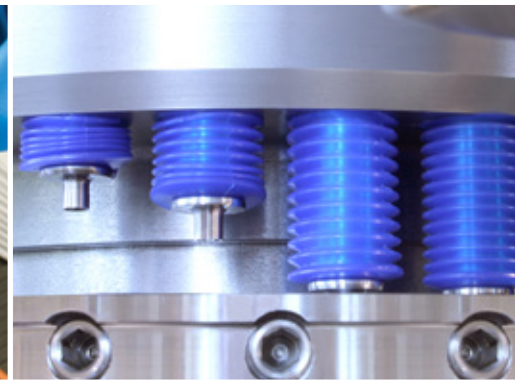
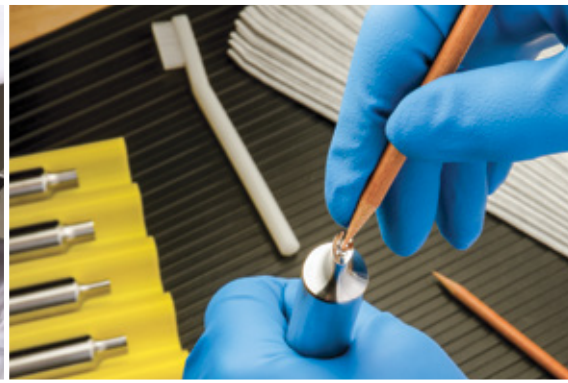


EIGHTH EDITION



NATOLI ENGINEERING

TABLET COMPRESSION ACCESSORIES CATALOG



Set-Up ▶

Compression Support Equipment ▶

Analytical Equipment ▶

Cleaning ▶

Inspection ▶


Polishing ▶

Lubrication ▶

Storage Solutions ▶

OUR STORY

Welcome to the only comprehensive tablet compression accessories catalog in the industry. We've packed this catalog with hundreds of carefully selected products (many of them exclusive) that will help you improve tooling life, tablet quality, and overall efficiency.



Tool Manufacturing Facility
St. Charles, Missouri, USA

Founded on the uncompromising principle of manufacturing and delivering the highest quality tablet compression tooling, presses, and replacement parts at a fair price with exceptional customer service. Our state-of-the-art manufacturing facilities, award-winning engineering team, and dedicated production crew enable us to offer competitive pricing without compromising our best-in-class service standards.

MARKETS SERVED

Natoli serves the pharmaceutical, veterinary, nutritional, confectionery, cannabis, and industrial tableting and encapsulation industries in major markets around the world, including North America, Central and South America, Europe, the Middle East, Africa, and the Asia-Pacific region.

FACILITIES

Natoli is headquartered in St. Charles, Missouri. The main campus includes administrative, manufacturing, refurbishing, and training, as well as laboratory and scientific research facilities.

Natoli's Technical Centers offer regional customer support with parts, accessories, tool refurbishing, maintenance, training, and more.

Natoli Scientific's laboratory facility in Telford, Pennsylvania, provides formulation evaluation, training, contract research, and consulting services.

The Natoli Institute for Industrial Pharmacy Research and Development at Long Island University performs formulation assessments and research into new formulation techniques and technologies.



WORLD HEADQUARTERS CAMPUS FACILITIES:



STEEL PREPARATION FACILITY
ST. CHARLES, MISSOURI, USA



TECHNICAL TRAINING & PRESS REFRUBISHING FACILITY
ST. CHARLES, MISSOURI, USA



TURRET MANUFACTURING FACILITY
CHESTERFIELD, MISSOURI, USA



PARTS & ACCESSORIES DISTRIBUTION CENTER
CHESTERFIELD, MISSOURI, USA

WHAT WE DO

Natoli Engineering is the global leader in tablet compression tooling. Our commitment to the tablet compression industry is demonstrated through the development of ground-breaking solutions and progressive, continual improvements in our manufacturing processes.



"We are dedicated to innovative design, quality manufacturing, quick turnaround, unmatched customer service and ensuring our customers' success."
~Dale Natoli, President

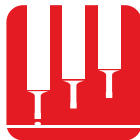
UNPARALLELED SUPPORT:



Tablet Compression Tooling



Tablet and Tooling Design



Tablet Presses



Instrumentation & Control Software



Tablet Press Replacement Parts



Tablet Compression Accessories Catalog



Encapsulation Machine Change Kits & Spare Parts



Technical Training



Formulation Testing & Analysis



Tablet & Capsule Defect Troubleshooting



Metallurgical Analysis



Consulting Services



Contract R&D Services

NATOLI TRAINING

KNOWLEDGE IS POWER

SCAN HERE
to see our upcoming
trainings at natoli.com



Our training will provide you with the skills and knowledge for tablet manufacturing and encapsulation success.

Natoli Engineering offers comprehensive Technical Training to equip professionals with the skills and knowledge needed to excel in tablet compression and tooling. Our Technical Training provides hands-on experience with tablet press operation, maintenance, and troubleshooting, ensuring participants gain practical insights into optimizing equipment performance.

Natoli Scientific's Trainings delves deeper into the scientific principles behind tablet manufacturing, covering topics such as formulation, material properties, and advanced compression techniques. Both training programs are led by industry experts and tailored to meet the specific needs of pharmaceutical, nutraceutical, and related industries, empowering participants to enhance their production processes and achieve superior results.

WHO SHOULD ATTEND?

Technical courses are designed for anyone wanting to learn more about the oral solid dosage industry. The courses benefit tooling technicians, tablet press operators, tablet press maintenance technicians, encapsulation machine operators and technicians, QC/QA personnel, R&D personnel, and their supervisors. Attendees receive valuable hands-on experience that cannot be learned from textbooks or webinars.



CUSTOM TRAINING CLASSES

In addition to our regularly scheduled training courses, we also offer customized courses tailored to your needs to help you accomplish your training goals. We will develop a training course that meets your needs to enrich skills, increase productivity, and enhance product quality.

Contact our training and events coordinator to discuss custom-training opportunities with Natoli Engineering at **636-926-8900**. To learn more and to view upcoming training dates, go to: natoli.com/trainings.

Natoli Engineering's experts have written a three-volume set of whitepapers that cover subjects ranging from proper maintenance of tablet compression tooling and troubleshooting tableting challenges to developing new formulations. Visit www.natoli.com/whitepapers to download.

NATOLI SCIENTIFIC

**YOUR PARTNER IN TABLET
COMPRESSION EXCELLENCE**

At Natoli Scientific, we leverage our research, experimentation, and tableting expertise to provide proactive solutions for your most challenging tablet compression issues. Our comprehensive services are designed to improve processes, reduce development times, and help you avoid common manufacturing problems such as sticking, picking, capping, and lamination.

With over 50 years of experience in tablet technology, we assist in producing high-quality tablets, capsules, and soft gels for pharmaceutical, nutraceutical, CBD, household, and industrial applications. Our expert team supports you throughout the entire product lifecycle, from early formulation to late-stage development and manufacturing.

SCAN HERE
to learn more about Natoli Scientific
at natoliscientific.com



We collaborate closely with our clients to deliver practical solutions that save time and reduce costs in the production process, ultimately benefiting patients and humanity. Whether you're starting with a product concept or troubleshooting an existing product, Natoli Scientific is here to offer solutions and recommendations every step of the way.

**WE GIVE YOU RESULTS,
NOT PREDICTIONS.**



NATOLI SCIENTIFIC'S R&D LABORATORY

Natoli Scientific's laboratory facility in Telford, Pennsylvania, enables our researchers to evaluate and characterize the mechanical properties of formulations using a full range of lab-scale R&D and production tablet presses, dry and wet granulation machines, a compaction emulator, and coating equipment. Our contract research services can address each element of product development and help prepare you to meet GMP standards when your formulation goes into production.

Our tablet development contract services include:

- Formulation evaluation for sticking and picking problems
- Formulation evaluation for tool steel and coating recommendations
- Formulation modification to improve tableting and performance in the tablet press
- Investigation of tool steel failure

The facility also offers classroom and hands-on tablet manufacturing process training. Natoli Scientific classes help those involved with research and development learn about granulation principles and best practices; common excipients and their designed functions; the factors that can influence successful tablet coating; and the importance of characterization, measurement, blending, and more.

WE SUPPORT YOU FROM START TO FINISH



**Production &
Manufacturing**



**Tablet Press
Calibration Services**



**Data Acquisition
Systems**



**Formulation
Development**



**Analytical
Services**



**Tooling
Consultation**



**Technical
Training**

REGIONAL TECHNICAL CENTERS

SCAN HERE
to learn more about our
Technical Centers at natoli.com



PROVIDING THE BEST SERVICE AND EDUCATION TO HELP YOUR BUSINESS FLOURISH!

Natoli's Technical Centers are available to provide customers with quality service and education. Our four regional Technical Centers are located in California, Missouri, New York, and Poland. Our experienced technicians provide support and press and encapsulation parts inventory to these regions of the United States and Europe.

Get a firsthand look at Natoli equipment including tablet presses, analytical equipment, polishing stations, ultrasonic cleaning systems, inspection solutions, and more when you visit a Natoli Regional Technical Center.



Cypress, CA



St. Charles, MO



Long Island, NY



Szczecin, Poland

WHAT WE PROVIDE

Whether you need training, troubleshooting, or a specific product or service, we can help with:

- Equipment Health Checks
- Equipment Troubleshooting & Repair
- Tooling, Parts, Accessories for same-day delivery
- Tool Refurbishing & Maintenance Services
- Tool Inspection & Validation Services
- Hands-on Technical Training
- Consulting Services

**CALIFORNIA • MISSOURI
NEW YORK • POLAND**

QUICK. RELIABLE. KNOWLEDGEABLE.

PREFERRED PARTS PROGRAM

Our Preferred Parts Program (PPP) guarantees that consumable replacement parts will always be on hand at special discounted prices and ready for expedient delivery.

- Earn discounts on commonly used parts
- Most essential wear items in stock locally
- No minimum purchase required
- No contract or long-term commitment
- Catalog items (oils, dust cups, etc.) also available



SZCZECIN POLAND

LEADING THE WAY IN TABLET DESIGN

SCAN HERE
to learn more about tablet design
and TabletCAD at natoli.com



We understand the design of your tablet is crucial to its success in the market. Tablet design is not just about aesthetics, it impacts the functionality, manufacturability, and consumer experience with the final product.

We are your ideal partner for solid-dose manufacturing, developing tablets that stand out for their quality, effectiveness, and appeal. Natoli has a track record that cannot be disputed in helping you create tablets that not only meet the highest standards of quality and performance but also enhance your brand's market presence. Trust us to bring your tablet design visions to life with precision, innovation, and dedication.

When you Partner with Natoli, you can rely on:

- Fast Response Time
- Real-time collaboration
- Unparalleled Communication
- Best-in-Class Customer Support



Natoli's innovative web-based tablet design program lets you design tablets in-house to your exact specifications and requirements.

- Real-time surface area, volume, and perimeter calculations
- Real-time geometry validation
- Simple user-interface with tooltip information and links
- Online help documentation and walk-throughs
- Calculates the volume displaced by the addition of a bisect
- Is supported through most browsers

NEED A **BACKUP PLAN?**

Natoli-engineered tablet design is always available
If you are in the process of developing a product, our in-house mechanical drafting engineers have decades of expertise to help you develop an efficient and effective tablet design based on best practices and your manufacturing requirements and restrictions.

Natoli Engineering is recognized for pushing the boundaries of tablet compression technology, and investing in automation and robotics, marking a significant milestone in our ongoing quest for manufacturing excellence.

TABLET **CAD**[®]

NATOLI ENGINEERING COMPANY



**QUICKLY & CONVENIENTLY...
AT NO COST!**

TABLE OF CONTENTS

Throughout the catalog, you'll find products designed to help maintain tablet quality and increase the longevity of your tooling. From maintenance to compression to the lab, these products will improve efficiency and reduce cost in your operation. In some cases, items are made upon order and lead times may vary.

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INDEX & REFERENCE

SET-UP

Successful tablet compression begins with proper set-up of the tablet press. Selecting and implementing the right tools is the first step to ensuring quality tablets, reducing press downtime and production costs, and extending the life of your tooling and machine parts. From the complete set-up toolbox all the way down to dust cups and bellows – Natoli's SET-UP section is sure to offer all the necessary products needed to provide that peace of mind.



EZ LEVEL™ FEEDER BASE LEVELING SYSTEM

Quickly and accurately level your tablet press feeder with the Natoli EZ Level™ Feeder Base Leveling System. Improper leveling can cause excessive formulation loss and sever damage to your equipment. The Natoli EZ Level™ Feeder Base Leveling System ensures precise leveling every time.

BENEFITS:

- Reduce feeder setup/leveling process to as little as 10 minutes
- Precise, efficient, and reliable
- Ensures consistent level feeding for optimal production
- Easy-to-use interface for streamline operations
- Compatible with most tablet presses and feeder designs

EZ LEVEL™ FEEDER BASE LEVELING SYSTEM	
Part No.	Item Description
SU 2970	EZ Level™ Feeder Base Leveling System



SCAN HERE
to watch the
EZ Level
In Action

Examples of die table and feeder damage from improper leveling:



PRESS SET-UP TOOLBOXES

Natoli's heavy-duty Press Set-Up Toolbox contains all the tools needed to properly set up your tablet press. Each box is customized and specific to the individual machine make/model and tool type – and the inner foam cutout is designed with a two-tone color, 5S style format to easily identify any missing tools at the end of the process.

- Order by machine type and number of stations
- Available for special or modified tablet presses

TOOLBOXES INCLUDE:

- A. Protective storage case
- B. 6" (152.4 mm) feeler gauge
- C. 12" (308.4 mm) feeler gauge
- D. Punch guide cleaning brushes (2)
- E. Die pocket side-action brushes (2)
- F. Preset torque wrench (with cert)
- G. Die insertion ring
- H. Die seat cleaner tool
- I. Hex socket adapter
- J. Die lock T-handle
- K. Precision straight edge
- L. Die driving rod with two replacement tips
- M. Dial indicator with magnetic base for checking die table run-out
- N. Punch guide seal installation tool



PRESS SET-UP TOOLBOXES	
Part No.	Press Set-Up Toolbox Suitable for
SU 0240	Cadmach "BB"
SU 0241	Cadmach "D"
SU 0256	Courttoy "D" or Piccola 8-Station
SU 0257	CPT Stealth 30-Station or Sejong "D"
SU 0242	Fette "B"
SU 0243	Fette "BB"
SU 0244	Fette "D"
SU 0245	Kikusui "B"
SU 0258	Kikusui "BB"
SU 0273	Kikusui "D"
SU 0246	Korsch "B"
SU 0408	Korsch "BB"
SU 0272	Korsch "D"
SU 0270	Kilian "B"
SU 0271	Kilian "D"
SU 0274	Kilian "BB"
SU 0247	Bosch Manesty "B"
SU 0248	Bosch Manesty "BB"
SU 0249	Bosch Manesty "D"
SU 0250	Natoli NP-100 (27 or 35 Station) or Stokes "B"
SU 0251	Natoli NP-100 (45 Station) or Stokes "BB"
SU 0278	Natoli NP-155 (35 or 37 Station) "B"

PRESS SET-UP TOOLBOXES	
Part No.	Press Set-Up Toolbox Suitable for
SU 0279	Natoli NP-155 (45 Station) "BB"
SU 0252	Natoli NP-250 (16 or 20 Station) or Stokes "D"
SU 0263	Natoli NP-250 (15 Station) or Stokes DS3-15
SU 0405	Natoli NP-255 (22 Station) "D"
SU 0406	Natoli NP-255 (16 Station) "D"
SU 0407	Natoli NP-255 (28 Station) "B"
SU 0275	Natoli NP-400 (22 Station) "D"
SU 0276	Natoli NP-400 (28 Station) "B"
SU 0277	Natoli NP-400 (32 Station) "BB"
SU 0266	Natoli NP-500 (45 Station)
SU 0267	Natoli NP-RD10
SU 0315	Natoli NP-RD10A
SU 0316	Natoli NP-P20 or NP-RD20
SU 0254	Piccola "D"
SU 0255	Piccola "B" or Sejong "B"
SU 0253	Stokes "Premier"
SU 0262	Stokes 533/328-45
SU 0264	Stokes DD2 (31 Station)
SU 0268	Stokes DD2-23 or DDS2-23
SU 0265	Stokes 533/328-33
SU 0141	Special Order Press Set-Up Toolbox

PRESET TORQUE WRENCHES

Each tablet press has a specific torque value called out in the installation/operating manual. This value is critical for many reasons, and failure to adhere to it can result in misalignment between die and punch tip, splitting of the die from being over-torqued, or die movement upwards from being under-torqued, which can cause damage to both the feeder assembly and tooling. Natoli offers a wide range of torque wrenches that meet these values specified in the press manual – and will also custom-order for any applications that require specialized values or drive sizes not shown below.

L-HANDLE TORQUE WRENCHES 1/2" DRIVE WITH "CLICK" DESIGN

Click-type wrenches are a must to achieve specified torque. A distinct "click" is felt and heard when proper torque is reached.

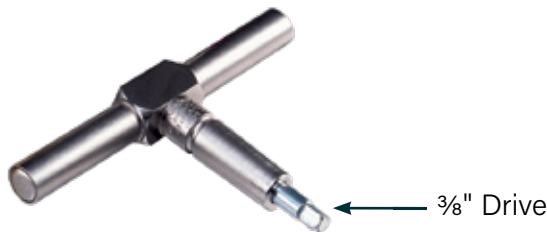
- Mandatory for tightening all types of die lock screws
- Recalibrate in-house with a torque analyzer (see page 13)



L-HANDLE TORQUE WRENCHES 1/2" DRIVE			
Part No.	Ft-lb.	Nm.	Handle Color
SU 0162	7.38	10	Light Green
SU 0001	10	13.56	Light Blue
SU 0158	11.06	15	Maroon
SU 0002	12	16.27	White
SU 0023	13	17.63	Dark Green
SU 0003	14	18.98	Orange
SU 0004	15	20.34	Red
SU 0005	20	27.11	Yellow
SU 0006	25	33.90	Black
SU 0007	30	40.67	Blue

T-HANDLE TORQUE WRENCHES 3/8" DRIVE

Critical for properly torquing upper punch key screws and multi-tip tooling assemblies.



T-HANDLE TORQUE WRENCHES 3/8" DRIVE		
Part No.	Ft-lb.	Nm.
SU 0186	7.38	10
SU 0175	10	13.56
SU 0187	11.06	15
SU 0177	12	16.27
SU 0176	13	17.63
SU 0178	14	18.98
SU 0179	15	20.34
SU 0181	20	27.11

ADJUSTABLE TORQUE SCREWDRIVER WITH "CLICK" DESIGN

A distinct "click" is felt and heard when proper torque is reached. Recommended for torquing lower punch retainer screws and includes 1/4" hex and bit.

