

derail!

Market Known Concepts

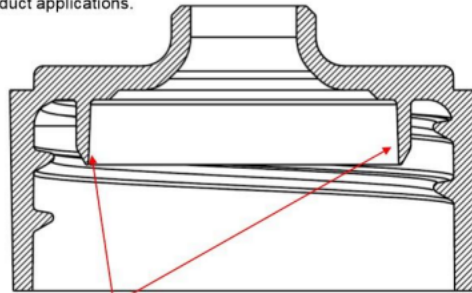


Plug seal

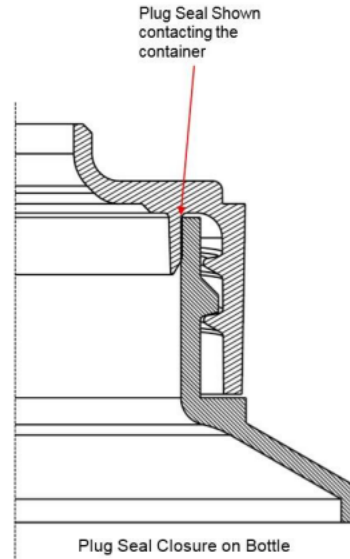
The Plug Seal (Also known as a "valve seal") fits into the bottle neck. The seal is achieved by the contact / interference of the outside surface of the plug seal and the inside surface of the bottle neck.

The plug seal requires that the bottle neck inside diameter be controlled within a specified tolerance and that the surface be free of scratches, gouges, ripples, or other defects.

Plug seals can be used on threaded closures, but must be used on snap-on closures. A plug seal is highly recommended for stripped thread closures. Plug seals are preferred for low viscosity (thin, easy flow) product applications.

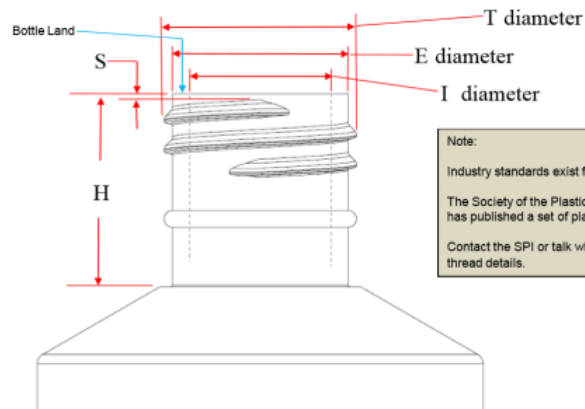


Plug Seal



11

Critical dimensions for thread bottles



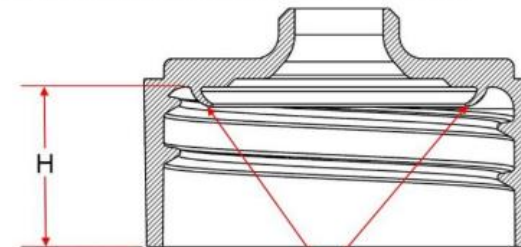
Note:
Industry standards exist for bottle threads.
The Society of the Plastics Industry (SPI) - Plastic Bottle Institute has published a set of plastic bottle thread standards.
Contact the SPI or talk with the experts at Aptar for more bottle thread details.

- E = The diameter of the thread wall at the base of the thread profile
- T = The diameter of the tip of the thread
- H = The distance from the top edge/land of the bottle to the start of the shoulder
- I = The inside diameter of the bottle neck
- S = The distance from the land of the bottle to the top of the thread profile at the first full thread.

Bottle and closure details thread version

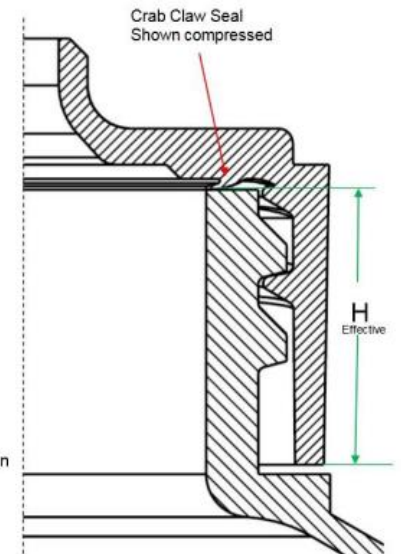
Crab claw seal

Named for its shape, the crab claw seal is a thin flexible seal which compresses against the top land of the bottle during normal capping of threaded closures. This feature prevents leakage and seal on a wide variety of bottles. It does require a bottle land which is flat and free of scratches, gouges and pitting. Crab Claw is the most common seal used by Seaquist. Because compression force is needed to make the Crab Claw seal function properly, threaded neck finishes are required.



