

# TABLET COMPRESSION TOOLING



# INNOVATIONS

Multi-Chamber Feeder



2011

Punch Sleeve



2015

R&D Head Punches



2016

Tool Doctor Mobile App



2022

SG21 Steel Punches



2009

ProtoTab



2003

Tool Doctor



2002

59 Station Double Rotary Press



1998

'A' Tooling



1997

Stress Relief Punch



1989

Die Shoulder



1994

Tablet Designing Software



1995

R&D Press with D and B tooling



1996

Higher Station Turret



1987

Storage Cabinet



1986

Polishing Kit



1986

Inspection Kit



1976

Alloy Steel & HCPL



1976

# PUNCHES & DIES



- Singhania Tableting has 50 years of experience in manufacturing Punches & Dies
- Only Indian Manufacturer to be mentioned as a contributor in TSM (Tableting Specification Manual)
- Adherence to IPT / Euro norms ensures that the tooling is precise and consistent
- Tooling supplied for any make of Tablet Press: Cadmach, Courtoy, Fette, Kilian, Korsch, Sejong...
- Tablets designed as per weight, shape, embossing and coating requirement
- Special care is taken during tablet designing to avoid Picking, Capping, Soft Zone, Twinning, Tip Breakage, and optimise tool life
- Various steel & coating options offered to suit different formulation properties

# PUNCHES & DIES

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Core Rod Tooling



Teflon Punch for Effervescent Tablet



EU 441 Tooling



Taper Die



FS 12 Tooling



Step Design



Lower Punch with Bakelite Relief

# STEEL OPTIONS

Steel selection plays a critical role in tooling performance. Different steels have different properties with respect to strength, toughness, wear resistance and corrosion resistance. Proper steel selection can ensure smooth production without breakdowns because of sticking, edge chipping, tip breakage & other issues caused due to formulation properties.

- **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 Direct Compression products

- **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-32 steel punches:**

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

- **SG-41 steel punches:**

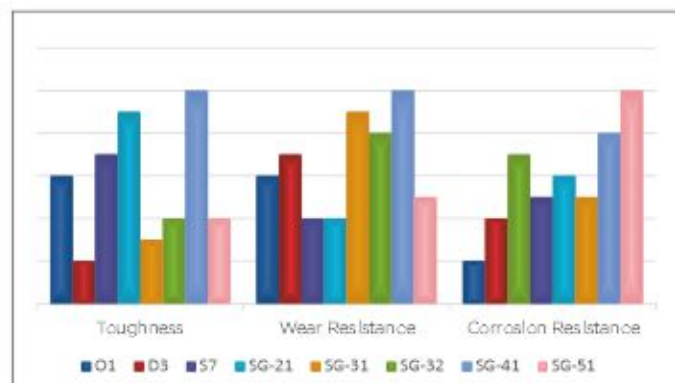
- Best steel for anti-abrasive properties. Also high on toughness.

- **SG-51 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



Carbide Dies

# COATING 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 issues we offer tooling with special plating. Proper selection of coating not only increases the efficiency of tableting process but also increases 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:

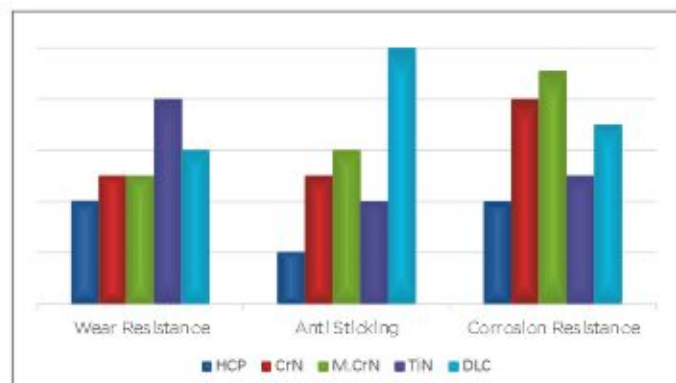
- TiN coating is very good for abrasive products. It also has good anti-sticking properties.

## • 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.



# PUNCH CAVITY POLISHING KIT



Nylon Brush - Wheel Type      Nylon Brush - Cup Type



Felt Bob - Conical Flat Type      Felt Bob - Dome Type

Each punch tip is manufactured to a very high degree of accuracy. Even a slight wear & tear can result in production of dull or collared tablet. This makes polishing the punch cavity at regular interval an important process to ensure consistent tooling performance.

The Punch Cavity Polishing Kit helps you maintain the original cavity finish. This kit contains different types of brushes for different cavities & different types of pastes for varied application.