- Meets ASME B 107.14M and ISO 6789 specifications in CW and CCW directions for:
 - » ±6% preset value accuracy from 20–100% of capacity
 - » ±1.2% accuracy when set below 20% of capacity
 - » Calibration needed

ADJUSTABLE TORQUE SCREWDRIVER		
Part No.	Item Description	Range
SU 0010	Adjustable Torque Screwdriver	7-36 in-lb.



VERITORQ® DIGITAL TORQUE ANALYZERS

The VeriTorg® analyzer quickly verifies proper torque settings for click-type and cam-over torque wrenches and screwdrivers. Proper torque settings prevent potential press and tooling damage, and reduce downtime.

FEATURES:

- Meets or exceeds ASME B 107.24M and ISO 6789
- ±1% indicated value accuracy from 10–100% of capacity
- For horizontal or vertical surfaces
- Custom ranges available upon request

VERITORQ® DIGITAL TORQUE ANALYZERS	
Part No.	Item Description
MA 5161	VeriTorg® Digital Torque Analyzer (50 in-lb.)
MA 5160	VeriTorg® Digital Torque Analyzer (80 ft-lb.)



DIE LOCK T-HANDLE WRENCHES

Use to install die locks prior to torquing or die lock removal.



DIE LOCK T-HANDLE WRENCHES	
Part No.	Hex Size
SU 0070	5/16"
SU 0071	1/4"
SU 0072	3/8"
SU 0073	7 mm
SU 0074	10 mm
SU 0076	8 mm

DIE LOCK HEX ADAPTERS

- 3/8" drive for use with T-handle torque wrench (see page 12)
- 1/2" drive for use with L-handle torque wrench (see page 12)
- Special order available

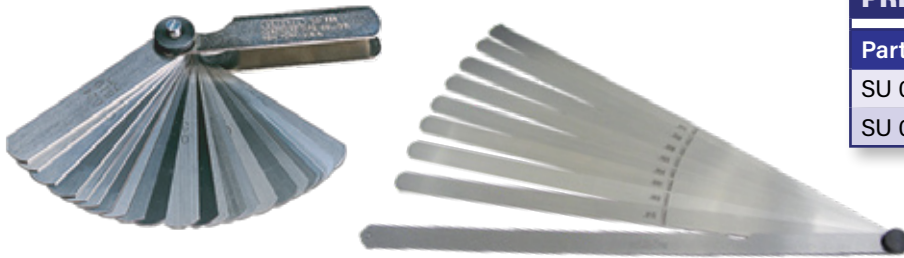


DIE LOCK HEX ADAPTERS			
Part No.	Item Description	Drive Size	Hex Size
SU 0008	Die Lock Hex Adapter	1/2"	5/16"
SU 0009	Die Lock Hex Adapter	1/2"	3/8"
SU 0015	Die Lock Hex Adapter	3/8"	5/16"
SU 0057	Die Lock Hex Adapter	3/8"	7 mm
SU 0059	Die Lock Hex Adapter	1/2"	7 mm
SU 0040	Die Lock Hex Adapter	1/2"	8 mm
SU 0065	Die Lock Hex Adapter	1/2"	10 mm

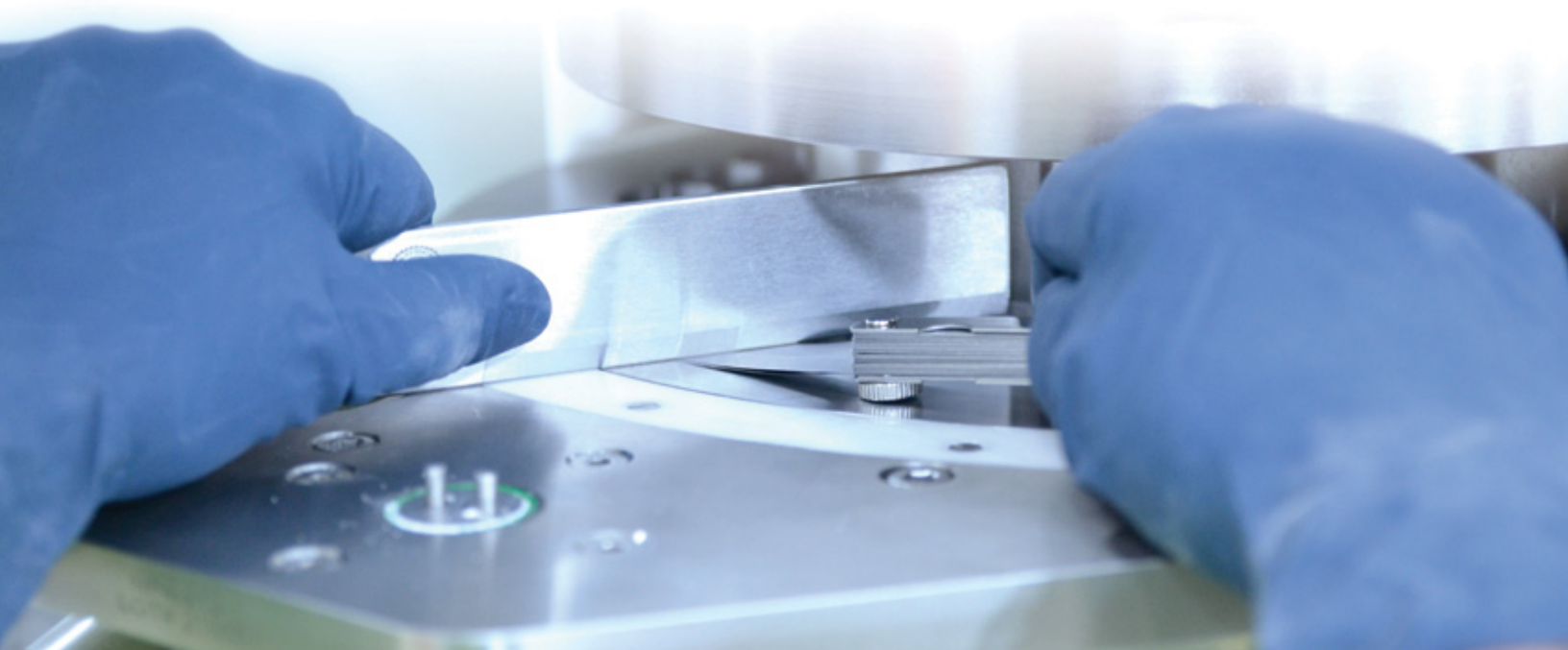
PRECISION FEELER GAUGES

Reduce product loss by accurately setting feeders with precision feeler gauges.

- Each leaf marked with a decimal range of 0.0015–0.025" and a metric range of 0.038–0.610 mm
- Constructed of hardened and tempered steel



PRECISION FEELER GAUGES	
Part No.	Size
SU 0170	6" (152.4 mm)
SU 0156	12" (304.8 mm)



DIE DRIVING RODS WITH REPLACEABLE COMPOSITE TIPS

Prevent damage to dies and die pockets by using stainless steel Natoli Die Driving Rods with replaceable composite tips. **Throw away your brass and steel die driving rods. They may cause press and/or product contamination.**

- Mandatory for use with carbide and ceramic-lined dies
- Replacement tips can be purchased individually
- Custom sizes available upon request



DIE DRIVING RODS WITH REPLACEABLE COMPOSITE TIPS			
Part No.	Barrel Diameter	Punch Type	Replacement Tips
SU 0011	0.75" (19.05 mm)	B	SU 0017
SU 0012	1.0" (25.4 mm)	D	SU 0018
SU 0013	1.125" (25.58 mm)	533/328-45	SU 0019
SU 0014	1.25" (31.75 mm)	DS3	SU 0020
SU 0021	0.983" (24.97 mm)	Special	SU 0018
SU 0311	0.75" (19.05 mm)	8" (203.2 mm)	SU 0017
SU 0312	1.0" (25.4 mm)	8" (203.2 mm)	SU 0018
SU 0314	1.0" (25.4 mm)	5" (127 mm)	SU 0018

DIE INSERTION RINGS

Reduces die pocket damage by eliminating shaving of the die pocket wall during die set-up.

- Speeds set-up time with faster die insertion
- Ensures vertical alignment every time

DIE INSERTION RINGS			
Part No.	Punch Type	Inside Diameter	Height
SU 0025	BB	0.945" (24 mm)	0.775" (19.68 mm)
SU 0027	B	1.1875" (30.1 mm)	0.775" (19.68 mm)
SU 0031	D	1.50" (38.1 mm)	0.837" (21.25 mm)
SU 0029	533/328-45	1.312" (33.32 mm)	1.25" (31.75 mm)
SU 0030	Kilian 25/32	1.3786" (35 mm)	0.892" (22.65 mm)
SU 0033	DD2-31	1.50" (38.1 mm)	1.25" (31.75 mm)
SU 0035	533/328-33	1.62" (44.14 mm)	1.25" (31.75 mm)
SU 0037	DS3	2.0" (50.8 mm)	1.125" (28.57 mm)
SU 0038	DD2 or DDS2	2.125" (53.975 mm)	1.375" (34.92 mm)
SU 0039	EU-BBS Fette	0.8666" (22.01 mm)	0.775" (19.68 mm)
SU 0046	BBS Korsch/Kilian	0.8268" (21 mm)	0.875" (22.22 mm)
SU 0032	Kilian Rx43	1.3791" (35.02 mm)	0.884" (22.45 mm)
SU 0063	Kilian 20/28	1.1820" (30.02)	0.884" (22.45 mm)



DIE SEAT CLEANER TOOLS

Cleans hard-to-reach die pocket corners.

- Essential for properly seating dies



DIE SEAT CLEANER TOOLS			
Part No.	Punch Type	Diameter	Depth
SU 0041	BB	0.945" (24 mm)	0.875" (22.22 mm)
SU 0042	EU-BBS	0.8268" (21 mm)	0.875" (22.22 mm)
SU 0043	B	1.1875" (30.16 mm)	0.875" (22.22 mm)
SU 0044	BBS	0.8661" (22 mm)	0.875" (22.22 mm)
SU 0047	D	1.50" (38.1 mm)	0.937" (23.8 mm)
SU 0045	533/328-45	1.312" (33.32 mm)	1.50" (38.1 mm)
SU 0051	533/328-33	1.623" (44.22 mm)	1.50" (38.1 mm)
SU 0048	Kilian 25/32	1.3770" (34.97 mm)	0.985" (25.01 mm)
SU 0050	Kilian 20/28	1.1805" (29.98 mm)	0.9842" (25 mm)
SU 0049	DD2-31	1.50" (38.1 mm)	1.25" (31.75 mm)
SU 0053	DS3	2.0" (50.8 mm)	1.125" (28.57 mm)
SU 0036	DD2/DDS2	2.124" (53.94 mm)	1.50" (38.1 mm)

BLANK DIES

Use to block die pockets in unused stations.

- Required to run a partial set of tooling



BLANK DIES		
Part No.	Application	Size
SU 7725	BD-1 "BB"	0.945 x 0.875" (24 x 22.22 mm)
SU 7726	BD-2 "B"	1.1875 x 0.875" (30.16 x 22.22 mm)
SU 7727	BD-3 "D"	1.50 x 0.9375" (38.1 x 23.81 mm)
SU 7728	BD-4 "DS3"	2.0 x 1.25" (50.8 x 31.75 mm)
SU 7729	BD-5 "533/328-45"	1.3125 x 1.50" (33.33 x 38.1 mm)
SU 7730	BD-6 "533/328-33"	1.6245 x 1.50" (41.26 x 38.1 mm)
SU 7731	BD-7 "DD2-23"	2.125 x 1.50" (53.97 x 38.1 mm)
SU 7732	BD-8 "EU-BBS"	0.8268 x 0.875" Korsch/Kilian (21 x 22.22 mm)
SU 7733	BD-9 "EU-BBS"	0.8661 x 0.875" Fette (22 x 22.22 mm)

PUNCH GUIDE PLUGS

Block auto-lubrication ports when blank dies are required. Natoli Punch Guide Plugs are safe, effective, and economical.

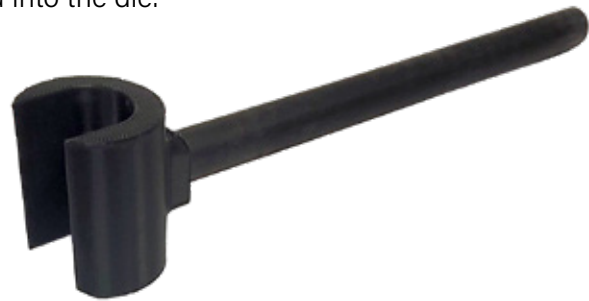


PUNCH GUIDE PLUGS		
Part No.	Item Description	Punch Type
SU 0150	Keyed Punch Guide Plug	B
SU 0150M	Keyed Punch Guide Plug—Metric	B
SU 0151	Keyed Punch Guide Plug	D
SU 0151M	Keyed Punch Guide Plug—Metric	D

LOWER PUNCH SEAL STOP INSTALLATION TOOL

The Seal Stop Tool is a must-have for the installation of any shaped, non-round lower punches. The presence of lower punch tip damage is common because the punch must be forced past the lower seal during installation. Oftentimes, this requires significant force, and the punch tip will make contact with the installed die before it can be properly aligned and inserted into the die.

Must verify Table Press make and model when ordering. The dimensions of each tool head are custom-made according to clearances between the die table and the lower section.



LOWER PUNCH SEAL STOP INSTALLATION TOOL	
Part No.	Item Description
MA 1114	Lower Punch Seal Stop Installation Tool

TIGHT PUNCH REMOVAL TOOL

The safest, most effective way to remove tight punches. Reduces the potential for punch and turret damage.

TIGHT PUNCH REMOVAL TOOL		
Part No.	Barrel Diameter	Punch Type
SU 0126	0.75" (19.05 mm)	B
SU 0128	1.0" (25.4 mm)	D
SU 0129	1.125" (28.58 mm)	328/533-45
SU 0130	1.25" (31.75 mm)	328/533-33 or DS3
SU 0132	1.50" (38.1 mm)	DD2 or DDS2



PUNCH GUIDE SEAL INSTALLATION TOOL

Ensures proper installation of seal to turret, avoiding potential damage due to improper punch guide seal installation. Requires a Die Driving Rod (see page 15) for proper installation.

PUNCH GUIDE SEAL INSTALLATION TOOL	
Part No.	Item Description
SU 0400	"B" Punch Guide Seal Installation Tool
SU 0401	"D" Punch Guide Seal Installation Tool



Shown with punch guide seal

PUNCH SEAL REMOVAL TOOL

A custom tool machined with a knurled tip that allows you to easily remove hard-cased seals from a turret.

PUNCH SEAL REMOVAL TOOL	
Part No.	Item Description
SU 0193	Punch Seal Removal Tool



PRECISION STRAIGHT EDGE

Properly set feed frame platforms to ensure proper clearance.

- Constructed of tool steel
- Single beveled edge

PRECISION STRAIGHT EDGE

Part No.	Size
SU 0136	12 x 1 $\frac{3}{4}$ x $\frac{1}{4}$ " (304.8 x 35.71 x 4.34 mm)



CAM ALIGNMENT PUNCHES

This tool is specially designed to ensure non-contact cam alignment with tooling, eliminating tablet press and tooling damage caused by misalignment. **Sold in sets of 3.**



CAM ALIGNMENT PUNCHES

Part No.	Punch Type
SU 0210	B
SU 0214	EU B
SU 0211	D
SU 0215	EU D
SU 0212	533/328-45
SU 0213	533/328-33
SU 0209	DD2-23
SU 0233	NP-100

NATOLI DUST CUPS

Manufactured from FDA-compliant materials - Natoli Dust Cups are essential to tablet production by providing two key benefits: (1) prevent lubrication from traveling down the punch barrel/tip and making contact with the die table and formulation - which results in a common tablet defect known as "blank specs", and (2) prevent formulation from traveling up past the punch tip and sticking to the lubrication barrel during compression - which can cause premature wear to punch seals and also increase heat/friction in the punch guides.

Follow the 4 easy steps below to choose the perfect dust cup for your application!

STEP 1: CHOOSE YOUR STYLE

ORIGINAL TIP-MOUNTED DUST CUPS

Tip-mounted dust cups are designed for punches that do not have a groove machined on the punch barrel. To create a tapered edge, they are placed upside-down on top of the dies, and the upper punches are used to "punch out" the center of the cup. They are then turned right-side-up and installed onto the upper punch tip.



NEW STYLE TIP-MOUNTED

Very similar to the original tip-mounted style, but the "New Style" design carries two advantages: (1) The concave face design allows them to be cut right-side-up, (2) the side walls have a steeper angle, which allows more clearance on presses that have stations positioned closer together.

ORIGINAL BARREL-MOUNT DUST CUPS

Barrel-Style Dust Cups are to be used only on punches that are machined with the appropriate groove at the bottom of the punch barrel. This groove allows the dust cup to be installed quickly and secured tightly.



NEW STYLE BARREL-MOUNT

Same as the standard barrel-style dust cup, but with a smaller OD/profile for tablet presses that have stations positioned closer together.

STEP 2: CHOOSE YOUR MATERIAL

Polymer- can be easier to punch out with tip-mount style and will have a slightly tighter hold to the punch tip. TPE does tend to have a shorter lifespan compared to silicone.

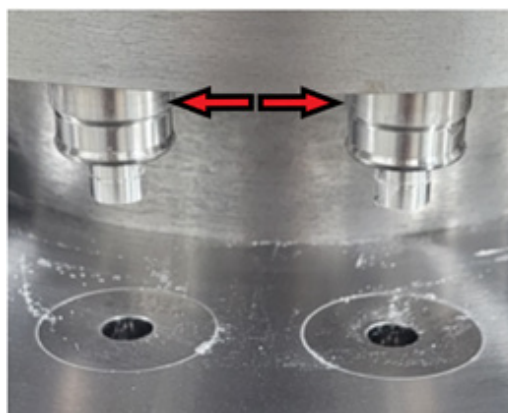
Silicone- high temperature resistance of 480°F (250°C). Silicone holds shape better if it is being cleaned and reused. The higher elasticity can make them easier to install.

STEP 3: CHOOSE YOUR COLOR



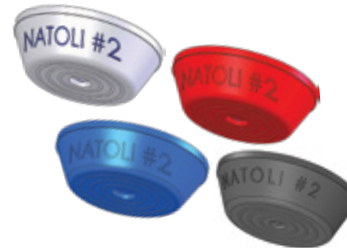
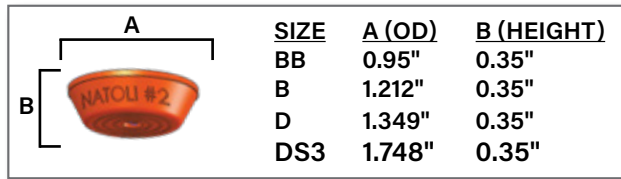
STEP 4: CHOOSE YOUR SIZE

Natoli Dust Cups are manufactured to diameters that coincide with the common tooling sizes. However, the distance between upper punches is the most critical thing to consider, ensuring you get maximum protection with enough clearance between dust cups.



