

# STEEL OPTIONS

Steel selection determines the tooling performance. Different steels have different properties with respect to strength, toughness, wear resistance and corrosion resistance. It becomes necessary to select steel properly due to different properties of formulation like Corrosive, Abrasive, High Pressure requirement, etc. Proper steel selection will ensure smooth production without breakdowns caused due to sticking, edge chipping, tip breakage...



• **O1 steel punches:**

- Most commonly used steel in India. Economical & suitable for most products.
- Prone to rusting & discoloration. HCP [Hard Chrome Plating] can help avoid this.

• **D3 steel punches:**

- Harder than O1, hence lesser wear & tear. Very useful for abrasive formulation.
- Lesser load taking capacity hence not suitable for DC products.

• **D2 steel punches:**

- Similar to D3 steel, but has higher load bearing capacity.

• **S7 steel punches:**

- Better load bearing capacity as compared to O1. Hence less chances of breaking under high pressure. Useful for Direct Compression products.
- No discoloration / rusting of punches. Less prone to corrosion.

• **SG-21 steel punches:**

- Similar to S7, with 20% more load bearing capacity. Useful for extra deep tablets.
- Less prone to rusting due to high chrome content.

• **SG-31 steel punches:**

- High anti-abrasive properties; better than D2 steel. However low on toughness

• **SG-41 steel punches:**

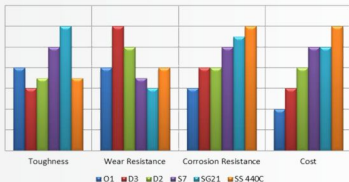
- Best steel for anti-abrasive properties. Also high on toughness.

• **S.S. 440C steel punches:**

- Lesser load bearing capacity & hence more chances of tip bending.
- Can be washed with water & soap without getting rusted.

• **TC lined dies:**

- Tungsten Carbide has the best anti-abrasive properties. Can be provided as a sleeve inside dies for products with ring formation problem.



# PLATING OPTIONS

Sticking, Picking and Corrosion are some of the most common problems faced in Tablet Production. These problems have increased due to Direct Compression and Complex Formulation. To reduce such tableting problems we offer tooling with special plating. Proper selection of plating not only increases the efficiency of tableting process but also increase tool life by reducing abrasion, corrosion...



• **Hard Chrome Plating [HCP]:**

Hard Chrome Plating is done only on punches. The main advantages of HCP are:

- It increases the wear resistance of tooling and thereby increases life
- Reduces sticking problem
- Prevents the tooling from rusting
- The addition cost of HCP is lesser as compared to other options

If plating process is controlled in close parameters, there would never be any peeling problem.

• **Chromium Nitride [CrN] Treatment:**

- The advantages of CrN Treatment are same as Hard Chrome Plating, but it is more effective for sticking problem. The cost of CrN is higher as compared to Hard Chrome Plating.

• **Multi Layer Chromium Nitride [M.CrN] Treatment:**

- This is an advanced version of CrN Treatment. It offers better results than CrN in case of Sticky products.

• **Titanium Nitride [TiN] Coating:**

- TiN coating is very good for abrasive products. It also has good anti-sticking properties.

• **Diamond-Like Carbon [DLC] Coating:**

- This is the best coating available for sticky products.

• **Teflon Coating:**

- It is very effective for sticking problem. But durability of Teflon Coating is questionable. It also gives a dull/matt finish on the cavity which results to poor finish on tablet.