Crab Claw Seal shown before compression

The "Effective H" dimension of a closure using a crab claw seal is estimated by subtracting .028" [0.71mm] from the H. This calculation takes into account the effect of the compression of the crab claw seal at nominal torque. The "Effective H" is used to make sure the closure always fits on its specified bottle.



Crab Claw Seal Closure on Bottle

Bottle and closure details snap on version

Critical dimensions for snap on bottles

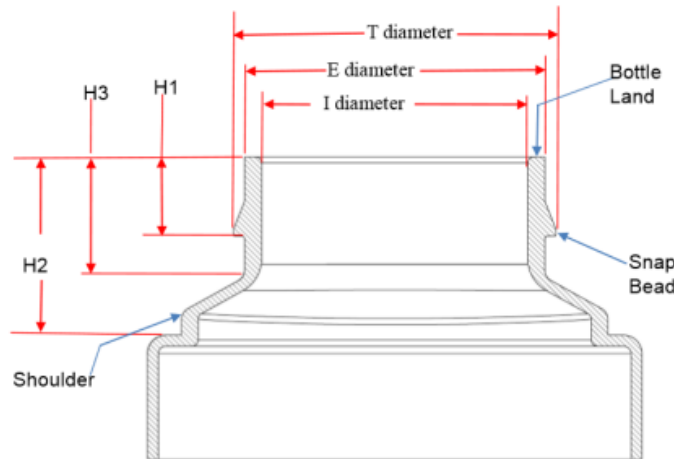
Dimensions critical to the fit and function of Snap-on bottles are shown below. These dimensions must be considered, along with their respective tolerance, in order to insure proper fit of the closure to the container.

Snap-on bottles typically require the use of closures employing plug seals to achieve a closure-to- bottle seal.

Therefore, the inside surface (I Diameter) of the bottle neck must be smooth and free of cuts, scratches, sink, undulations, and irregularities.

The critical dimensions of closures and bottles have production tolerances which results in a tolerance stack up in the fit analysis. To assure proper fit and function, closures and bottles must always be designed to have vertical overlap at the snap beads, even in the worst case scenarios.

There are no industry standards for snap-on finishes.



- I = The inside diameter of the bottle neck
- E = The diameter of the snap bead wall at the base of the snap bead profile
- T = The diameter of the tip of the snap bead
- H1 = The distance from the bottle land to the underside of the snap bead
- H2 = The distance from the bottle land to the flat on the outside of the shoulder
- H3 = The distance from the bottle land to the intersection of the bottle shoulder and E diameter

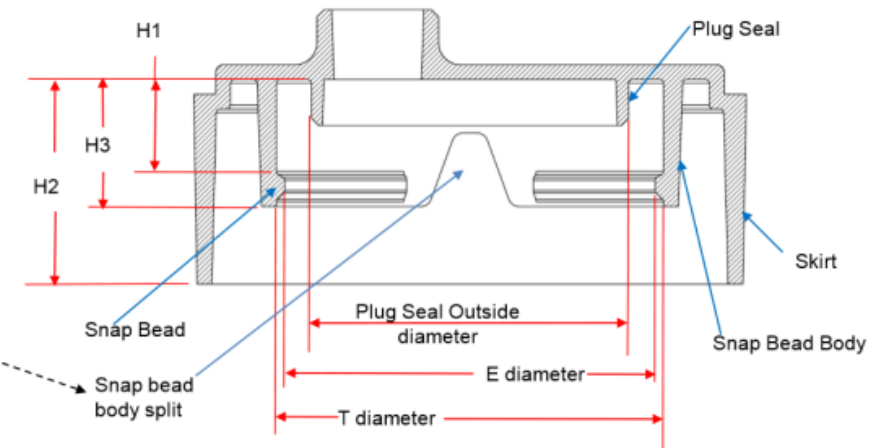
Critical dimensions for snap on closures

Dimensions critical to the fit and function of Snap-on closures are shown below. These dimensions must be considered, along with their respective tolerances, in order to insure proper fit of the closure to the container.