ORIGINAL TIP-MOUNTED DUST CUPS (POLYMER)

- **CUTTING REQUIRED**
- For use on punches without groove machined on barrel
- Cut upside down to create a tapered edge for maximum hold to punch tip
- See Dust Cup Cutter on page 23 for fast and accurate cutting off-line



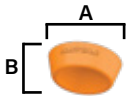
POLYMER		
Color	Size	Part No.
Clear	BB	SU 2501
Clear	B	SU 2502
Clear	D	SU 2503
Clear	DS3	SU 2504
Orange	BB	SU 2496
Orange	B	SU 2497
Orange	D	SU 2498
Orange	DS3	SU 2499
Red	BB	SU 2501AR
Red	B	SU 2502AR

SILICONE		
Color	Size	Part No.
Clear	BB	SU 2601
Clear	B	SU 2602
Clear	D	SU 2603
Red	BB	SU 2601AR
Red	B	SU 2602AR
Red	D	SU 2603AR
Blue	BB	SU 2601B
Blue	B	SU 2602B
Blue	D	SU 2603B
Black (Metal Detectable)	BB	SU 2601MD
Black (Metal Detectable)	B	SU 2602MD
Black (Metal Detectable)	D	SU 2603MD

The metal detectable version (black) is infused with iron oxide for metal detector rejection. Particle size/detection level is dependent upon metal detector sensitivity level.

NEW STYLE TIP-MOUNTED DUST CUPS (THERMOPLASTIC)

- **CUTTING REQUIRED (but does not need to be cut upside down)**
- Smaller diameter/profile for stations positioned close together
- For use on punches without groove machined on barrel
- See Dust Cutter below for fast and accurate cutting off-line

	SIZE	A (OD)	B (HEIGHT)
	B	1"	0.35"
	D	1.25"	0.35"
	533/328	1.75"	0.35"

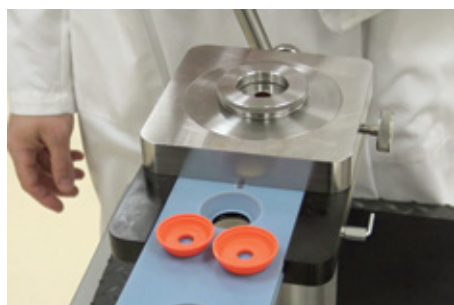


NEW STYLE TIP-MOUNTED DUST CUPS		
Color	Size	Part No.
White	B	SU 2802
White	D	SU 2803
White	533/328	SU 2804
Orange	B	SU 28020
Orange	D	SU 28030
Orange	533/328	SU 28040
Blue	B	SU 2802B
Blue	D	SU 2803B
Blue	533/328	SU 2804B
Red	B	SU 2802R
Red	D	SU 2803R
Red	533/328	SU 2804R

NATOLI DUST CUP CUTTING TOOL

No longer cut dust cups on a tablet press. Use the Natoli Dust Cup Cutting Tool to quickly and accurately punch out tip-mount dust cups outside your production room.

- Easy, fast set-up
- Bottom-up design requires less space and can be placed on almost any work surface
- Lightweight—move without additional equipment
- Acetal dust cup slides can be custom made for any size dust cup



The Dust Cup Cutting Tool (SU 8000) in use




NATOLI DUST CUP CUTTING TOOL	
Part No.	Item Description
SU 8000	Dust Cup Cutting Tool

BARREL-STYLE DUST CUPS

- NO CUTTING REQUIRED
- For use on punches with groove machined on barrel



	OUTSIDE DIAMETER (OD)	
	B	1.078"
	D	1.4375"
	FS12	0.700"



POLYMER		
Color	Size	Part No.
White	B	SU 2506
White	D	SU 2507
Orange	B	SU 2493
Orange	D	SU 2494

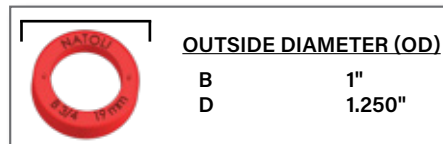
SILICONE		
Color	Size	Part No.
Clear	B	SU 2612
Clear	D	SU 2613
Clear	Natoli FS12 Type	SU 2605
Orange	B	SU 26120
Orange	D	SU 26130
Orange	Natoli FS12 Type	SU 26050
Blue	B	SU 2612B
Blue	D	SU 2613B
Blue	Natoli FS12 Type	SU 2605B
Red	B	SU 2612R
Red	D	SU 2613R
Red	Natoli FS12 Type	SU 2605R
Black (Metal Detectable)	B	SU 2612MD
Black (Metal Detectable)	D	SU 2613MD
Black (Metal Detectable)	Natoli FS12 Type	SU 2605MD



The metal detectable version (black) is infused with iron oxide for metal detector rejection. Particle size/detection level is dependent upon metal detector sensitivity level.

NEW STYLE BARREL-STYLE DUST CUPS (THERMOPLASTIC)

- **NO CUTTING REQUIRED**
- Smaller diameter/profile for stations positioned close together
- For use on punches with groove machined on barrel



NEW STYLE BARREL-STYLE DUST CUPS		
Color	Size	Part No.
White	B	SU 2812
White	D	SU 2813
Orange	B	SU 28120
Orange	D	SU 28130
Blue	B	SU 2812B
Blue	D	SU 2813B
Red	B	SU 2812R
Red	D	SU 2813R

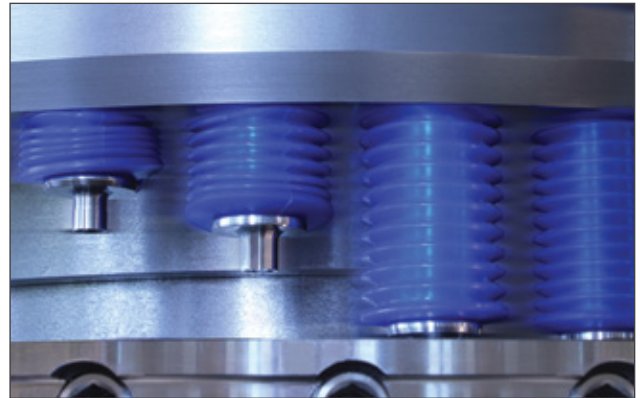


NATOLI SILICONE BELLOWS

For use on upper punches with a bellows groove, silicone bellows eliminate dust on punch barrels, reducing friction and enhancing lubrication performance.



NATOLI SILICONE BELLOWS	
Part No.	Punch Type
SU 2511	B
SU 2511MD	B Metal Detectable
SU 2513	D
SU 2513MD	D Metal Detectable



SU 2511 in use

EURO-STYLE SILICONE BELLOWS

Euro-Style designed bellows for use on punches. Silicone bellows eliminate dust on punch barrels, reducing friction and enhancing lubrication performance.

EURO-STYLE SILICONE BELLOWS	
Part No.	Punch Type
SU 2615	B Euro-Style Bellow
SU 2615MD	B Euro-Style Metal Detectable Bellow
SU 2617	D Euro-Style Bellow
SU 2617MD	D Euro-Style Metal Detectable Bellow



EASY-TO-USE OVERLOAD & STRAIN GAUGE CALIBRATION KIT

Use to accurately confirm machine calibration overload and strain gauge systems. **Periodically confirming gauge values will reduce potential press and tool damage.**

- NIST certified (Certificate of Calibration available upon request)
- Load cell verifies that tonnage gauge values are accurate
- Kit includes a protective storage case
- Calibration punches must be ordered separately

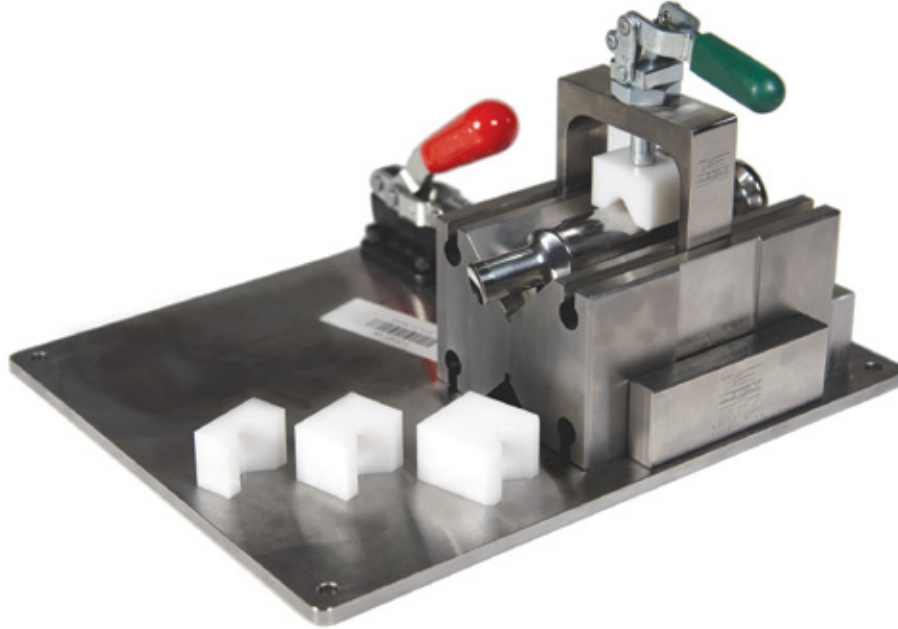


OVERLOAD & STRAIN GAUGE CALIBRATION KIT

Part No.	Item Description
IN 7759	Overload and Strain Gauge Calibration Kit
IN 7762	"B" Lower Overload Calibration Punches
IN 7763	"B" Upper Overload Calibration Punches
IN 7764	"D" Lower Overload Calibration Punches
IN 7765	"D" Upper Overload Calibration Punches
IN 7768	EU "B" Lower Overload Calibration Punches
IN 7769	EU "B" Upper Overload Calibration Punches
IN 7775	EU "D" Lower Overload Calibration Punches
IN 7774	EU "D" Upper Overload Calibration Punches
IN 7772	"B2" Short Lower Overload Calibration Punches
IN 7780	Special Order Overload Calibration Punches
IN 7760	Replacement Load Cell Indicator—NIST Certified
IN 7761	Replacement Load Cell (0-10 tons)—NIST Certified

MULTI-TIP/ROTATING HEAD MAINTENANCE

Quickly and conveniently perform maintenance on your multi-tip or rotating head tools with Natoli's custom maintenance kits. Each kit also contains the required alignment gauges to ensure critical alignment when reassembling tools after cleaning or inspection.



MULTI-TIP KIT

KIT INCLUDES:

- 5" (127 mm) V-block and clamp
- Punch body securing block
- Alignment gauge
- Pin driver (for 3 mm dia. coiled spring pins) for installation and removal
- 100 coiled spring pins
- "How-To" training DVD
- Protective storage case

ROTATING HEAD KIT

KIT INCLUDES:

- 5" (127 mm) V-block and clamp
- Punch body securing block
- Pin driver (for 5/32" dia. slotted spring pins)
- Head alignment gauge
- Die countercheck
- 100 coiled spring pins
- "How-To" training DVD
- Protective storage case

MULTI-TIP MAINTENANCE KIT

Part No.	Item Description
MA 1110	"BB" Multi-Tip Maintenance Kit
MA 1111	"B" Multi-Tip Maintenance Kit
MA 1112	"D" Multi-Tip Maintenance Kit

ROTATING HEAD MAINTENANCE KIT

Part No.	Item Description
IN 8010	"B" Rotating Head Maintenance Kit
IN 8011	"D" Rotating Head Maintenance Kit
IN 8012	533/328 Rotating Head Maintenance Kit

COMPRESSION SUPPORT EQUIPMENT

Support tablet production with a variety of auxiliary products that keep tablet presses in good working order and ensure tablets meet quality standards. Dedusters and industrial vacuums maintain tablet quality and press performance by removing dust from tablets and presses. Metal detectors identify contamination caused by mixing-process errors or machinery failures.

Telescopic Deduster
Part No. SU 2794



Lock Insight PH Metal Detector
Part No. LE 0323

Delfin Pharma 20.18 Vacuum
Part No. SU 2924



CAPSULE POLISHER

It incorporates all the features that were not available from any one polisher currently on the market. At the forefront of the engineering, lies the patented cyclonic airflow that provides continuous movement throughout the process chamber to move capsules safely and quickly, and eliminate any dead zones for product buildup. The cyclonic airflow combined with the open-end brush design are key factors in delivering a superior polish in such a compact design. When capsules enter the machine, they are continuously polished the entire length of the brush – while many polishers on the market only utilize a fraction of the available brush length. Not to mention, when it comes to cleaning and changeover, the product contact points can be disassembled and removed in less than a couple of minutes – and the spare chamber can be installed to keep the machine running with almost zero downtime.

FEATURES:

- Constructed of heavy gauge stainless steel for increased durability
- Positive pressure and hermetically sealed bearings and drives for lifetime use
- Assures there are no dead areas
- Pressurized air feeds through brush for aggressive air flow
- No corners to collect powder in polishing chamber
- Food-safe, FDA compliant nylon brush
- No bearing or belt removal is necessary when disassembling
- Empty cap eliminator can be mounted on either the capsule input or output
- Ancillary devices may be mounted on output end (e.g. metal detectors)
- 115V or 220V power supply options



CAPSULE POLISHER	
Part No.	Item Description
SU 2890	Capsule Polisher
SU 2891	Extra Chamber
SU 2892	Spare Brush



Scan Here to see video

Nitrile Glove Test

Black nitrile glove after handling **unpolished** capsules.

Black nitrile glove after handling **polished** capsules.



*Additional chamber and brush sold seperately

DELFIN PHARMA 20.18 VACUUM

Manufactured in full compliance with GMP Guidelines – the Pharma 20.18 is a compact, silent, and flexible machine tailored for fine dust extraction and general cleaning within your sanitary rooms. The product contact points are constructed of easy-to-clean polished stainless steel and an FDA-compliant satin exterior finish. The stainless process container is quickly and easily removed from the outside to provide the fastest method of product disposal once it is full.

FEATURES:

- External Process Container for fast and easy disposal of product
- Adjustable airflow
- External Filter Shaker for longer run-times
- Castor wheels for easy positioning and transportation

SPECIFICATIONS:

- **Airflow:** 194 CFM (330 m3/h)
- **Water Lift:** 118" (102.36 mmH2)
- **Process Container Capacity:** 5.8 gal (22 liters)
- **Noise Level:** 71 dB(A)
- **Power:** 230V/60Hz/3-Phase



DELFIN PHARMA 20.18 VACUUM

Part No.	Item Description
SU 2924	Delfin Pharma 20.18 Vacuum

STAINLESS STEEL TABLET DEDUSTER

Mirror-polished 304 stainless steel with an adjustable base, variable speed vibrator and an adjustable inlet funnel, along with a washdown motor and controls.

FEATURES:

- Vibrator and controls are built to NEMA washdown specifications
- All mirror-polished stainless steel contact parts and exterior covers
- Adjustable tilt feature, when set in relation to vibration intensity, determines speed of tablets
- GMP designs and construction
- Quick disconnect clear Lexan® top cover
- Stainless steel support column
- Stainless steel vacuum nozzle for dust control
- 5-leg polished aluminum base with locking casters

SPECIFICATIONS:

- **Electrical:** 110v, 1ph, 60 Hz
- **Air:** 1–2 CFM (0.03–0.06 CMM)
- **Vacuum:** 20–30 CFM (0.6–0.9 CMM)
- **Net Weight:** 36 lb. (16.3 kg)
- **Shipping Weight:** 50 lb. (22.7 kg)



STAINLESS STEEL TABLET DEDUSTER

Part No.	Item Description	Voltage	Maximum Throughput
SU 2893	Horizontal Deduster	110v	180,000
SU 2888	Horizontal Deduster	220v	180,000

KRÄMER TELESCOPIC TABLET DEDUSTER

This telescopic tablet deduster has improved dedusting and deburring capabilities thanks to an optimized combination of vibration, dust agitation, and air/vacuum suction. It is also equipped with an acceleration sensor that ensures constant vibration, independent of the load or the number of tablets in the deduster.

FEATURES:

- Dedusting and deburring capabilities
- Tool-free assembly and disassembly
- Acceleration sensor
- Vibration-free housing
- Quick breakdown for cleaning with minimal product contact parts

SPECIFICATIONS:

- *Outlet Height:* 39–49" (990–1235 mm)
- *Inlet Height:* 28–38" (715–960 mm)
- *Upward Conveying Range:* 10–20" (250–500 mm)
- *Conveying of Tablets/Capsules:* 0.12–1" (3–25 mm) ø
- *Power Supply:* 100–240v, 50/60 Hz

EXTERIOR DIMENSIONS (L X W X H):

- 22 x 22 x 56" (563 x 563 x 1425 mm)—Adjustable Height

KRÄMER TELESCOPIC TABLET DEDUSTER		
Part No.	Item Description	Maximum Throughput
SU 2794	Telescopic Tablet Deduster	3,500,000 (4.8 x 2.3 mm) tablets



KRÄMER UPHILL TABLET DEDUSTER

FEATURES:

- Tool-free assembly and disassembly
- Fast and easy cleaning
- 360° swivel with clear viewing for left/right and front/rear tablet discharge
- Low noise level
- Vibration free housing
- Compressed air nozzle for maximum tablet cleaning

SPECIFICATIONS:

- *Length:* 354 mm
- *Width:* 553 mm
- *Height:* 1410–1610 mm
- *Compressed Air:* 50–100 l/min

KRÄMER UPHILL TABLET DEDUSTER		
Part No.	Item Description	Maximum Throughput
SU 2793	Uphill Tablet Deduster	2,600,000 (4.8 x 2.3 mm round tablet)



KRÄMER COMBINED UNIT (TABLET DEDUSTER + METAL DETECTOR)

Maximum Throughput = 3,500,000 TPH

This tablet deduster and metal detector saves valuable production time by combining two steps into one. These machines may be used on either side of a tablet press or capsule filling facility.

