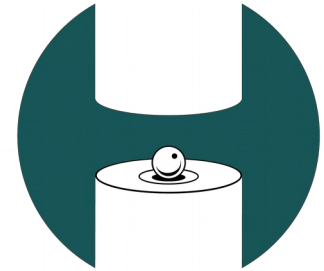


# Manufacturer of High Precision Capsule Molds / PinBars



[www.hallmark-pinbars.com](http://www.hallmark-pinbars.com)



**HALLMARK**  
ADVANCED TECHNOLOGY PVT. LTD.

INDIA



## **HALLMARK specializes in making of Precision Molds and Tools**

We began in 1984, with making Tungsten Carbide Tools for the Automobile Industry for forging critical Bearing components such as

- Steel Balls
- Rollers
- Caging Rivet
- Miniature Fasteners



# HALLMARK regularly exports to world giants like -

Schaeffler Group (INA Bearings), Germany  
SKF Bearings, USA  
FAG Bearings, Hungary  
AKS plants in Japan, Indonesia, Poland, UK & USA  
Tsubaki Hoover, Italy  
KGM, Germany  
KRS, Germany  
Valette and Gaurand Industrie plants in France & Tunisia  
NRB Bearings Ltd plants in India & Thailand  
General Bearings, China



**HALLMARK**

PRECISION BEARINGS, BALL BEARINGS, ROLLER BEARINGS, SPECIAL BEARINGS



HALLMARK's latest achievement is  
it's highly successful

# Pinbar (Capsule Molds) for Empty Hard Capsule Shells.

.....

- Special Hardened, Plated and Highly Polished Pins requiring minimal Lubricant for making cDPI, (capsules for Dry Powder Inhalation), CT (Clear & transparent) and Veg (HPMC) Capsules
- Separate Designs for GELATIN & HPMC / VEG Capsules
- Special high volume design for Low Density formulations, to avoid Pop-ups



HALLMARK  
INDUSTRIAL SOLUTIONS LTD





# HALLMARK PINBARS

Sizes # 000, 00, 0, 1, 2, 3,  
4, 5 and others

Bar Design: 5, 6, 7, 9 Bars  
and others as per your  
drawing

**HALLMARK Pinbars for  
automatic capsule machine  
are in two types:**

High Precision Pinbars with  
Pins in SS304 &  
Base Bars in SS410

Special Hard Plated Precision Pinbars with  
Pins in Hardened SS420 & Plated.  
Base Bars in SS410



# HALLMARK Strengths

.....

HALLMARK core team consists of well qualified people holding Masters from IIT Mumbai, Bachelors of Technology, MBA's, Doctors, etc

## **MANUFACTURING Experience**

40+ years of experience  
in EXPORTING Super  
Precision Tools for  
Critical applications.

## **MAN Power**

200+ work force

## **MANUFACTURING Area**

60,000+ Square feet  
of manufacturing  
setup

## **FACTORY Locations**

4 Locations in Mumbai,  
the centre of the  
Commercial Capital of  
INDIA



# Main Features of HALLMARK PINBARS



## THE HARDNESS OF Pin

Minimum 32 HRC. And 65+ HRC in Hard Plated Pinbars

## DIAMETER OF Pin

Ensured within +/- 5 microns

## THE MOLD BASE Bar

Vacuum heat treated to 28 +/- 2 HRC with special German technology to ensure uniform hardness

## FIRMNESS & Flexibility

The Bar undergoes rigorous " bend test " to ensure required firmness and flexibility. This is important to prevent fractures in face of accidents

## ROLLING

The lock grooves on the Pins are made by 'Rolling' method, which imparts mirror finish to the groove and increase in hardness

## RIVETING

Special riveting technique that prevents loosening of pins over years of use

- Special interference fit and lock groove design for an extremely strong yet easy slide-in fit of the cap & body during final locking





# ENSURING Precision

- Development of CNC SPMs in-house, for higher Precision and Consistency.
- Surface finish values better than Ra0.10
- Continuous online inspection of all critical dimensions during manufacturing, ensuring 100% inspection and Six Sigma accuracy / precision.

