



**Insert Molding:** Molding a threaded insert into a plastic assembly increases the total molding time because extra time is needed to load the insert. Molded-in inserts may also cause sink marks. They are widely used with thermoset (non-meltable) plastics.

**Post-molded:** Post-molded inserts eliminate the downtime associated with molding a thread or an insert into a plastic part, such as die damage caused by improper placement. Advantages include faster assembly, reduced open press time and no sink marks.

**Ultrasonic:** The most common method for installing threaded inserts into thermoplastic materials, ultrasonic installation provides fast, positive anchoring. An insert is placed in a molded or drilled hole which guides it and provides resistance. An ultrasonic horn contacts the insert and delivers ultrasonic vibrations which travel through the insert during the “weld cycle.” Frictional heat is immediately developed which melts the plastic as the horn drives the insert into position. After the vibrations cease, the equipment applies clamp pressure until the plastic cools, preventing back-out.

**Thermal:** During thermal/heat insertion, the threaded insert is placed into a molded or drilled hole. Pressure is applied with a heated probe that contacts the top surface and minor thread diameter of the insert. Localized melting takes place, and plastic flows in and around the knurls and serrations. When the proper depth is reached, the probe is removed and the plastic re-solidifies, locking the insert in place. Upon removal of the probe, a minimal amount of withdrawal (back-out) of the insert may occur. Thermal/heat insertion provides a good alternative to the ultrasonic method, but it is a slower process. Some benefits include:

- Multiple inserts can be installed simultaneously, even on different levels
- Quiet when compared to ultrasonic
- Thermal equipment is less expensive than ultrasonic equipment
- Excellent for larger inserts

**Cold Insertion:** Some inserts can simply be pressed in after molding. However, pressing inserts into cold plastic may create unwanted stress. A larger boss (or wall thickness) is required to prevent stress fracture. Pull, torque and jack-out strengths are significantly lower compared to thermal or ultrasonic installation.








## VARIABLES TO CONSIDER





**Lubricants, Fillers or Glass in the Plastic:** If the plastic’s filler or glass content exceeds 40%, assembly or performance problems may result.

**Molded Versus Drilled Holes:** Molded holes provide better performance than drilled holes because a strong skin of denser material is formed around them during molding. This is particularly true with structural foam plastics which are porous under the skin.

**Plating and Color-coding:** We offer a full range of plating and/or color-coding services. The most common metal finishes include nickel, tin and zinc. Inserts of similar size and configuration are often color-coded to prevent inadvertent mixing (inch threads vs. metric threads).

# Installation Quick Reference Selection Chart

Insert Series	Photo	Installation Method			
		Ultrasonic	Thermal/ Heat	Mold-In	Press-In
H-SERIES		Primary	Primary	Can also be used	Not recommended
C-SERIES		Primary	Primary	Can also be used	Not recommended
HC-SERIES		Primary	Primary	Can also be used	Not recommended
S-SERIES		Can be used with caution	Primary	Primary	Not recommended
P & HP SERIES		Can be used with caution	Can also be used	Can also be used	Primary
E & HE SERIES		Not recommended	Not recommended	Not recommended	Primary
MB SERIES		Not recommended	Not recommended	Primary	Not recommended

	Primary installation method.
	This method can also be used.
	Can be used but caution should be taken not to over weld.
	This method is not recommended.



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