METAL DETECTOR FEATURES:

- 21 CFR Part 11 compliant
- Fail-safe operation mode
- Waterproof and dust tight
- Functions with gravity
- Four safety levels
- Battery-driven permanent storage
- 100-product memory

TABLET DEDUSTER FEATURES:

- cGMP compliant
- Upward vibratory conveying
- Conveying range of 250–500 mm
- Integrated acceleration sensor
- Large viewing window
- No tools required



DIMENSIONS (L X W X H):

- 32.7 x 22.6 x 56" (830 x 575 x 1425 mm)

KRÄMER COMBINED UNIT (TABLET DEDUSTER + METAL DETECTOR)

Part No.	Deduster	Metal Detector	Aperture Diameter
SU 2697	Krämer KD6015	with Lock	95 x 38 mm
SU 2698	Krämer KD6015	with Ceia	95 x 38 mm

LOCK IQ4 PHARMACEUTICAL METAL DETECTOR

The Lock IQ4 Metal Detector was made for the pharmaceutical industry. Innovative features provide superior quality assurance while meeting GMP standards.

MAXIMUM THROUGHPUT:

- 30,000 TPM or 1,800,000 TPH

FEATURES:

- Fail-safe operating mode
- Color touchscreen with 200 product presets
- External USB and other communication methods
- Direct digital signal vector diagram display
- Four password-protected security levels
- IQ/OQ/PQ validation documents and certification included
- Calibrated detection levels of 0.25mmFE, 0.3 mmNFE, and 0.4mm/St

SPECIFICATIONS:

- **Compliances:** 21 CFR Part 210, 21 CFR Part 211, 21 CFR Part 11, NEMA 4X/IP66
- **Power Supply:** 110–250v, 50/60 Hz

PHYSICAL FEATURES:

- Compact footprint
- Adjustable height/head angle
- Easy-clean, hygienic design




LOCK INSIGHT PH PHARMACEUTICAL METAL DETECTOR

Part No.	Item Description
LE 0323	Lock IQ4 Metal Detector

Change the Chamber Not Your Schedule

Cleaning shouldn't dictate your schedule. Natoli's Capsule Polisher features tool-less removal of the polishing chamber that can be replaced in seconds with a clean chamber – so production resumes immediately while cleaning happens offline.




RATED FOR UP TO
360,000
CAPSULES PER HOUR



ON THE LEFT: Glove passed through **polished** capsules.
ON THE RIGHT: Glove when through **unpolished** capsules.

- Patented cyclonic airflow technology
- Adjustable height and angle for line alignment
- No tear downs – no delays
- Supports metal detectors and downstream devices
- Built for continuous production environments



See how fast clean really is. Contact Natoli Today!

natoli.com/capsule-polisher | 636.926.8900

ANALYTICAL EQUIPMENT

Quality assurance is essential to any pharmaceutical process. Natoli's wide selection of analytical equipment ensures the best match for collecting and storing tablet characteristics such as hardness, weight, friability, and more.



Manual 3-In-1 Tablet Hardness & Thickness Tester
Part No. LE 0642



Analytical Balance
Part No. LE 0591



Friability Tester
Part No. LE 0631

TABLET HARDNESS TESTERS

STAINLESS STEEL HANDHELD TABLET HARDNESS TESTER*

The handheld hardness tester provides the most simplified method of tablet hardness analysis. Individual tablets are placed in the jaw while the spring-loaded knob is hand-turned until tablet break is detected. This device provides a mere indication of actual tablet hardness and is not a calibrated instrument that should be relied upon for quality control judgment. With an unworn spring, the instrument can provide results within a 10% accuracy range - and will test tablets up to 0.75" diameter and 0.25" thickness. For larger tablets, the tablet conversion kit can be purchased separately to accommodate tablets up to a 1.3125" diameter and 0.25" thickness.

TABLET TESTING RANGE	MAX DIAMETER	MAX THICKNESS
Standard Hardness Tester	¾" (19.05 mm)	¼" (6.35 mm)
Large Tablet Conversion Kit	1½" (30.1 mm)	¼" (6.35 mm)

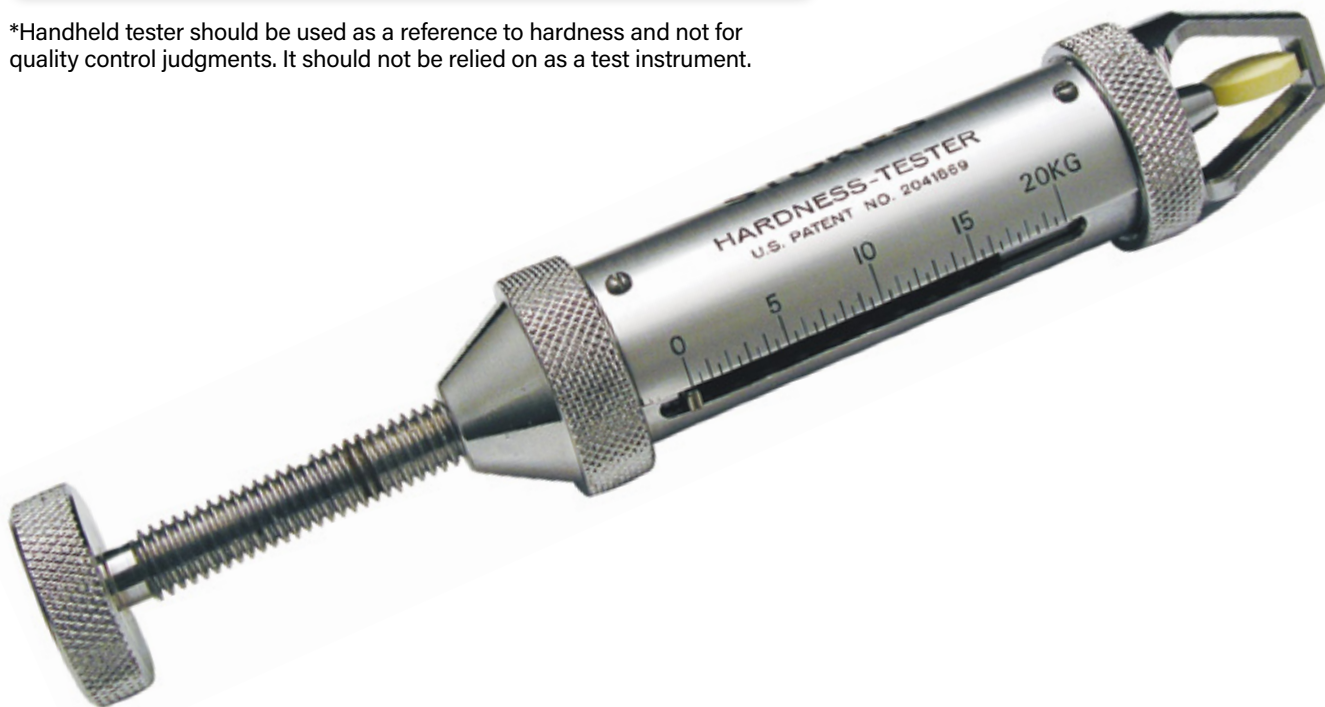
SPECIFICATIONS:

- *Measuring Units:* Kgw

STAINLESS STEEL HANDHELD TABLET HARDNESS TESTER

Part No.	Item Description
SU 2495	Standard Hardness Tester
SU 2491	Large Tablet Conversion Kit

*Handheld tester should be used as a reference to hardness and not for quality control judgments. It should not be relied on as a test instrument.



SEMI-AUTO 3-IN-1 TABLET TESTER (HARDNESS, DIAMETER, & THICKNESS)

The 3-in-1 Semi-Auto testing instrument operates as a dual force mode hardness tester – operating as either linear force or linear speed increase. Tablets are hand placed onto the testing platform while the jaw moves forward to provide digital readings of tablet thickness, diameter and hardness. Each parameter can also be turned off to speed up the testing process when thickness or diameter values may not be required. The machine is made in strict compliance with the EP <2.9.8> and USP <1217> Pharmacopoeia Standards.

- Each machine includes a holder/plate for thickness measurements between 8-12mm. Additional plates can be purchased to accommodate tablet thickness outside that range, between 2-45mm.
- The thickness holder is designed to hold the tablet upright until the jaw makes contact to provide the reading, then the tablet will fall flat for the jaw to return for diameter and hardness testing. Some tablets will have to be manually placed flat after thickness reading depending on the tablet design.
- Calibration weight set can be purchased separately for in-house calibration.

FEATURES:

- Fully USP <1217> and EP <2.9.8> compliant
- RS-232 interface for data transfer, or printing option using separate printer
- Capable of up to 250 samples per test
- Built-in multiple point validation procedure for digital load cell
- Capable of soft gelatin capsule testing
- Includes IQ/OQ/PQ documentation
- LED digital display

SPECIFICATIONS:

- **Hardness Range:** 10-500N (accuracy of +/- 1N)
- **Diameter/Thickness Range:** 2-45 mm
- **Measuring Units:**
Newton (N), Kilopond (kp), and Strong Cobb (Sc)

SEMI-AUTO 3-IN-1 TABLET TESTER (HARDNESS, DIAMETER, & THICKNESS)

Part No.	Item Description
LE 0642	Tabletop Hardness Tester
LE 0624	Printer
LE 0647	Calibration Weight Set



FRIABILITY TESTER

This friability tester reliably predicts the tablet robustness. The stainless steel housing ensures it will fit well in your production area, and the tester is manufactured in compliance with the USP, EP and other pharmacopoeias.

FEATURES:

- Programmable counter/timer
- Two modes—time and revolution count
- RPM and count validation
- IQ/OQ documents included
- 10° tilt capability (optional)

SPECIFICATIONS:

- **Speed:** 25 RPM (Fixed)
- **Accuracy:** ± 1 RPM
- **Number of Drums:** Two front loading

DIMENSIONS (W X D) BASE FOOTPRINT:

- 13.8 x 12.2" (350.525 x 309.88 mm)



FRIABILITY TESTER

Part No.	Item Description
LE 0631	Dual-Drum Fixed-Speed Friability Tester
LE 0686	Right Standard Replacement Drum
LE 0687	Left Standard Replacement Drum

DUAL-STATION DISINTEGRATION TESTER

This semi-automated tablet disintegration tester enables the entry and recall of stored methods for both testing positions. The baskets can start and stop independently and will always be moved to the upper position outside the disintegration media. Edit product and test information easily on the large LCD screen and an alpha-numerical keyboard. Security and results reporting meet FDA requirements.

FEATURES:

- OQ/PQ monitoring (programmable time sequence information)
- Test and sample information filing for up to 16 methods
- Auto-basket-stop of disintegration times
- Thermostat safety control
- RS-232 and parallel printer interface
- Built-in basket lift

SPECIFICATIONS:

- **Thermostat:** 86–104°F, $\pm 0.3^\circ\text{F}$ (25–45°C, $\pm 0.3^\circ\text{C}$)
- **Stroke Frequency:** 30/minute
- **SF Accuracy:** ± 1 stroke
- **Stroke Height:** 2", ± 0.08 " (55 mm, ± 1 mm)
- **Power:** 230v, 50/60 Hz

DIMENSIONS (H X W X D):

- 22.4 x 23.75 x 14.375" (570 x 603.25 x 365 mm)

DUAL-STATION DISINTEGRATION TESTER

Part No.	Item Description
LE 0639	Semi-Auto Dual-Station Disintegration Tester
LE 0624	Printer



ANALYTICAL BALANCE

This analytical balance features internal calibration with the option to use external calibration weight. The innovative design results in a compact footprint, so the balance occupies minimal space on the laboratory workbench while retaining a high level of performance. In addition to its 100-gram maximum weighing capacity and 0.0001 gram readability, this analytical balance features a glass-weighing chamber and a 3.54" \varnothing (90 mm \varnothing) weighing pan.

FEATURES:

- 14 weighing units, plus a custom setting
- Simple, user-friendly operation
- Multilingual display
- Vivid, back-lit LCD display with 0.94" (24 mm) high digits easily visible in any lighting conditions
- Large stainless steel pan for easy cleaning
- Solid metal housing
- Non-slip adjustable leveling feet
- Overload protection helps prevent damage to internal components
- RS-232 and USB interface
- External calibration allows for verification and adjustment with weights
- Printouts include date and time for data tracking within Good Laboratory Practices (GLP) guidelines



ANALYTICAL BALANCE

Part No.	Item Description
LE 0591	Analytical Balance

SS-3 VIBRATORY SIEVE SHAKER WITH HALF HEIGHT 3" SIEVE SET

The compact 3" vibratory shaker and sieve set is perfect for small sample powder separation analysis. The fully adjustable electromagnet vibratory function provides optimal settings for fine particle separation. The powder is redistributed within each sieve to eliminate static binding and clear the mesh screening from undersized particles. The shaker combined with the sieve set is a must-have for any lab working on product development and scale-up processes.

FEATURES:

- 115V, 5-60 Hz
- 0-100% amplitude control
- Selectable tapping action
- EZ-Clamp feature to quickly secure sieve stack



TEST SIEVES & SIEVE SHAKER

Part No.	Item Description
SU 2930	Vibratory Sieve Shaker with Sieve Set Assembly
SU 2927	3" Vibratory Sieve Shaker (110V)
SU 2928	Sieve Set Assembly -- Half Height (Includes sizes: 20, 30, 40, 60, 80, 100, 120, 200, and bottom pan)

Replace your Worn Segmented Turret **TODAY!**

Now You Can Upgrade to Natoli's Premium Segmented Turret for your Tablet Press. Experience Natoli special pricing and faster delivery — all from the experts in precision turrets.



Why Choose Natoli's Segmented Turrets?

Natoli Engineering has 20 years' experience in manufacturing segments, backed by ongoing investments in advanced R&D, CNC process automation, and precision finishing which meets often surpasses the OEM - Our quality is in the detail.

Natoli is ready to deliver unmatched quality and performance NOW!



SCAN HERE TO LEARN MORE OR TO GET A QUOTE TODAY!

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CLEANING

Natoli's extensive line of cleaning products and machines are designed to exceed any process requirements. Whether cleaning punches and dies, tablet presses and machine parts, or smaller accessory products like dust cups/bellows; Natoli offers the best accessories and machines to make the process easier, faster, and more efficient. In applications where consistency and validation are a must, Natoli's line of custom ultrasonic machines are guaranteed to help achieve that goal. No matter the size or safety requirements, Natoli has the perfect in-stock or custom solution available.



Natoli 4-Station Ultrasonic Cleaning Console
Part No. MA 7650



Tabletop Ultrasonic Cleaning Unit
Part No. MA 6100 & MA 6101



Mobile UDS Ultrasonic Cleaning Unit
Part No. MA 6135 & MA 6136



TABLETOP ULTRASONIC CLEANING UNIT

Eliminate manual washing of individual tooling in this affordable tabletop ultrasonic cleaning unit. This wash unit delivers alternating phases of high and low pressure waves to efficiently remove oils, grease, oxides, and particulates. **Units are CE approved.**

FEATURES:

- 7 gal. (26.1 L) tank capacity
- ETL/CSA approved
- Digital control of time and temperature
- Includes a lift-off lid and basket

DIMENSIONS

- *Exterior Dimensions:* 21 x 12.75 x 14.5" (533 x 324 x 368 mm)
- *Tank Dimensions:* 19.5 x 11.75 x 8" (495 x 299 x 203 mm)



TABLETOP ULTRASONIC CLEANING UNIT

Part No.	Item Description	Voltage
MA 6100	Ultrasonic Tabletop Unit	115v
MA 6101	Ultrasonic Tabletop Unit	230v

MOBILE ULTRASONIC CLEANING UNIT

The compact and economically modular design provides complete flexibility to fit any work area and budget. The machine comes standard with a 12ft power cord and can be equipped with easy-roll castors for effortless and quick cleaning underneath and all around the machine. The output and design of this ultrasonic unit makes it one of the most versatile and efficient cleaning machines in the industry and is perfect for all Pharmaceutical and Nutraceutical environments where a consistent and repeatable cleaning process is key.

FEATURES:

- 240V/60Hz/3 Phase
- Safe and workhorse ultrasonic frequency of 40kHz
- Tank Dimensions: 18x26x18" (LWH)
- 29-gal (110 liter) tank constructed of 14ga 316L St. with bright-anneal finish
- Digital Control of Time, Temperature, and Power
- Recipe Storage
- 10-year warranty on Transducer Bonding, 2-year generator warranty, 1-year Equipment warranty



MOBILE UDS ULTRASONIC CLEANING UNIT

Part No.	Item Description	Voltage
MA 6135	Mobile Ultrasonic (30 gallon tank)	230v
MA 6136	Mobile Ultrasonic (17 gallon tank)	230v

NATOLI 4-STATION ULTRASONIC CLEANING CONSOLE

Natoli's 4-Station Ultrasonic Console (Wash/Rinse1/Rinse2/Dry) is designed to provide a seamless and thorough cleaning procedure at microscopic levels. The additional rinse tank helps ensure that contaminants and detergent residues are eliminated at the end of each complete cycle, leading to faster and easier process validation. Paired with Natoli's custom tooling/parts baskets, the transfer process from station to station is fast, efficient, and significantly reduces the risk of damage caused by handling. The console can also be configured as a 3-Station unit or with smaller tank sizes to accommodate clean rooms with space or height constraints.

STANDARD SPECIFICATIONS & FEATURES:

- 240V/60Hz, 3-phase, 80 A
- 45kHz Wash Cycle Ultrasonic Frequency
- Digital time, temperature, and power controls
- 316 S.S. process tanks
- Overall Console Dimensions: 114 x 40 x 41" LWD (290 x 120 x 104cm)
- Enlarged 18 x 26" (46 x 66 cm) tanks to accommodate die segment cleaning
- Built-in low water volume and leak detection sensors

OPTIONAL FEATURES:

- Water recirculation and filtration
- Overflow weir/skimmer to remove surface contaminants
- Auto lift/transfer Rigibot Arm

4-STATION ULTRASONIC CLEANING CONSOLE		
Part No.	Item Description	Power Requirements
MA 7650	Ultrasonic Cleaning Console	240V/60Hz, 3-phase, 80A



**Ultrasonic Consoles and features are completely customizable for individual applications based off space/room size, power/utility availability, and process requirements. Contact Natoli with these details and we will help you select the perfect machine that meets all of your requirements.*

PORTABLE WARM-AIR-DRYER

This small yet powerful drying unit provides the perfect solution for applications using a manual drying process of tooling after the cleaning cycle. The compact and lightweight design paired with the flexible hose makes for a much quicker and more efficient drying process, drastically reducing the chance of corrosion.

- Adjustable airflow
- Adjustable heat control from 85-130F (30-55C)
- 120V/50-60Hz - 2400W
- Lightweight design of 11 lbs. (5kg)

PORTABLE WARM-AIR-DRYER

Part No.	Item Description
MA 6106	Portable Warm-Air-Dryer



TOOLING TRAYS FOR ULTRASONIC CLEANERS

STAINLESS STEEL TOOLING TRAYS FOR ULTRASONIC CLEANERS

Reduce the risk of potential tool damage with Natoli Stainless Steel Tooling Trays, by providing secure handling from tablet press to cleaning system to storage. The tray is designed with folding handles and connected legs so it can be placed inside a mesh carrier basket.