**Parameter measured :** Gauge Plan Diameter  
**Operation:** Final Dimension  
**Acceptance Criteria :**  $C_p > 1$ ,  $\sigma < 0.002mm$   
**Type of measurement:** 100 percent inspection

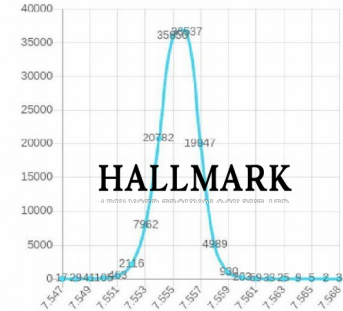
## Process Capability

### $\mu$ from Actual Reading

Readings :130207  
 $\mu$ : 7.5554 (7.568 , 7.547)  
 $\sigma$ : 0.0013972  
 $C_{pk}$ : Min( 1.097 , 1.288)

### $\mu$ from Specification

Readings :130207  
 $\mu$ : 7.555  
 $\sigma$ : 0.0013972  
 $C_p$ : 1.193



## Select Parameters

Period:  All  On:  From:  To:   
USL:  LSL:  Work Order:  Measure Type:   
Operation:

**Remark :** Pass  
Checked by: HKA





# ENSURING Precision

All critical dimensions are within Six Sigma for main parameters like

- Mean ( $\mu$ )
- Standard Deviation ( $\sigma$ )
- Process Capability (Cpk)

**Parameter measured :** First Groove Diameter  
**Operation:** Final Dimension  
**Acceptance Criteria :**  $C_p > 1, \sigma < 0.003\text{mm}$   
**Type of measurement:** Production Sample Inspection

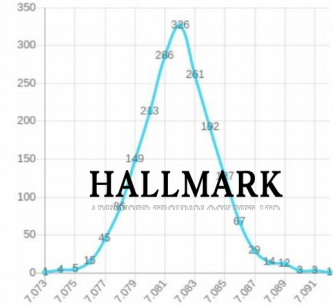
## Process Capability

### $\mu$ from Actual Reading

Readings :1839  
 $\mu$ : 7.0819 (7.092 , 7.073)  
 $\sigma$ : 0.0025191  
Cpk: Min( 1.072 , 1.575)

### $\mu$ from Specification

Readings :1839  
 $\mu$ : 7.08  
 $\sigma$ : 0.0025191  
Cp: 1.323



## Select Parameters

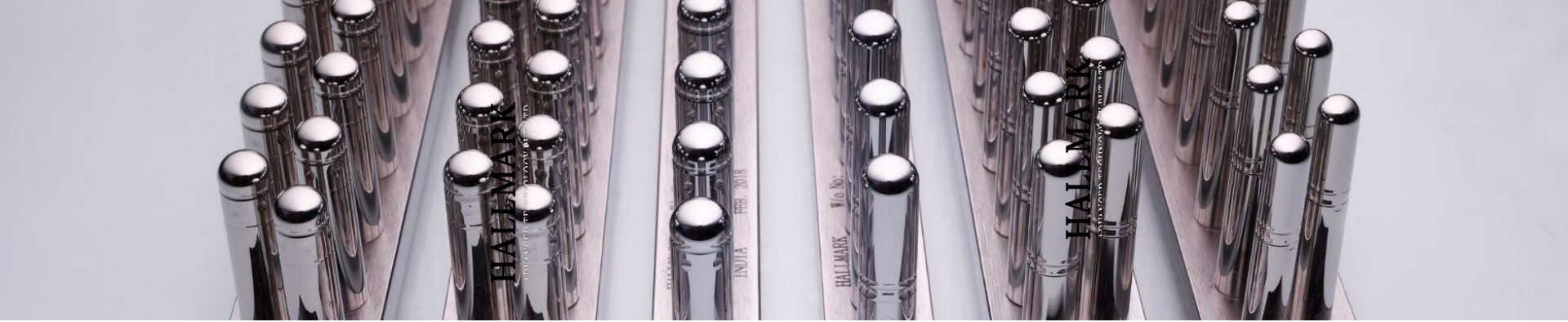
Period:  All  On:  From:  To:

USL:  LSL:  Work Order:  Measure Type:

Operation:

**Remark :** Pass  
Checked by: HKA





## EXPERT DESIGN **Team** .....

- Special Hardened, Plated and Highly Polished Pins requiring minimal Lubricant for making cDPI, ( capsules for Dry Powder Inhalation), CT ( Clear & transparent) and Veg ( HPMC) Capsules
- Separate Designs for GELATIN & HPMC / VEG Capsules
- Special high volume design for Low Density formulations, to avoid Pop-ups



# ADVANTAGES OF Special Hard Plated Precision pinbars

.....