Snap-on bottles typically require the use of closures employing plug seals to achieve a closure-to- bottle seal.

The plug seal should have an adequate lead-in angle to ensure proper alignment of the plug seal into the inside diameter of the bottle neck during capping.

Also, snap bead bodies typically have two splits that provide relief for part removal from the mold and permit adjustment of the capping application and removal force of the closure.



- T = The diameter of the inside of the snap bead body at the base of the snap bead profile
- E = The diameter of the tip of the snap bead
- H1 = The distance from the underside of the deck to the top of the snap bead
- H2 = The distance from the underside of the deck to the bottom edge of the skirt
- H3 = The distance from the underside of the deck to the bottom of the snap bead body

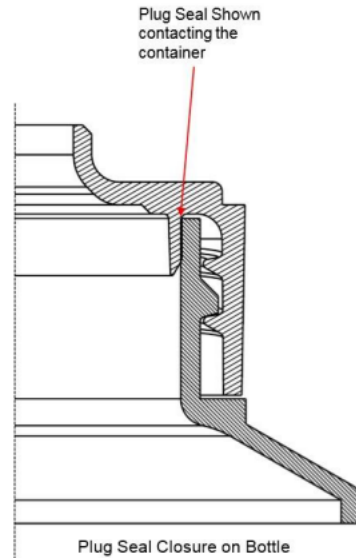
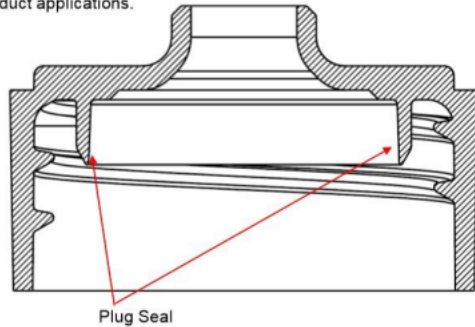
Sealing type

Plug seal

The Plug Seal (Also known as a "valve seal") fits into the bottle neck. The seal is achieved by the contact / interference of the outside surface of the plug seal and the inside surface of the bottle neck.

The plug seal requires that the bottle neck inside diameter be controlled within a specified tolerance and that the surface be free of scratches, gouges, ripples, or other defects.

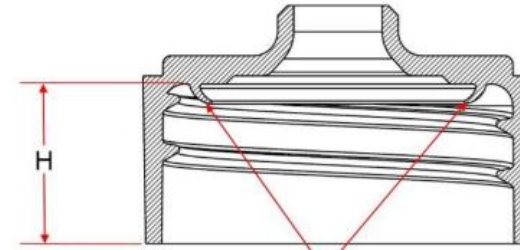
Plug seals can be used on threaded closures, but must be used on snap-on closures. A plug seal is highly recommended for stripped thread closures. Plug seals are preferred for low viscosity (thin, easy flow) product applications.



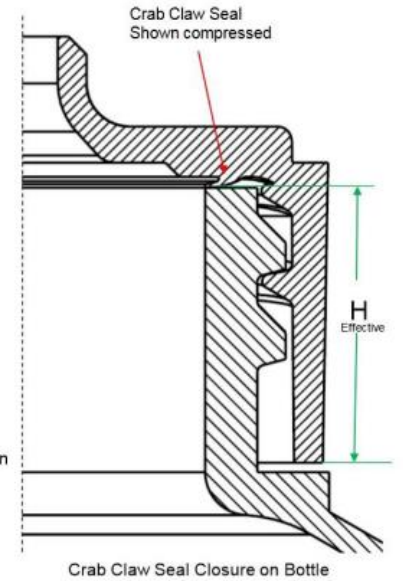
11

Crab claw seal

Named for its shape, the crab claw seal is a thin flexible seal which compresses against the top land of the bottle during normal capping of threaded closures. This feature prevents leakage and seal on a wide variety of bottles. It does require a bottle land which is flat and free of scratches, gouges and pitting. Crab Claw is the most common seal used by Seaquist. Because compression force is needed to make the Crab Claw seal function properly, threaded neck finishes are required.



The "Effective H" dimension of a closure using a crab claw seal is estimated by subtracting .028" [0.71mm] from the H. This calculation takes into account the effect of the compression of the crab claw seal at nominal torque. The "Effective H" is used to make sure the closure always fits on its specified bottle.



liner