FEATURES:

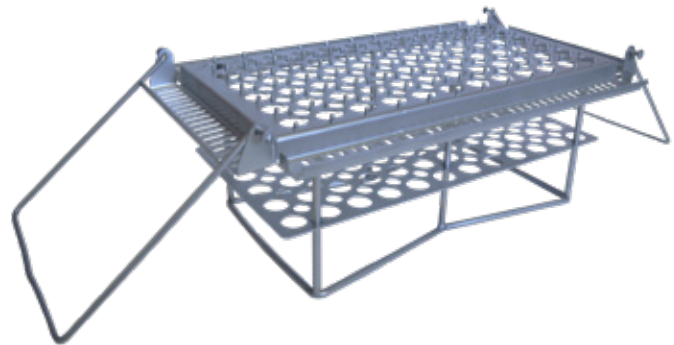
- Recommended for use with ANY Natoli Ultrasonic Cleaning Unit

TRAY CAPACITIES:

- **"B" Tray:** 72 "B" punches and 38 "B" dies or 72 "B" punches and 48 "BB" dies
- **"D" Tray:** 48 "D" punches and 24 "D" dies
- **"Natoli FS12 Type" Tray:** 72 punches
- **"328-45" Tray:** 32 "328-45 St" punches and 26 dies

EXTERIOR DIMENSIONS (L X W X H):

- 17 x 10 x 5" (432 x 254 x 127 mm)



STAINLESS STEEL TOOLING TRAYS

Part No.	Item Description
MA 5082/ND	Punch Tray for "B" Tooling
MA 5084/ND	Punch Tray for "D" Tooling
MA 5087	Punch Tray for "Natoli FS12 Type" Tooling
MA 5100	Replacement Tips for Punch Tray
MA 5088/ND	Punch Tray for 328-45 St Tooling

STAINLESS STEEL WIRE TOOLING BASKETS

Individual punch and die baskets are ideal for use in ultrasonic washing, rinsing and drying units.

- Stackable
- Sturdy, 316L stainless steel construction
- Economical

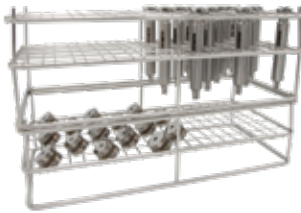


TRAY CAPACITIES:

- **"B" Punch Tray:** 55 punches
- **"B" Die Tray:** 50 dies
- **"D" Punch Tray:** 36 punches
- **"D" Die Tray:** 36 dies

EXTERIOR DIMENSIONS (L X W X H):

- 17 x 8 x 5" (432 x 203.2 x 127 mm)



MA 7533 and MA 7534 shown stacked together for efficient cleaning

STAINLESS STEEL WIRE TOOLING BASKETS

Punches		Dies	
Part No.	Item Description	Part No.	Item Description
MA 7533	Basket for "B" Punches	MA 7534	Basket for "B" Dies
MA 7535	Basket for "D" Punches		
MA 7538	Basket for 328 Punches	MA 7536	Basket for "D" Dies
MA 7539	Basket for FS12 Punches		

MULTI-PURPOSE TOOLING STORAGE BOX TRAYS

The easiest tooling tray yet, from the cleaning unit to the storage box! Molded keyways and guides prevent tooling damage and allow for effortless transfer of tooling to the Natoli Tooling Storage Box Trays. An optional handle and leg kit allows the tooling tray to function separately from Natoli Tooling Storage Boxes (see page 89) without compromising tool safety. Available in three colors for easy identification.

- Perfect for use in Natoli's Ultrasonic Cleaning Units (see pages 42–43), as well as transporting
- Trays have drainage holes for water to escape
- Punches and dies can be stored together in sets
- Head support for easy tool removal

TRAY CAPACITIES:

- **"B" Tray:** 72 "B" punches and 38 "B" dies or 72 "B" punches and 48 "BB" dies
- **"D" Tray:** 48 "D" punches and 24 "D" dies



TOOLING STORAGE BOX TRAYS

Part No.	Item Description	Color
MA 5184	"B" Tray	Cream
MA 5184R	"B" Tray	Red
MA 5184B	"B" Tray	Black
MA 5185	"B" Handle Kit	—

TOOLING STORAGE BOX TRAYS

Part No.	Item Description	Color
MA 5186	"D" Tray	Cream
MA 5186R	"D" Tray	Red
MA 5186B	"D" Tray	Black
MA 5187	"D" Handle Kit	—

CLEANING SOLUTIONS FOR ULTRASONIC CLEANERS

Natoli's line of recommended cleaning solutions are specially formulated for use in ultrasonic cleaners (see pages 42–43). They were chosen through first-hand experience to yield the best possible cleaning results. All solutions are available in a one-gallon container (3.8 L).

NATOLI ALKALINE WASH SOLUTION

Ultrasonic liquid detergent concentrate developed for cleaning tooling. Use as a standalone cleaner or as an alkaline wash solution booster.

- Removes oils, grease, particulate matter, and other contaminants
- Safe on steel, ceramic, glass, and more
- USDA Category A1



MA 6026



SCAN HERE
for Safety Data Sheet (SDS)

CHEM-CREST® 211 WASH SOLUTION

A multipurpose, heavy-duty, biodegradable, phosphate- and caustic-free, concentrated alkaline cleaner.

- Removes heavy oils, greases, lubricants, buffing and lapping compounds, fingerprints, contaminants, silicone oils, and ink markings
- Safe on aluminum, brass, bronze, copper, steel, glass, plastics, hard rubber, and ceramics



MA 6024



SCAN HERE
for Safety Data Sheet (SDS)

CHEM-CREST® 77G RINSE SOLUTION & CORROSION INHIBITOR

A rust inhibitor concentrate provides short-term oxidation protection during rinsing and air-drying applications.

- Only use with rinse cycle in rinse tank
- Ideal for cleaning tooling prior to long-term storage
- **For use on steels only**
- Do not use on aluminum, copper-, or zinc-containing substrates



MA 6036



SCAN HERE
for Safety Data Sheet (SDS)

ULTRASONIC CLEANING SOLUTIONS

Part No.	Item Description
MA 6026	Natoli Alkaline Wash Solution
MA 6024	Chem-Crest® 211 Multipurpose Cleaning Additive
MA 6036	Chem-Crest® 77G Rinse Solution & Corrosion Inhibitor

MANUAL WASH SOLUTIONS (NON-ULTRASONIC)

HEAVY-DUTY CITRUS DEGREASER

An orange-scented, concentrated citrus degreaser with increased cleaning performance capable of removing the most stubborn stains and spills.

- Recommended for ALL applications **below the compression zone**
- FDA-Compliant for non-food contact surfaces
- Biodegradable and environmentally safe
- Designed for international shipment

HEAVY-DUTY CITRUS DEGREASER	
Part No.	Item Description
SU 2536	Heavy-Duty Citrus Degreaser-1 gal. (3.8 L)



RUST/CORROSION REMOVER

A NON-HAZARDOUS compound formulated as a very safe and alternative method for removing surface rust and salvaging parts. Formulated as a safe, water-based, and pH-neutralized compound. This product eliminates the need to use hazardous acids and extensive PPE to perform rust removal. Use on spare parts, turrets, and all steel/metal components that require re-conditioning after exposure to water, moisture, etc. resulting in corrosion/rust.

CORROSION/DUST REMOVER	
Part No.	Item Description
SU 2563	Corrosion/Rust Remover



PK-3 H-1 PHARMACEUTICAL CLEANER/ CORROSION INHIBITOR

Cleaning agent with corrosion inhibiting feature. Great for cleaning turrets, press parts, tooling, and all steel types.

FEATURES:

- Removes contaminants from product contact parts
- Protects against corrosion
- Contains no allergens
- Long shelf life
- H-1/Halal/Kosher/Passover Certified

PK-3 CLEANER & CORROSION INHIBITOR	
Part No.	Item Description
MA 6233	PK-3 Cleaner/Corrosion Inhibitor-1 gal. (3.8 L)



EXCLUSIVE TURRET GUIDE CLEANING BRUSHES

Heat and abrasion resistant, Natoli's line of custom, pharmaceutical-grade brushes feature high-density, ultra-stiff 612 nylon bristles. **These brushes are exclusively available through Natoli.**

ULTRA-STIFF NYLON BRISTLE BRUSHES

Excellent for proper punch guide cleaning.

- 12" (304.8 mm) spiral tube brush (with loop end)



ULTRA-STIFF NYLON BRISTLE BRUSHES

Part No.	Brush Diameter	Punch Type
SU 0058	3/4" (19.05 mm)	B
SU 0060	1" (25.4 mm)	D
SU 0062	1 1/8" (28.575 mm)	533/328-45
SU 0064	1 1/4" (31.75 mm)	533/328-33 or DS3
SU 0066	1 5/8" (33.33 mm)	DD2-31

DIE POCKET SIDE-ACTION CLEANING BRUSHES

Part No.	Brush Diameter	Punch Type
SU 0100	0.945" (24 mm)	BB
SU 0101	1.187" (30.14 mm)	B
SU 0103	1.500" (38.1 mm)	D
SU 0102	1.312" (33.32 mm)	533/328-45
SU 0104	1.625" (41.275 mm)	533/328-33
SU 0105	2.000" (50.8 mm)	DS3
SU 0106	2.125" (53.975 mm)	DD2 or DDS2

DIE POCKET SIDE-ACTION CLEANING BRUSHES

Use to clean die pockets to ensure accurate die seating.



SOFT-TIP NYLON BRUSH

Acetal handle and nylon bristles are great for safely and easily removing product from punch cups. Ideal for tooling maintenance and preservation.



SOFT-TIP NYLON BRUSH

Part No.	Item Description
SU 0500	Soft-Tip Nylon Brush

DIE BORE CLEANING BRUSHES

Cleans die bore to prevent lower punch tips from binding in the die.

- Total length of each brush is 3 1/2 in. (90mm)



DIE BORE CLEANING BRUSHES

Part No.	Brush Diameter
SU 0107	1/4" (6.35 mm)
SU 0108	3/8" (9.52 mm)
SU 0109	1/2" (12.7 mm)
SU 0110	5/8" (15.87 mm)
SU 0111	3/4" (19.05 mm)
SU 0112	7/8" (22.22 mm)
SU 0113	1" (25.4 mm)

6" LINEN PHENOLIC EMBOSSEING PICKS

These non-scratch, phenolic material picks are the perfect tool for punch faces, especially when removing stubborn product from hard-to-reach places like embossing, bisects, etc. They can quickly be re-sharpened to extend the life of each pick.

FEATURES:

- Non-scratch material, perfect for punch faces



MA 7515 in use

6" LINEN PHENOLIC EMBOSSEING PICKS

Part No.	Item Description
MA 7515	6" Linen Phenolic Embossing Picks (6-pack)

LINT-FREE WIPING CLOTHS

Solvent-resistant, multipurpose, heavy-duty cleaning cloths.

- Quickly absorb liquids, oils and greases



LINT-FREE WIPING CLOTHS

Part No.	Item Description
MA 6018	Lint-Free Wiping Cloths (140 Count)

16 OZ. SPRAY BOTTLE

Nozzle adjusts from mist to steady stream and helps provide a more accurate flow control. **Perfect for use with H-1 Tooling Storage Protectant (see page 84) and/or PK3 (see page 47).**



16 OZ. SPRAY BOTTLE

Part No.	Item Description
MA 3000	16 oz. Spray Bottle (2-Pack)



FastLok™

DIE TABLE SURFACE

Do Not Buy Another Turret or Die Table Without Natoli's Patented FastLok™ Technology



***Your turret isn't the problem
—your die table surface is.***

FastLok from Natoli Engineering is the industry's first and patented snap-in, tool-less die table surface that lets you restore performance without replacing your die table. Designed for speed, durability, and cost-efficiency, FastLok gets your tablet press back in production faster—at a fraction of the cost.

Why Choose FastLok ?

- Tool-less Installation and Removal
- Minimize Downtime, Maximize Value
- Eliminate Contamination Due to Table Damage
- Built Tough—Upgrade Ready
- Low-Cost Replacement Plates
- Operate a Cleaner Press for Better Yields

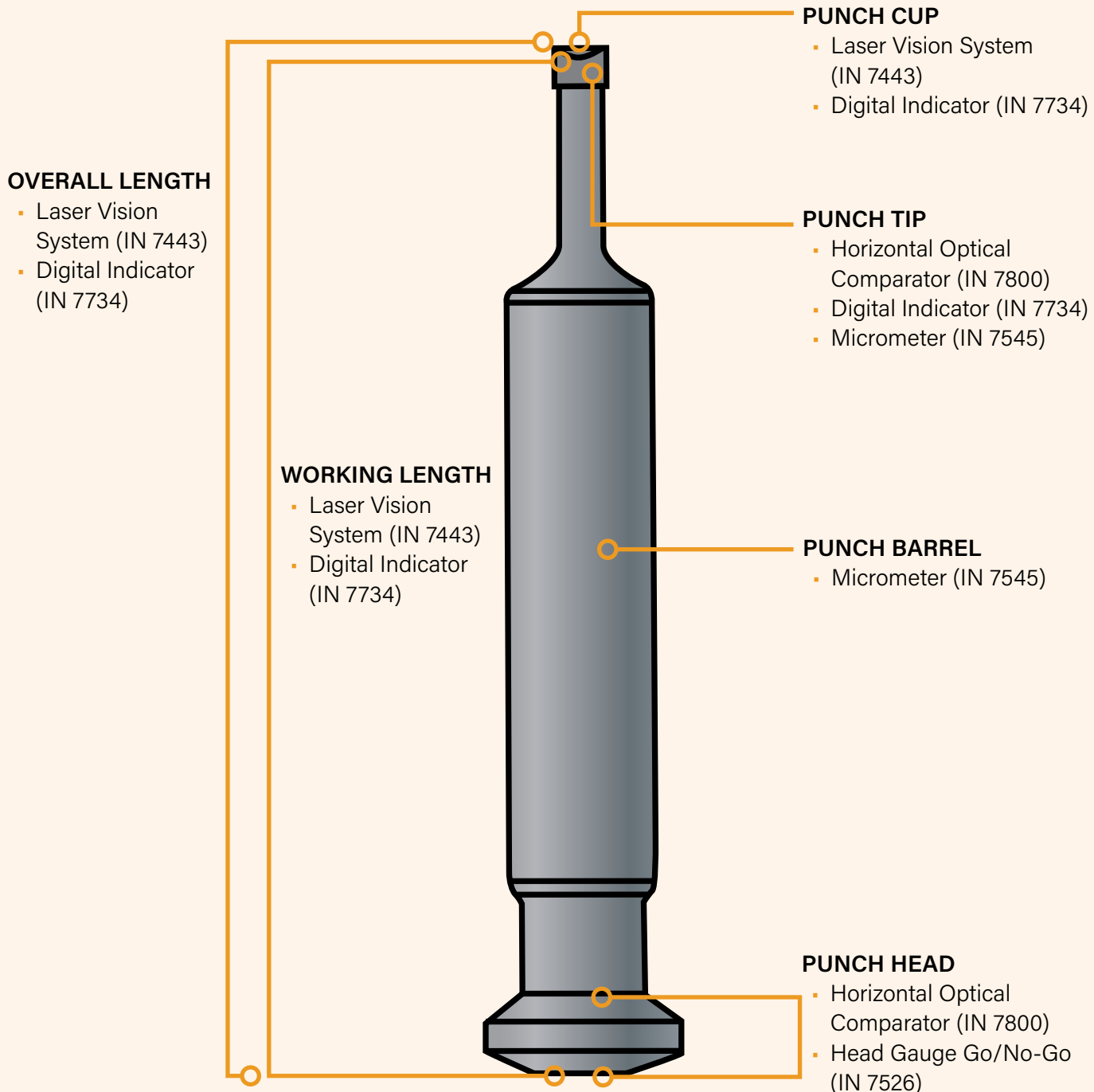


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INSPECTION

Tablet production is stressful on punches and dies. Extending tool life saves operating costs and produces high-quality tablets. Consistent tool inspection procedures help you know when your tools are worn. Using the correct inspection equipment is an important step to increase tablet quality and reduce tooling costs.

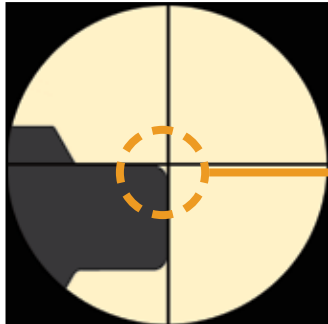


HORIZONTAL OPTICAL COMPARATOR

The **ONLY** method for checking punch tip wear and perfect for inspecting surface details of engraving, embossed logos, bisects, and punch head profiles, the Horizontal Optical Comparator is the most versatile piece of inspection equipment. It provides a bright, crisp image for error-free inspection of tooling AND tablets.

INSPECTION WITH THE HORIZONTAL OPTICAL COMPARATOR:

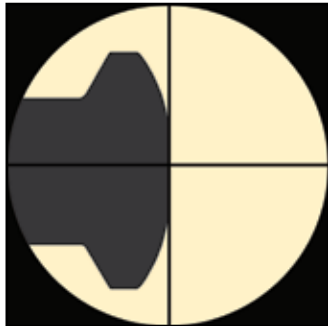
1. Measure punch tip wear
2. Using overlays, compare tablet embossing with original tablet drawing to ensure accuracy
3. Check tablet contour, i.e., cup radius (with overlays)
4. Check head configuration



A MUST for checking tip wear



Check tablet profile and flashing



Check head configuration



HORIZONTAL OPTICAL COMPARATOR	
Part No.	Item Description
IN 7800	Horizontal Optical Comparator
IN 7801	Machine Stand
IN 7803	KA Counter

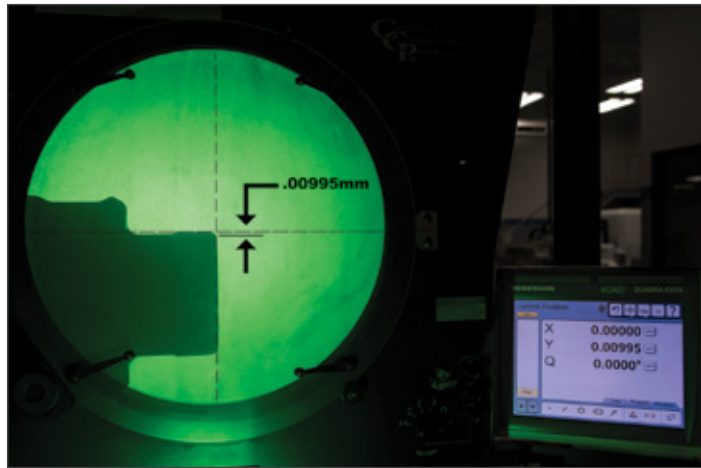
Shown with IN 7801 and IN 7803

FEATURES:

- Generous X, Y work stage travel—
8 x 4" (203.2 x 101.6 mm)
- Handles workloads up to 100 lb. (45 kg)
- 10x projection lens
- Fiber illuminator included
- KA Counter displays measurements and dimensions of tooling (optional)
- Machine stand features lockable compartment to hold overlays and accessories (optional)

EXTERIOR DIMENSIONS (L X W X H):

- 53.3 x 25.5 x 43.3"
(1.355 x 0.648 x 1.10 m)



With a comparator, the magnified silhouette of a punch tip is projected upon a screen, usually at 10x, but can also be at 20x or even greater magnification. The wear of the part can be easily inspected and even measured against prescribed limits.