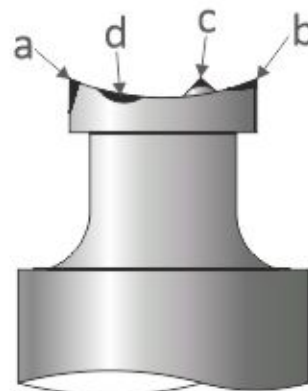
Polishing is done to revive the original cavity finish & not to remove material. Hence precaution needs to be taken to prevent excessive polishing.

The 4 most common errors in punch cavity polishing are:

- a. Rounding of the outside diameter of the tip
- b. Rounding of the edges of the tip face
- c. Distortion of embossed details
- d. Distortion of the tip face

## KIT CONTENTS

- SS Cabinet : 1 no.
- Polishing Motor with 1/4" Chuck : 1 no.
- Felt Bob - Dome Type : 50 nos.
- Felt Bob - Conical Flat Type : 50 nos.
- Nylon Brush - Cup Type : 50 nos.
- Nylon Brush - Wheel Type : 50 nos.
- Cavity Shining Paste : 2 Packs of 250gms
- Diamond Paste : 2 Syringe of 5mg



# DIE-PUNCH INSPECTION KIT



After prolonged usage tooling are likely to give rise to problems like:

- Excessive weight variation
- Tablet thickness / hardness variation
- Excessive powder seepage collar formation
- Punch running tight in die.
- Bending of small punch tips

If care is not taken, these problems can cause costly breakdowns. To co-relate these problems with tooling we need to check the below mentioned parameters. This can be done with the help of this Die-Punch Inspection Kit.

- Working height uniformity of all punches
- Punch tip to die bore clearance
- Punch tip to body concentricity
- Cup Depth & other parameters like Punch Diameters, Die O. D., Die Height etc.



## KIT CONTENTS

- |   |              |
|---|--------------|
| • SS Cabinet  | : 1 no.      |
| • Dial Gauge Comparator Stand                       | : 1 no.      |
| • 'V' Block   | : 1 no.      |
| • Punch Holding Bush - Suitable for 'D' & 'B' Punch | : 1 no. each |
| • Digital Dial Gauge - 0.01mm least count           | : 1 no.      |
| • Digital Micrometer - 0-25mm, 25-50mm range        | : 1 no. each |
| • Magnifying Glass - 4x                             | : 1 no.      |
| • Punch Height Gauge & Die O.D. Gauge               | : 1 no. each |
| • Die Bore Go-NoGo Gauges                           | : 6 sizes    |
| • Radius Gauge (0-7mm, 7.5-15mm & 15.5-25mm)        | : 1 set      |

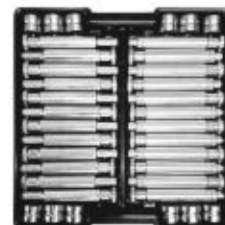




# HORIZONTAL STORAGE SYSTEM



Fette Segment Tray



'B' Tooling Tray



R&D Tray



'D' Tooling Tray

Space is a big constraint in pharmaceutical industry. This makes the Horizontal Die Punch Storage System a necessity. Some of its key advantages are:

- Compact design, thereby freeing floor space
- Systematic & indexed storing of tools
- Protection from dust, dirt, moisture and mishandling
- Reduces handling of individual punches & dies. Plastic trays can be used for carrying the tooling to tablet press

Special trays/partitions can be supplied to suit R&D requirements



Punch & Die Trolley

## TECHNICAL SPECIFICATIONS

PARTICULAR	HSS 18-50/60		HSS 12-75
Number of Metal Drawers	18		12
Height of Drawer (mm)	MS - 50 / SS - 60		75
Usable Height of Drawer	35		60
Plastic Tray per Drawer	4		4
<b>TOOLING TYPE</b>	<b>D</b>	<b>B</b>	<b>EU441</b>
Sets per Tray	8	12	7
Sets per Drawer	32	48	28
Total Capacity	576	864	336
<b>MOC: Cabinet &amp; Drawer</b>	Mild Steel with Oven Baked Paint <b>OR</b> SS304		
Tray	ABS Plastic, Black Colour		
Dimensions - MS (WxDxH)	720mm x 720mm x 1100mm		
Dimensions - SS (WxDxH)	720mm x 720mm x 1300mm		

# TOOL STORAGE BOX

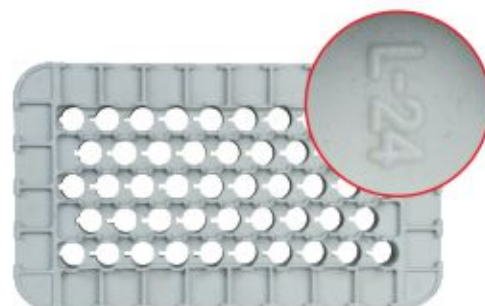


Special Tray for Transportation  
(Optional)

The 'Tool Storage Box' is a safe and simple storing system for Punch & Dies. These are made of polypropylene to prevent damage during storage. The boxes can be stacked for optimised floor space utilisation. The 'Tool Storage Box' is available for 'D', 'B' and 'BB' tooling.