- Excellent wear resistance resulting in years of scratch free performance of the Pins. Highly useful feature for making Clear & Transparent capsules
- Minimal occurrence of lubricant related issues like oil bubbles, star end, etc
- Plating Adhesion quality is ensured through strict conformance to ASTM-B-571 Standard



# **CONTINUAL** Improvement

Dedicated R&D Division working continuously for improvement in all stages of manufacturing targeting,

**ZERO rejection due to Pinbars defects**

**ZERO case of Tight / Non-separation or Loose Capsules in the entire lot**

**ZERO Pop-up issues**

**ZERO machine downtime**

**ZERO customer rejections due to Pinbar defects**

**100% alignment of Cap and Body parts, ensuring perfect sealing of the two parts after Capsule filling.**

**100% acceptance of the Capsules on High Speed Capsule Filling machines**

**100% Customer satisfaction**





## DESIGNING PINBARS for Special Capsules

.....

Dry powder inhalation (DPI) is turning out to be a major and most preferred drug delivery Technology for the treatment of respiratory diseases. Capsule based DPI provides a uniform dose in an effective, non-invasive and simple way to deliver medication via the pulmonary route.

Capsule inner wall surface largely depends on surface finish of the pinbars.

Capsules for cDPI have to meet stringent design requirements. Effective dose delivery depends on factors which are governed by close control of capsule dimensions and surface finish.

### Capsule Internal Surface:

The capsule inner wall surface is never entirely flat and formulation powder occupies little surface pores on the inside of the capsule wall. This makes it more complicated for the drug to exit the capsule. Additionally, if the lubricant content is high, adhesion between the capsule and powder occurs, reducing the process efficiency. The nature and quantity of lubricant that remains in the capsule will modify the capsule inner surface properties and affect the capsule aerosolization performance.

Plating reduces the amount of lubrication used, it also effects the surface topography of the plated surface in a way that allows it to retain a microfilm of lubrication during Capsule formation. This gives a unique advantage when making Veg, HPMC and cDPI capsules.



# LOCATION Works

## MUMBAI, INDIA

Works 1:  
(Pin Bar Division)  
4/9, M.I.D.C, Saravali, Kalyan Bhiwandi Indl. Area,  
Bhiwandi, Thane - 421311, INDIA

Works 2:  
(Precision Dies & Molds Division)  
K-2, Ansa Industrial Estate, Saki Vihar Road,  
Mumbai-400072, INDIA

Works 3:  
(Assembly & Finishing Division)  
J-3, Ansa Industrial Estate, Saki Vihar Road,  
Mumbai-400072, INDIA

Works 4:  
(Tungsten Carbide Factory):  
R-543, M.I.D.C., TTC Industrial Area, Rabale,  
Navi Mumbai ,Thane-400701, INDIA



Registered Office:  
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Estate, Saki Vihar Road,  
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Email: [hallmark@hallmark-engineers.com](mailto:hallmark@hallmark-engineers.com)

URL: [www.hallmark-pinbars.com](http://www.hallmark-pinbars.com)



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Mr. Philippe JULLIEN

## China Office:

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Room 304, Tianhong Business Building,  
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District, Shanghai - 201 103,  
CHINA

Contact person:  
Mr. Daniel Tu  
Ms. Juan Yi





# OUR Customers



Pharmaceutical  
Industry



EVA GROW MEDICAPS PVT LTD



# OUR Customers



Automobile Bearing  
Industry



NHB Ball & Roller Ltd.



an SKF Group company



SCHAEFFLER GROUP



...rundum präzise!



TSUBAKI NAKASHIMA

TPI  
BEARINGS



VALETTE ET GAURAND INDUSTRIE



NRB  
BEARINGS



# RECOGNITION For Excellence

.....

- GOVERNMENT OF INDIA



## Certificate of Export Excellence

Awarded To Messers *Hallmark Engineers,*.....

*Mumbai*.....

in recognition of achieving highest export performance during 2001-2002 amongst the

SSI exporters in the panel *Steel Forgings*..-

*all types*.....

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*K. S. Chadha*

K. S. Chadha  
REGIONAL CHAIRMAN  
ENGINEERING EXPORT PROMOTION COUNCIL  
WESTERN REGION

Date : 2nd February, 2005





 **HALLMARK**  
ADVANCED TECHNOLOGY PVT. LTD.



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ADVANCED TECHNOLOGY PVT. LTD.

# **HALLMARK Designing Team** brings you **WORLD CLASS PINBARS FOR HARD CAPSULES**

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