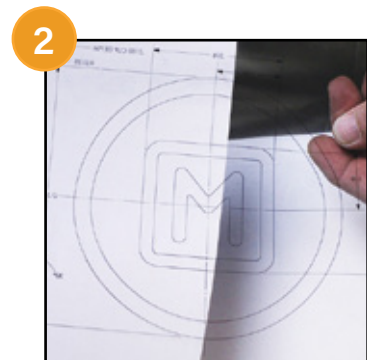
CUSTOMIZED OVERLAYS FOR THE HORIZONTAL OPTICAL COMPARATOR

Easily confirm conformance of your punch cup to drawing with customized overlays for the Horizontal Optical Comparator. By checking embossing of punch cups for deviation from tablet drawings, you'll also have better security against counterfeit tablets.

Discovering your tablet does not match the tool drawing is a common problem. When reordering tooling, if your tablet is out of specification from the drawing, the decision will need to be made if your tool will match the drawing or a produced tablet.

HOW CUSTOMIZED OVERLAYS WORK:

1. Punch tip to be inspected
2. A clear overlay is created from a tablet drawing
3. Customized overlay is placed on the screen
4. Easy adjustments are made to align overlay with punch tip





Don't let **tip wear** come between you and flawless tablets.

Identify worn tools to avoid tablet defects with the groundbreaking patented **Laser Vision System (LVS) Advanced**. The **only solution on the market** to measure and quantify critical punch tip edge wear dimensions to help prevent tablet production quality issues, punch binding, and tool & cam wear.



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LASER VISION PUNCH INSPECTION SYSTEM (LVS)

Speed up the inspection process with this non-contact laser punch inspection system. Laser technology measures the critical dimensions of a punch: working length, cup depth, and overall length for precise, automated inspections in seconds.

FEATURES:

- Multi-tip tooling capability
- Efficient one-step measurements
- Enhanced camera view of punch cup with zoom lens
- More control with enhanced software interface
- Automatic real-time measurements
- Integrated touchscreen controls
- Image capture function
- All electrical, few moving parts



New streamlined design features an upgraded software system and smaller footprint.

LASER VISION PUNCH INSPECTION SYSTEM

Part No.	Item Description
IN 7443	LVS Automatic Laser Punch Inspection System
LE 7051	LVS Equipment Cover (not shown)
IN 7449	"B" Tooling Nest
IN 7445	"B" Tooling Reference Point Length Standard (not shown)
IN 7446	"B" Tooling Reference Standards (not shown)
IN 7448	"D" Tooling Nest (not shown)
IN 7444	"D" Tooling Reference Point Length Standard (not shown)
IN 7447	"D" Tooling Reference Standards (not shown)
IN 7440	Natoli "FS12 Type" Short Reference Standard (not shown)
IN 7441	Natoli "FS12 Type" Long Reference Standard (not shown)

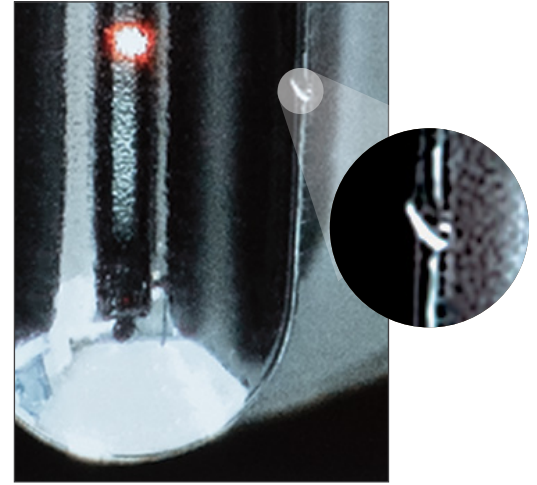


Laser Vision System (LVS) laser focused on punch cup and displayed in real time on monitor

The “non-contact” LVS system utilizes dual laser technology to inspect punches. Unlike the sharp point on a gauge, a laser beam poses no risk of scratching the surface of the punch tip when trying to locate the deepest point of the cup. And with no moving parts, the LVS is virtually maintenance-free.



Laser Vision System infrared laser focused on a multi-tip punch



Detect tip damage with the Laser Vision System's camera

The LVS interfaces with Tool Management II (TM-II) database software (see page 57) for automatic inspection data storage and analysis, making it the most powerful punch inspection and tool control device available. Measurements are transferred directly into the database with the click of a button, increasing efficiency and eliminating data entry errors. The automated “no-nonsense” approach eliminates the need for traditional time-consuming, inaccurate, and costly inspection procedures and prevents press downtime by inspecting and automatically recording the critical dimensions.

Proper analysis of the punch working length dimension is a critical function of the TM-II application. As such, the working length measurement of each punch is compared to the working lengths of the other punches rather than to preset tolerance values. Learn more about TM-II software and compatible inspection kits on page 58.



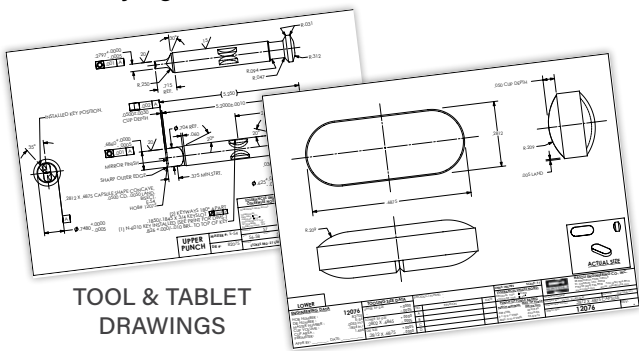
NATOLI'S TOOL MANAGEMENT II (TM-II) SOFTWARE PACKAGE

Forecast tooling life to eliminate defective tablets! Keep records of critical working lengths and easily manage your inventory including tool matching, storage, usage, location, inspection and tolerance reporting. Natoli's Tool Management II (TM-II) software is the most powerful and comprehensive tooling database available and helps tablet manufacturers improve product quality and consistency, eliminates waste, and ensures compliance with cGMP record-keeping requirements.

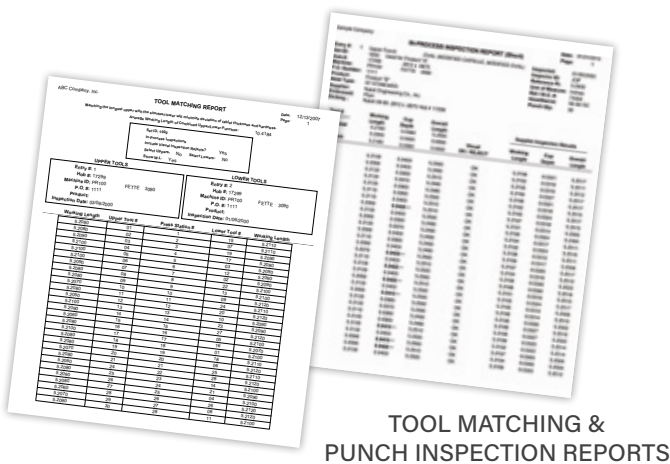
TM-II places comprehensive tool management and inspection information at your fingertips, resulting in better tablet quality and reduced press downtime, creating a scenario where there is virtually no deviation in overall tablet thickness. The software can be used with various digital electronic measuring devices, such as the LVS (IN 7443—see pages 55–56) and digital indicator (IN 7508—see page 58).

MANAGE TOOLING INVENTORY THROUGH:

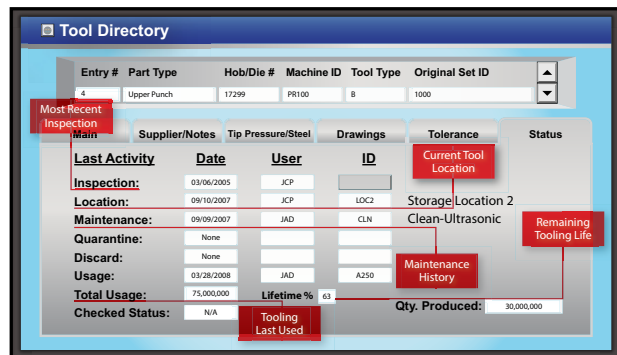
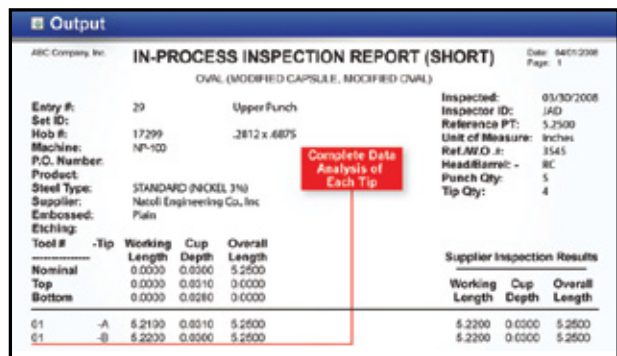
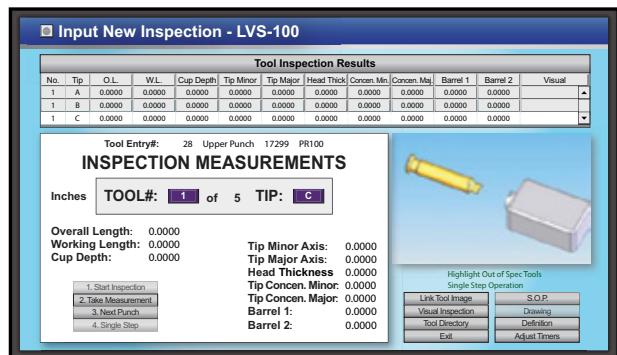
- Tool matching
 - Tool storage
 - Tool inspection
 - Tolerance reporting
 - Monitoring tool usage
 - Identifying tool location
 - Maintaining tool drawing files
 - Printing reports
 - Creating purchase orders for additional or replacement tool sets
 - 21 CFR Part 11 Compliant
- AND MORE!**



TOOL & TABLET DRAWINGS



TOOL MATCHING & PUNCH INSPECTION REPORTS



TOOL MANAGEMENT II (TM-II) SOFTWARE	
Part No.	Item Description
IN 7578	TM-II Software (Single-User)
IN 7579	TM-II Multi-User Network Upgrade (5-User)
IN 7599	TM-II Multi-Tip Module (Software Add-on)
IN 7560	TM-II Software Validation Package

MANUAL TOOL MEASUREMENT/TM-II EQUIPMENT

Eliminate manual record-keeping! Manually measure tooling with any kit in conjunction with the TM-II software by storing measurements quickly and error-free. Data will transfer directly from the measurement device to the computer. Kits also include a foot controller, data input tool for USB port, and a connecting cable (not shown). All items are available for purchase separately.

CERTIFICATE OF CALIBRATION

Please specify if a Certificate of Calibration is required for any instruments within the inspection section.



WORKING LENGTH, CUP DEPTH & OVERALL LENGTH KIT

Kit Includes: (A) Mitutoyo Digital Indicator, (B) Mitutoyo Data Input Tool for USB, (C) Connection Cable with Foot Switch, (D) Granite Base with Stand Extension, (E) Indicator Lighting Handle with Tip, (F) 5.25" Length Standard, (G) B-Type Punch Holder, and (H) D-Type Punch Holder

WORKING LENGTH, CUP DEPTH, & OVERALL LENGTH KIT	
Part No.	Item Description
IN 7583	Working Length, Cup Depth, & Overall Length Kit
IN 7508	Mitutoyo Digital Indicator
IN 7675	Mitutoyo Data Input Tool for USB
IN 7461	Connection Cable with Foot Switch (IN 7676)
IN 7503	Granite Base with Stand Extension (IN 7495)
IN 7588	Indicator Lifting Handle with Tip (IN 7513)
IN 7589	5.25" Length Standard
IN 7574	B-Type Punch Holder
IN 7577	D-Type Punch Holder



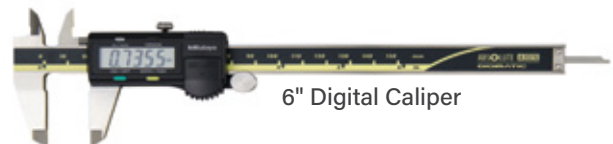
DIE ID, OD & OL KIT

Kit Includes: (A) 0-1" Outside Digital Micrometers with SPC Readout, (B) 1-2" Outside Digital Micrometer with SPC Readout, (C) 0-6" Digital Calipers with SPC Readout, (D) Data Input Tool for USB, (E) Connecting Cable, and (F) Foot Switch



0-1" Digital Micrometer

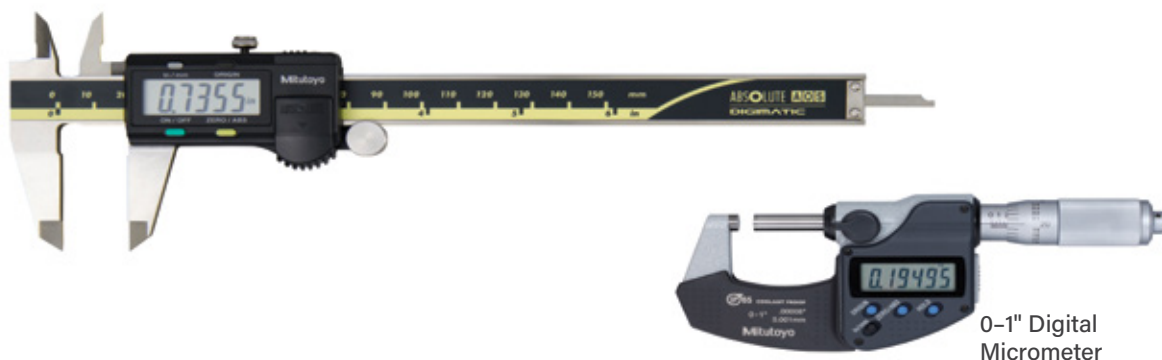
DIE ID, OD, & OL KIT	
Part No.	Item Description
IN 7718	Die ID, OD, & OL KIT
IN 7425	0-1" Outside Digital Micrometer with SPC Readout
IN 7426	1-2" Outside Digital Micrometer with SPC Readout
IN 7519	0-6" Digital Calipers with SPC Readout
IN 7675	Data Input Tool for USB
IN 7461	Connecting Cable
IN 7676	Foot Switch



6" Digital Caliper

TIP & BARREL KIT

Kit Includes: Digital Micrometer, Mitutoyo Data Input Tool for USB, Connecting Cable, and Foot Switch



0-1" Digital Micrometer

TIP & BARREL KIT			
"B" & "D" Tooling		533/328 Tooling	
Part No.	Item Description	Part No.	Item Description
IN 7715	Tip & Barrel Kit for "B" & "D" Tooling	IN 7716	Tip & Barrel Kit for 533/328 Tooling
IN 7425	0-1" Digital Micrometer	IN 7426	1-2" Digital Micrometer
IN 7675	Mitutoyo Data Input Tool for USB	IN 7675	Mitutoyo Data Input Tool for USB
IN 7458	Connecting Cable	IN 7458	Connecting Cable
IN 7676	Foot Switch	IN 7676	Foot Switch

TIP/BARREL CONCENTRICITY KIT

Damaged/bent punch tips and barrels can lead to binding and other production issues. Use the concentricity kit to quickly and easily verify that punches meet concentricity specifications. The magnetic base and indicator are also commonly used to measure runout on die tables and pressure rolls.



DIAL INDICATOR INSPECTION

Part No.	Item Description
IN 7504	Dial Indicator (Inch)
IN 7474	Dial Indicator (Metric)
IN 7501	Indicator Magnetic Base
IN 7910	V-Block with Head Cutout & Pin Openings
IN 7915	V-Block Plate with Nest
IN 7588	Indicator Lifting Lever

DIE BORE INSPECTION EQUIPMENT

Inspecting die bores for wear rings is crucial for reducing tool wear and binding, as well as tablet defects like capping and lamination. High ejection and compression forces contribute to these wear rings. Inspection can be done with ease and accuracy using the test stand, digital indicator, and appropriately sized split probes.



Split Ball Probe Set will be based on die bore dimensions (tablet size).



