recess must be clean before inserting the key.
2	Fully Engage Torx Key 	Insert Torx key straight and ensure complete seating in the recess.	 No angled entry. This helps prevent stripping.
3	Loosen Screw 	- Apply steady counter-clockwise rotational force. - Use the long arm of the Torx key if required.	 Avoid sudden jerking.
4	Remove Insert 	Carefully lift the insert using fingers or plastic tweezers.	 Avoid sharp cutting edges and do not drop the insert.
5	Clean Insert Pocket 	- Remove chips and contamination. - Inspect the seat and support pad, if fitted.	 Check for cracks, wear or pocket damage.

D. RECOMMENDED TORQUE – GENERAL VALUES

Torx Size	Recommended Torque (Nm)
 T6 / T7	1 – 2 Nm
 T8	2 – 3 Nm
 T10	4 – 6 Nm
 T15	8 – 10 Nm
 T20	10 – 15 Nm



Important:

These are general values. For production use, follow the tool/insert manufacturer's specified screw torque.

F. WHEN TO REPLACE SCREWS

Condition	Action
 Torx recess is rounded	 Replace screw
 Screw threads feel rough	 Replace screw
 Screw shows burn marks	 Replace screw
 Insert does not clamp properly	 Inspect and replace screw if required

RECOMMENDED SOP SEQUENCE



SAFETY FIRST

Follow correct procedure for safe operation and long tool life.