## KEY ADVANTAGES

- Safe and easy handling due to inbuilt recessed handles
- The box along with tooling can be taken to tablet press
- Prevents damage while storage and transportation
- Punches do not collide amongst themselves
- Special head support to ease punch removal
- Serial number on each pocket for easy identification
- Space to write product details
- Minimum floor space required due to stackable design
- Nesting design for storing empty boxes
- Easy to clean



## TECHNICAL SPECIFICATIONS

### Capacity

- D Tooling : 24 Sets (48 Punches + 24 Dies)  
B/BB Tooling : 36 Sets (72 Punches + 36 Dies)

**Dimension** : 47 x 28 x 19 cm (L x B x H)

**Net Weight** : 3.25 kg



# ULTRASONIC TOOL CLEANER



The Ultrasonic Tool Cleaner provides an effective and efficient method for cleaning Punches & Dies and tablet press parts. Improper cleaning of Punches and Dies leads to product contamination and adversely affects tablet quality and tools life.

The Ultrasonic cleaning process ensures consistent cleaning of tools without manual intervention and any deterioration.

## TECHNICAL SPECIFICATIONS

PARTICULAR	UTC1	UTC2
Capacity: D / B Tooling (SETS)	28 / 45	56 / 90
Number of Baskets	2 Punch + 2 Die	4 Punch + 4 Die
Ultrasonic Power (Watt)	750	1250
Frequency	28kHz	28kHz
Digital Timer for Ultrasonic	Yes	Yes
Heater (Watt)	1500 x 2nos	3500 x 2nos
Digital Temperature Controller	Yes	Yes
Float Switch for min water level	Yes	Yes
Rinsing Jet	Yes	Yes
Air Gun for Drying (with FRL)	Yes	Yes
Tank Size (L X B X H mm)	350 x 335 x 400	650 x 335 x 400
Water Consumption (Litres per fill)	35	70
MOC - Tank	S.S. 316L	S.S. 316L
MOC - Structure & Outer Panels	S.S. 304	S.S. 304
Inlet Valve	Yes	Yes
Drain Valve	Yes	Yes
Overflow Port	Yes	Yes
Sloped Bottom for easy draining	Yes	Yes
Machine Size (L X B X H mm)	750 x 715 x 965	1050 x 715 x 965
Net Weight (kgs)	100	120

\*Economic Model also available



# AUTOMATIC PUNCH POLISHER

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The Auto Punch Polisher helps improve surface finish of punches which leads to:

- Better tablet finish
- Less sticking & corrosion
- Minimum production downtime

Tooling lose their original finish due to nature of formulation and usage. Normally, these are polished manually which is a time consuming and skill dependent process. The Auto Punch Polisher minimises skill requirement & increases productivity substantially. PLC control allows user to program the complete cycle.

## KEY ADVANTAGES

- Reduces Polishing Time
- Minimises Skill Requirement
- Does not wear out Engraving / Coating
- Improves surface finish of entire punch
- Enhanced Tool Life

## TECHNICAL SPECIFICATIONS

<b>Capacity</b>	: 54 punches of B or D tooling
<b>Cycle Time</b>	: 20 min for re-polishing 1 batch
<b>Main Motor</b>	: 2 HP controlled by an A.C. Drive
<b>Dimension</b>	: 93 x 76 x 220 cm
<b>Net Weight</b>	: 300 kg

## STANDARD ACCESSORIES

- Polishing Granules: 50Kg
- Polishing Media: 10Kg
- Punch holders: 3 nos for D tooling  
+ 3 nos for B tooling

## OPTIONAL ACCESSORIES

- Die holders: For BB, B & D tooling

## CONSUMABLES

- Polishing Granules & Polishing Media

# PERIPHERALS



Bellows

Dust Cup



Dial



Punch Bore Cleaning Brush

Die Lock Screw Bore Cleaning Brush



Die Pocket Gauge



Dummy Dies



Punch Sleeve



Micrometer



Telescope Mirror to check Upper Punch



Die Rod - Bar



Punch Stacking Tray



Lower Punch Puller



Punch Head Go-NoGo



Torque Screw Driver



Infrared Thermometer



Vernier Caliper



Punch Bore Checking Gauge