DIE BORE GAUGE TEST STAND

Part No.	Item Description
IN 7721	Die Bore Gauge Stand
IN 7734	Digital Indicator (Std/Imp)
IN 7736	Digital Indicator Metric

STANDARD SPLIT BALL BORE GAUGE (PROBE SET) INCLUDES SETTING RINGS

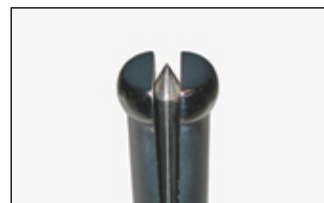
Part No.	Range
IN 7740	0.037-0.061"
IN 7741	0.060-0.157"
IN 7722	0.145-0.290"

METRIC SPLIT BALL BORE GAUGE (PROBE SET) INCLUDES SETTING RINGS

Part No.	Range
IN 7744	0.95-1.55 mm
IN 7745	1.5-4.0 mm
IN 7746	3.7-7.3 mm



Die Wear Ring



Split Bore Gauge



Split Bore Gauge in Die



Split Bore Gauge in Die

DELUXE DIGITAL HANDHELD MICROSCOPE

View punch tip damage in spectacular detail with this small, handheld Deluxe Digital Microscope. **CE compliant.**

FEATURES:

- 10x—50x, 240x variable magnification
- 5 mega-pixels
- 2584 x 1936 resolution
- Built-in polarizer for glare reduction
- 8 white built-in LEDs (on/off)
- Built-in measurement feature with calibration
- Micro-touch trigger for quick photos/videos
- Metal aluminum alloy encasement
- USB powered

DIMENSIONS (H X D):

- 4 x 1.26" (102 x 32 mm)



Punch Tip Damage Photo Taken with IN 7951



Punch Tip Damage Photo Taken with IN 7951



*Shown with item IN 7965

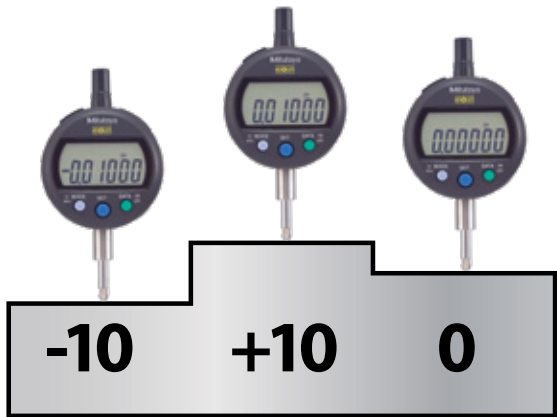
DELUXE DIGITAL HANDHELD MICROSCOPE & ACCESSORIES

Part No.	Item Description
IN 7951	Deluxe Digital Handheld Microscope Kit (Includes IN 7960, IN 7963, IN 7966, IN 7961, IN 7965, IN 7964, and IN 7967)
IN 7960	Tabletop Stand
IN 7963	Dual USB Foot Pedal Trigger (not shown)
IN 7961	Pole Extension for IN 7960
IN 7965	Flexible Arm for IN 7960
IN 7967	Polarized LED Light (USB Powered)

3-STEP VALIDATION HEIGHT STANDARD GAUGES

Validate digital indicator accuracy with Natoli calibration standards. **Custom manufactured height standards are available upon request.**

- A **Certificate of Calibration** is included with each standard
- For use with validation of dial indicator



3-STEP VALIDATION HEIGHT STANDARD GAUGE	
Part No.	Item Description
IN 7597	5.25" 3-Step (± 0.01)
IN 7649	5.26" 3-Step (± 0.01)

HEIGHT STANDARD GAUGE

Set up inspection gauge to the most common tool lengths. **Custom sizes available upon request.**



HEIGHT STANDARD GAUGE	
Part No.	Item Description
IN 7589	5.25" (133.35 mm)
IN 7648	5.26" (133.6 mm)
IN 7000	6.062" (154 mm)
IN 7001	6.250" (159 mm)

DIGIMATIC INDICATOR- DIE BORE MEASUREMENT

High Resolution Indicator that provides finer, more detailed measurements to assess die bore wear. Can also be used to check die table and pressure roller run-out.

FEATURES:

- Inch/mm conversion
- Designed for inside measurement with minimum value hold and tolerance judgment function
- Measurement data memory function (9 measurement results can be stored)
- Simple operation of many functions using five buttons and status icons
- Wide LCD and new analog bar graph
- Performs sampling at 50 times per second and detects peak value more accurately
- Use with the IN 7461 straight plug SPC data cable (80" /2m)

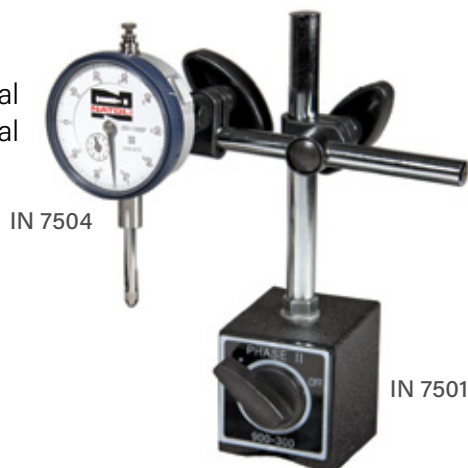


DIGIMATIC INDICATOR- DIE BORE MEASUREMENT

Part No.	Measuring Range	Accuracy
IN 7734	0-0.5" (0-12.7 mm)	± 0.00012" (0.0030 mm)

DIAL INDICATOR & MAGNETIC BASE

Easily check tip concentricity and die table run-out with the Dial Indicator. Use with Indicator Magnetic Base to secure to metal items.



*Indicator and base sold separately

DIAL INDICATOR

Part No.	Item Description
IN 7504	Dial Indicator (Inch)
IN 7474	Dial Indicator (Metric)
IN 7501	Indicator Magnetic Base

DIAL INDICATOR REPLACEMENT POINTS

Eliminates scratching of punch cups.

DIAL INDICATOR REPLACEMENT POINTS

Part No.	Item Description
IN 7507	Nylon Indicator Replacement Tip
IN 7513	Long Indicator Tip
IN 7506	22-Piece Set (9 Flat, 5 Ball, 4 Tapered, 3 Regular, 1 Bent-Regular)



DIGITAL CALIPERS WITH ABSOLUTE ENCODER

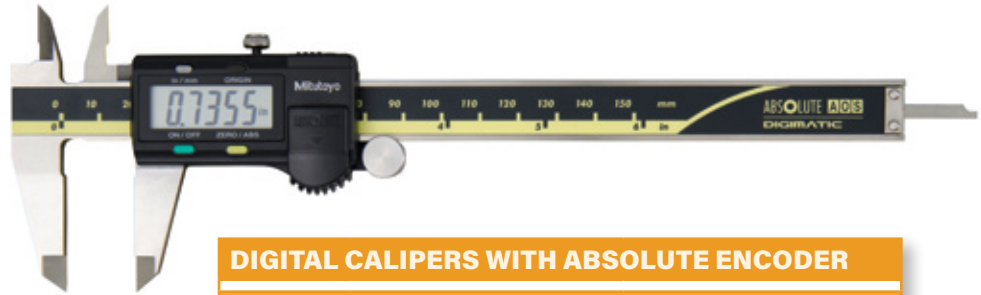
Designed for both outside and inside die diameter measurements, calipers feature an Absolute Encoder with special functions that allow it to remember its measuring position after being switched off.

ABSOLUTE ENCODER FEATURES:

- **Origin:** Allows setting of an origin point to be used for reference in subsequent measurements. Once set, the Absolute Encoder caliper will switch on, showing its true position from the origin point rather than from 0.0000 as with standard models.
- **Zero/ABS:** Allows the display to be set to zero at any point along the slider for incremental comparison measurements. This switch will also allow return to the absolute mode and display the true position from the origin point.

CALIPER FEATURES:

- Inch/mm conversion
- SPC port
- Storage case included



DIGITAL CALIPERS WITH ABSOLUTE ENCODER

Part No.	Measuring Range	Accuracy
IN 7519	0-6" (0-152 mm)	± 0.001" (± 0.025 mm)
IN 7520	0-12" (0-300 mm)	± 0.0015" (± 0.038 mm)

POCKET DIGITAL TABLET THICKNESS GAUGE

- Zero/ABS
- Inch/mm conversion
- SPC port
- Use with IN 7460 connecting cable

POCKET DIGITAL TABLET THICKNESS GAUGE

Part No.	Measuring Range	Accuracy	Throat
IN 7522	0-0.47" (0-11.93 mm)	± 0.001" (± 0.015 mm)	1.18" (29.97 mm)



OUTSIDE MICROMETERS

Measure punch diameters, tip dimensions, and tablet thickness with outside micrometers. A Certificate of Inspection is included with each Mitutoyo instrument listed in this section.

Selecting the Proper Micrometer Measuring Range:

- A measuring range of 0–1" (0–25.4 mm) is used for "B" and "D" punch barrels and tips and 0.945" (24 mm) dies
- A measuring range of 1–2" (25.4–50.8 mm) is used for punch barrels and tips larger than 1" and die diameters of 1.1875" (30.1625 mm) and 1.5" (38.1 mm)

DIGITAL MICROMETERS WITH ABSOLUTE ENCODER

- SPC port
- Carbide-tipped measuring face
- Inch/mm conversion
- Storage case included



DIGITAL MICROMETERS WITH ABSOLUTE ENCODER

Part No.	Measuring Range	Accuracy	Standard
IN 7425	0–1" (0–25.4 mm)	±0.00005" (±0.00127 mm)	—
IN 7426	1–2" (25.4–50.8 mm)	±0.00005" (±0.00127 mm)	1" (25.4 mm)

IN 7425 measures BB dies, and B and D punches. IN 7426 measures B and D dies. Use with IN 7460 cable.

MICROMETER STANDS

Take clumsiness out of your measurements. When you need two hands, the micrometer stand is a must!

- Weighted base
- 6.5 x 4.5 x 3.5" (165 x 114 x 89 mm)

MICROMETER STANDS

Part No.	Item Description
IN 7498	Fixed-Angle Micrometer Stand
IN 7499	Swivel-Angle Micrometer Stand



WISE WITH VACUUM BASE & JAW PROTECTORS

Designed to secure a variety of work pieces.

Great for safely removing and replacing keys.

- 360° rotation, 360° swivel, 90° pivot
- Includes replacement set of rubberized jaws
- **Adjustable jaws:** 0–2.5" (0–63.5 mm)



WISE WITH VACUUM BASE & JAW PROTECTORS

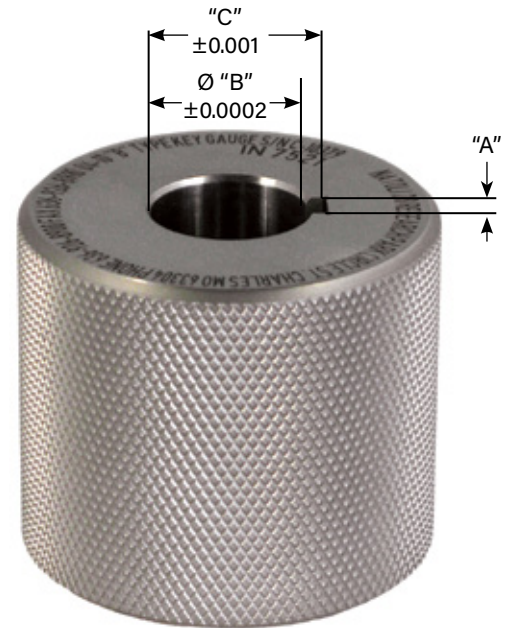
Part No.	Item Description
IN 7562	Vise with Vacuum Base

PUNCH KEY GAUGES

Ensure a proper fit between the punch key and turret guide keyway with Natoli Punch Key Gauges.

PUNCH KEY GAUGES				
Part No.	Punch Type	"A"	"B"	"C"
IN 7521	"B"	0.1875–0.1880" (4.76–4.77 mm)	0.7500" (19.05 mm)	0.834" (21.18 mm)
IN 7523	"D"	0.1875–0.1880" (4.76–4.77 mm)	1.0000" (25.4 mm)	1.084" (27.53 mm)
IN 7647	533/328-33	0.2500–0.2505" (6.35–6.36 mm)	1.2500" (31.75 mm)	1.3580" (34.49 mm)
IN 7646	533/328-45	0.1875–0.1880" (4.76–4.77 mm)	1.1250" (28.57 mm)	1.2040" (30.58 mm)

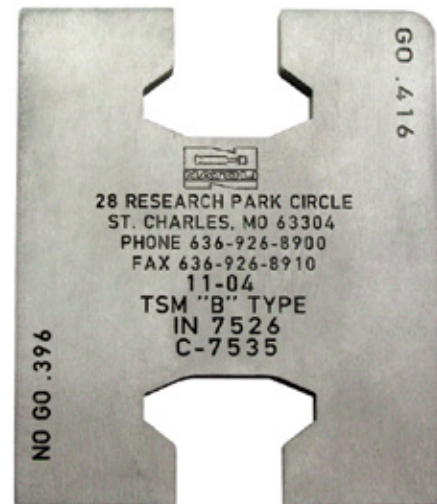
Certificate of Calibration available (see page 58).



HEAD GAUGE GO/NO-GO

Accurately checks and confirms punch head and profile. *Custom head gauges are available upon request.*

HEAD GAUGE GO/NO-GO	
Part No.	Punch Type
IN 7526	TSM "B"
IN 7529	Domed—"B"
IN 7551	European (EU-19)—"B"
IN 7553	Kilian European—"B"
IN 7555	Korsch European—"B"
IN 7557	Manesty European—"B"
IN 7528	TSM "D"
IN 7530	Domed—"D"
IN 7552	European (EU-1)—"D"
IN 7556	Korsch European—"D"
IN 7558	Manesty European—"D"
IN 7527	533/328 45-Station Turret
IN 7535	Domed—533/328 45-Station Turret
IN 7672	533/328 33-Station Turret
IN 7673	Domed—533/328 33-Station Turret
IN 7525	DS3
IN 7567	FS12
IN 7697	EU-441
IN 7534	Domed—DS3
IN 7559	Special Order



LOWER CALIBRATION PUNCHES

- Used to check punch tips at tablet take-off
- Low ejection can damage tablets.
- High ejection can damage tools, tablet take-off, feeder pans, etc.



LOWER CALIBRATION PUNCHES

Part No.	Punch Type
SU 0234	B
SU 0235	D
SU 0236	B2
SU 0237	533/328-45
SU 0239	Tip Deflection Special Order
SU 0238	Special Order

Certificate of Calibration available.
See part IN 7400 (see page 58).

DIE POCKET GAUGE

Is your die pocket experiencing premature wear or tip breakage? Die Pocket Gauges are sized to determine if die pocket is oversized or worn. *Custom die pocket gauges are available upon request.*



DIE POCKET GAUGE

Part No.	Punch Type	Diameter
SU 0157	BB (0.945"/24 mm)	0.9455" (24.02 mm)
SU 0159	B (1.1875"/30.16 mm)	1.1880" (30.18 mm)
SU 0163	D (1.50"/38.1 mm)	1.5005" (38.13 mm)

CERTIFIED TURRET INSPECTION KITS

Potentially avoid tablet capping and lamination by ensuring proper punch tip to die bore alignment. Each kit includes punch guide go/no-go gauge, alignment rods and corresponding die(s).

- Easy-to-use instructions included
- Certificate of Calibration included



CERTIFIED TURRET INSPECTION KITS

Part No.	Punch Type
IN 7659	"B"
IN 7660	Fette "B" 19 mm or Kikusui "B" New Style
IN 7641	Courtoy "B"
IN 7677	Korsch "B"
IN 7622	Kikusui "B"—Old Style
IN 7846	Kilian "B"
IN 7658	"D"
IN 7661	Fette "D" 25.35 mm or Kikusui "D" New Style
IN 7678	Korsch "D"
IN 7666	Kikusui "D"—Old Style
IN 7859	Kilian "D"
IN 7664	533/328-45
IN 7668	533/328-33
IN 7662	DD2-23
IN 7663	DS3
IN 7674	Special Order

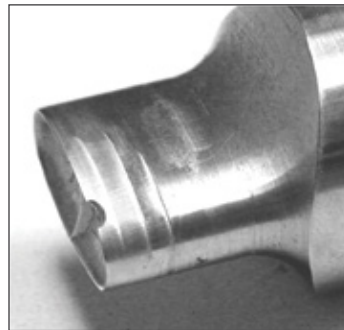
TURRET KEYWAY INSPECTION GAUGES

Prevent damage to tooling by inspecting for proper keyway alignment and wear.

- Extends tool life by reducing tool damage
- Easy-to-use
- Economical solution

TURRET KEYWAY INSPECTION GAUGES

Part No.	Punch Type
IN 7612	"B" Tooling
IN 7642	Fette "B"
IN 7837	Kikusui "B" Old Style
IN 7839	Kikusui "B" New Style
IN 7851	Korsch "B"
IN 7880	Korsch EU "B"
IN 7638	Courtoy "B"
IN 7613	"D" Tooling
IN 7632	Fette "D"
IN 7836	Kikusui "D" Old Style
IN 7838	Kikusui "D" New Style
IN 7855	Korsch "D"
IN 7881	Korsch TSM-D
IN 7637	533/328-45
IN 7858	Stokes DS3
IN 7887	Kilian 20/28
IN 7686	Special Order



Damage to punch tip from improper alignment



Damage to key from excessive wear



Certificate of Calibration available (see page 58).

PUNCH HOLDING TRAYS

Provides safer handling and storage while reducing tooling damage.

- Reduces tooling damage
- Safer handling and storage
- Prevents punches from rolling off work area
- Interlocking ends for expandable capacity

PUNCH HOLDING TRAYS

Part No.	Item Description
MA 6025*	Punch Holding Strip

*Interlocking ends for expandable capacity.



MA 6025

PUNCH HOLDERS

Stabilize punches when taking punch measurements. Can be used with keyed or non-keyed punches.



PUNCH HOLDERS

Part No.	Tooling Size
IN 7575	"B" Tooling
IN 7577	"D" Tooling
IN 7574	533/328-33 Station Turret
IN 7576	533/328-45 Station Turret

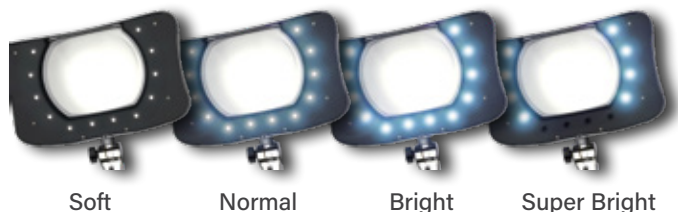
LED MAGNIFIERS

Inspect tooling with illuminated magnifiers with surface-mounted LEDs with full dimming and quadrant contrast control. Multi-angle LEDs provide shadowless lighting and reduce glare, heat, and energy consumption.

FEATURES:

- 7 x 5.25" (177.8 x 133.35 mm) rectangular lens with 43" (1.09 m) arm
- 4-diopter (2x) lens
- 4x the lumen output of a standard magnifier
- IEC plug design allows for 100–240v use
- Each unit uses 8 watts max

LIGHTING PHASES



Soft

Normal

Bright

Super Bright



LED MAGNIFIERS

Weighted Style		Clamped Style	
Part No.	Color	Part No.	Color
IN 7703	Black	IN 7701	Black
IN 7704	Red	IN 7702	Red

PREMIUM LED HANDHELD MAGNIFIER

Great for spot checks and on-the-go, the 2" (50.8 mm) diameter lens is made of optical-grade, distortion-free glass with a magnification power of 2.5x for quick, handheld inspections. Illuminate object with installed high-power LEDs, powered by three (3) AA batteries.

FEATURES:

- Instant-on
- Flicker-free bulb
- Life of 50,000 hours
- Includes carrying case



PREMIUM LED HANDHELD MAGNIFIER

Part No.	Item Description
IN 7585	Premium Handheld Magnifier/12 White LEDs
IN 7586	Premium Handheld Magnifier/24 White LEDs

HANDHELD MAGNIFIERS & EYE LOUPE

Use to inspect punch cups and tablets.



IN 7541

IN 7544

HANDHELD MAGNIFIERS & EYE LOUPE

Part No.	Item Description	Focal Length
IN 7541	4x Illuminated Magnifier (Batteries and Bulb Included)	4" (101.6 mm)
IN 7544	4x Single Lens Eye Loupe	2.5" (63.5 mm)

TABLETING SPECIFICATION MANUAL (CURRENT EDITION)

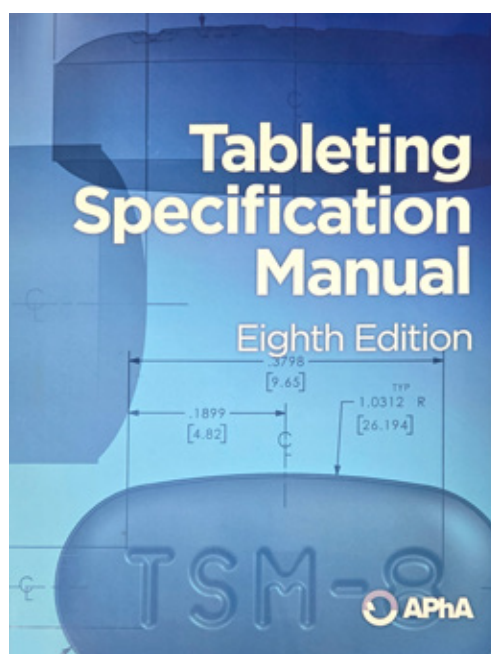
The Tableting Specification Manual (TSM) is the most valuable source of tooling information available.

SUMMARY OF TOPICS AND GUIDELINES:

- Tooling terminology and specifications
- Tablet design
- Tool steel, compression forces
- Procurement, inspection and maintenance
- Troubleshooting tablet production

TABLETING SPECIFICATION MANUAL

Part No.	Item Description
IN 7548	English
IN 7571	Spanish



POLISHING

Properly polished tools provide consistent tablet quality and peak press performance all while maximizing tool life. The **Natoli Polishing Station** works great for solving tableting issues such as picking, sticking, capping and lamination, reducing J-hook and restoring the critical punch tip land. **Natoli's Automated Polishing Machine** allows unattended operation and provides a high-chrome finish to tooling.



Natoli 5-Head Automated Polishing Machine
Part No. MA 7300



Natoli Polishing Station
Part No. MA 5501



BEFORE TOOL POLISHING



AFTER TOOL POLISHING



SCAN HERE
to shop our polishing
products online

AUTOMATED POLISHING MACHINE

Efficiently remove product, abrasions, and harmful oxidation from tooling with Natoli's Automated Polishing Machine. After reworking punch tips with the Natoli Polishing Station's unsewn buffing wheel (see pages 75), simply load punches and media into the automated polishing machine, set cycle time, and push start. Fully immersed tooling is moved through polishing media in a circular motion, ensuring consistent polishing results every time. **Additional punch and die holders can be purchased separately.**

CAPACITIES:

- **5-Head:** 80 "B" or 60 "D" punches

FEATURES:

- One-year manufacturer's warranty
- Includes IQ/OQ documentation
- Includes training USB card
- 7" Siemens touchscreen
- Recipe/batch storage
- Quick-release system for tooling holders
- Punch holders available for most tooling sizes
- Interior LED lights
- Small footprint machine
- Stainless steel frame and bottom cover
- Batch management with printing option
- Octagonal process container, allowing optimal movement of the granulate during the polishing process
- Stainless steel cover allows for easy cleaning of the polishing chamber
- Lower storage cabinet for media, additional holders, and compounds
- Stainless steel media mixing paddle
- Machine alerts user when new media is required
- Includes impregnation oil
- Includes dedusting nozzles at process container

EXTERIOR DIMENSIONS (L X W X H):

- **5-Head:** 42.30 x 34.56 x 77.24"
(1.10 x 0.878 x 1.962 m)

POWER:

- 230v, 50/60 Hz, 18 amps



AUTOMATED POLISHING MACHINE

Part No.	Item Description	Capacity
MA 7300	Natoli 5-Head Automated Polishing Machine	80 "B" or 60 "D" Punches

ACCESSORIES FOR THE AUTOMATED POLISHING MACHINE

PUNCH HOLDERS

- Holds 16 "B" type punches
- Holds 12 "D" type punches
- Custom size available



MA 7302



MA 7304

DIE HOLDER

- Holds 16 dies
- Custom OD size available

AUTOMATED POLISHING MACHINE PUNCH HOLDERS

Part No.	Item Description
MA 7302	Punch Holder "B" Type
MA 7303	Punch Holder "D" Type
MA 7309	Special Order Punch Holder

AUTOMATED POLISHING MACHINE DIE HOLDERS

Part No.	Item Description
MA 7304	"BB" Die Holder
MA 7306	"B" Die Holder
MA 7307	"D" Die Holder
MA 7308	Special Order Die Holder

WALNUT POLISHING MEDIA

- For use in Auto Polisher/Drag Finisher
- Helps restore mirror-like finish when mixed with polishing compound (MA 5237)
- Can last up to 200 cycle hours
- 20/30 shell size
- Sold in 50 lb (23 kg) bags

PLASTIC POLISHING MEDIA

- For use in Auto Polisher/Drag Finisher
- Common substitute for walnut media because of allergy concerns
- Helps restore mirror-like finish when mixed with polishing compound (MA 5237)
- Can last up to 200 cycle hours
- 20/30 shell size
- Sold in 50 lb (23 kg) bags

NATOLI POLISHING COMPOUND

Helps ensure uniform polishing results when used in conjunction with polishing media.

IMPREGNATION OIL

- Ensures uniform blending of polishing compound

MA 5237



MA 5238



MA 5912

POLISHING MEDIAS

Part No.	Item Description
MA 5238	Polishing Media: Walnut 20/30 shell (50 lb.)
MA 5912	Polishing Media: Plastic (50 lb.)
MA 5237	Polishing Compound (1 gal.)
MA 5913	Impregnation Oil (not shown)

STAINLESS STEEL POLISHING STATION

Quickly remove J-hook and burrs while restoring land to punch tips. Unsewn buffing wheels restore luster to punch cups, helping with tablet release. Deburring wheels help remove gouges, which can lead to discoloration or rust on punch barrels and excessive cam wear. **The Polishing Station provides the ONLY method that removes J-hook and restores land to the punch tip.**

FEATURES:

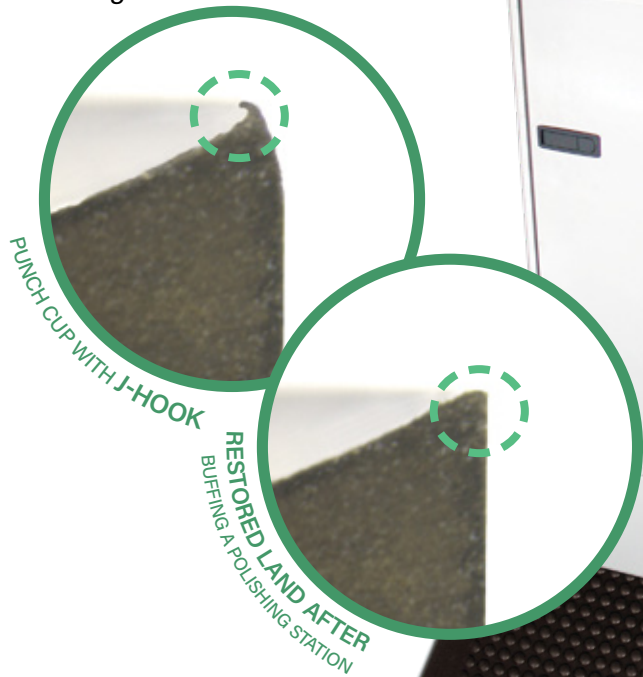
- Polished 18-gauge brushed stainless steel
- Dust hood with light and top shelf
- Main access door with safety switch
- Easy access to filters for simple replacement
- Dual downdraft vacuum system
- Safety cover

POLISHING STATION INCLUDES:

- Six replacement filters
- Two unsewn 10" buffing wheels
- 8" deburring wheel
- Deburring wheel adapter hubs
- White fine rouge bar
- Abrasive dressing stick
- *Experts Guide to Tool Polishing DVD*

EXTERIOR DIMENSIONS

- *Base footprint:* 34.25 x 16" (870 x 406 mm)
- *Floor to top of cabinet:* 37" (940 mm)
- *Across front:* 46 x 20" (1168 x 508 mm)
- *Floor to top of shelf:* 52.5" (1334 mm)



STAINLESS STEEL POLISHING STATION	
Part No.	Item Description
MA 5501	Complete Polishing Station (115v)
MA 5601	Complete Polishing Station (220v)
MA 5502	6—Replacement Filters for MA 5501 or MA 5601 (not shown)
MA 5095	Floor Mat 36 x 24" (914.4 x 609.6 mm)

MA 5095

ACCESSORIES FOR THE STAINLESS STEEL POLISHING STATION

40-PLY UNSEWN BUFFING WHEELS

The **BEST** and **ONLY** method to polish and remove J-hook. Also, it removes burrs and sharp ridges and is suitable for round, oval, or embossed single and multi-tip tooling.



Unsewn Buffing Wheel in action



40-PLY UNSEWN BUFFING WHEELS

Part No.	Item Description	Size
MA 5063	6" Unsewn Buffing Wheel	½" (12.7 mm) ID
MA 5073	8" Unsewn Buffing Wheel	½" (12.7 mm) ID
MA 5076	10" Unsewn Buffing Wheel	⅝" (15.88 mm) ID
MA 5176	10" Unsewn Buffing Wheel	¾" (19.05 mm) ID
MA 5078	12" Unsewn Buffing Wheel	1¼" (31.75 mm) ID

DEBURRING WHEEL & HUBS

Removes discoloration, rust and foreign materials from punch barrels, head angles, die ODs, and die faces. *Deburring wheel must be used with hub.*



DEBURRING WHEEL & HUBS

Part No.	Item Description	Size
MA 5044	Deburring Wheel*	8 x 2 x 3" (203.2 x 50.8 x 76.2 mm)
MA 5046	Deburring Wheel Hub (set of 2)	¾" (19.05 mm)
MA 5048	Deburring Wheel Hub	⅝" (15.88 m)

***Do not use on head flat.** It may alter critical punch working length. Use on head angles, head OD and barrels only. Use Abrasive Dressing Stick (MA 5010—see page 77) to keep deburring wheel clean and flat.

PUNCH POLISHING MOTORS

- CE compliant
- Safety cover
- 60 Hz, single-phase
- ¾ hp (3450 rpm)
- 5/8" diameter shaft
- Wheels not included



PUNCH POLISHING MOTORS	
Part No.	Item Description
MA 4042	115v Dual-Shaft Buffer Motor
MA 4047	220v Dual-Shaft Buffer Motor

BENCH-MOUNTED HOOD WITH TOP SHELF FOR POLISHING MOTOR*

Protective hood with top shelf and exhaust ports mounts to worktable and is used with polishing motors. Sized 36 x 16 x 16" (914 x 406 x 406 mm).

BENCH-MOUNTED HOOD	
Part No.	Item Description
MA 5058	Stainless Steel Hood



Shown with MA 4042 (Punch Polishing Motor)

SERIES 10 HAND POLISHING KIT

Excellent for polishing punch faces with moderate to severe abrasion.

- Back-mounted on/off switch for safety
- CE compliant

COMPLETE KIT INCLUDES:

- 22,000 rpm, 115v with ¼" Collet
- ⅛" Precision Collet insert
- Two special narrow wrenches
- Abrasive Dressing Stick 1 x 1x 6"
- Green #45 Fine Diamond Compound
- 12 Felt Bobs: ¾ x ¾" (19.05 x 19.05 mm)
- 12 Felt Bobs: ¾ x ¾" (9.52 x 9.52 mm)
- 12 Felt Bobs: ½ x ½" (12.7 x 12.7 mm)
- 12 Felt Bobs: ¼ x ¾" (6.35 x 9.52 mm)
- 12 Felt Bobs: 1 x 1" (25.4 x 25.4 mm)



SERIES 10 HAND POLISHING KIT		
Part No.	Item Description	Voltage
MA 5045	Complete Hand Polishing Kit with Molded Case	220v

NATOLI COMPLETE POLISHING KIT

Maintain and polish all shapes and sizes of tooling with the complete polishing kit. It comes equipped with a foot control and bench mount for maximum hands-free efficiency. **cCSAus approved.**

COMPLETE KIT INCLUDES:

- Hand polishing motor with foot speed control
- Clamp-on weighted hand piece stand
- Flexible shaft with sheath
- Hand piece for shaft with chuck key
- 24 Fine Dental Brushes 0.0925" (2.34 mm) shank
- 12 White Nylon Brushes 1" (25.4 mm) dia.
- 12 White Nylon Brushes ¾" (19.05 mm) dia.
- 12 Felt Bobs: ¾ x ¾" (19.05 x 19.05 mm)
- 12 Felt Bobs: ¾ x ¾" (9.52 x 9.52 mm)
- 12 Felt Bobs: ½ x ½" (12.7 x 12.7 mm)
- 12 Felt Bobs: ¼ x ¾" (6.35 x 9.52 mm)
- Abrasive Dressing Stick
- White Rouge Bar
- 320 Grit Deburring Stone
- 400 Grit Deburring Stone
- One Green Chrome Gloss Bar
- Six 6" Phenolic Embossing Picks
- Green #45 Fine Diamond Compound
- 3-In-1 Stoning Oil
- White Polishing Paste



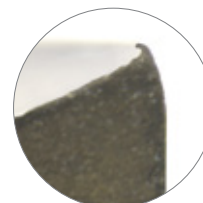
NATOLI COMPLETE POLISHING KIT	
Part No.	Item Description
MA 5001	110/115v Complete Polishing Kit
MA 5000	220/230v Complete Polishing Kit

ABRASIVE DRESSING STICK

Quickly and easily conditions Deburring Wheel surface. Aids in achieving proper cup profile for Felt Bobs.



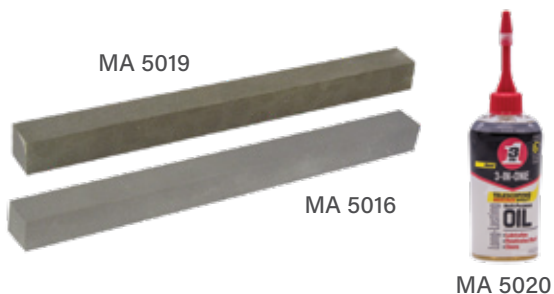
Example of J-hook on punch tip



ABRASIVE DRESSING STICK		
Part No.	Item Description	Size
MA 5010	Abrasive Dressing Stick	6 x 1 x 1" (152.4 x 25.4 x 25.4 mm)

DEBURRING STONES

Manually removes burrs and J-hooks on punch tips, which cause capping and lamination. Removes burrs on die ODs and restores land on punches. *Lubricate with Stoning Oil (MA 5029) for better cutting action.*



DEBURRING STONES		
Part No.	Item Description	Size
MA 5019	320 Grit	6 x ½ x ½" (152.4 x 12.7 x 12.7 mm)
MA 5016	400 Grit	6 x ½ x ½" (152.4 x 12.7 x 12.7 mm)
MA 5020	Stoning Oil	4 oz. (113.4 g)

FINE DENTAL BRUSHES

Ideal for light to medium punch cup polishing on plain or embossed tools. For use with the Natoli Complete Polishing Kit (see page 77).

FINE DENTAL BRUSHES		
Part No.	Item Description	Shank
MA 5004	Fine Dental Brushes (12-pack)	0.09" (2.29 mm)



NYLON BRUSHES

For use with the Natoli Complete Polishing Kit (see page 77) to polish punch cups.

NYLON BRUSHES		
Part No.	Brush Diameter	Shank
MA 5027	1" (25.4 mm)	0.09" (2.29 mm)
MA 5028	¾" (19.05 mm)	0.09" (2.29 mm)



FELT BOBS

For use with a handheld polisher for medium to heavy punch cup polishing on non-embossed tools.

- Use Abrasive Dressing Stick (see page 77) to form to the punch cup radius
- Sold as packs of 12

FELT BOBS		
Part No.	Felt Bob Diameter	Shank
MA 5106	1 x 1" (25.4 x 25.4 mm)	⅜" (3.18 mm)
MA 5006	¾ x ¾" (19.05 x 19.05 mm)	⅜" (3.18 mm)
MA 5008	½ x ½" (12.7 x 12.7 mm)	⅜" (3.18 mm)
MA 5007	⅜ x ⅜" (9.53 x 9.53 mm)	⅜" (3.18 mm)
MA 5009	¼ x ⅜" (6.35 x 9.53 mm)	⅜" (3.18 mm)



SCAN HERE
to watch a video
on hand polishing
with a Felt Bob



DIE BORE CLEANING BRUSHES

Cleans die bore to prevent lower punch tips from binding in the die.

DIE BORE CLEANING BRUSHES

Part No.	Brush Diameter
SU 0107	¼" (6.35 mm)
SU 0108	⅜" (9.52 mm)
SU 0109	½" (12.7 mm)
SU 0110	⅝" (15.87 mm)
SU 0111	¾" (19.05 mm)
SU 0112	⅞" (22.22 mm)
SU 0113	1" (25.4 mm)



6" LINEN PHENOLIC EMBOSSEMENT PICKS

These non-scratch, phenolic material picks are the perfect tool for punch faces, especially when removing stubborn product from hard-to-reach places like embossing, bisects, etc. They can quickly be re-sharpened to extend the life of each pick.

FEATURES:

- Non-scratch material, perfect for punch faces

6" LINEN PHENOLIC EMBOSSEMENT PICKS

Part No.	Item Description
MA 7515	6" Linen Phenolic Embossing Picks (12-pack)



Example of scratched punch tip cup

POLISHING COMPOUNDS

Natoli offers a variety of polishing compounds to ensure proper punch maintenance. Fine polishing compounds are used to achieve a mirror finish. Medium compounds are used for a fine finish.

GREEN CHROME GLOSS BAR

- Specially formulated for polishing punch cups of tooling used with sticky products
- Apply to an unsewn buffing wheel before tool reworking
- Use to achieve a fine finish



MA 5301

WHITE ROUGE BAR

- Apply to an unsewn buffing wheel before tool reworking
- Use to achieve a mirror-like finish



MA 5302

GREEN #45 FINE DIAMOND COMPOUND

- For use with felt bobs and fine dental brushes during polishing
- Use to achieve a mirror-like finish



MA 5012

POLISHING PASTE

- For use with felt bobs and fine dental brushes (see page 78) during polishing
- Use for a mirror-like finish



MA 5304

DIAMOND COMPOUND LUBRICANT

- Mix with diamond compound to enhance effectiveness
- For use with fine dental brushes (see page 78) in punch cups



MA 5085

POLISHING COMPOUNDS

Part No.	Item Description
MA 5301	Green Chrome Gloss Bar—6½ x 1½ x 1½" (165.1 x 38.1 x 38.1 mm)
MA 5302	White Fine Rouge Bar—9½ x 2 x 2" (241.3 x 50.8 x 50.8 mm)
MA 5012	Green #45 Fine Diamond Compound—5 g (0.175 oz.)
MA 5304	Polishing Paste—4 oz. (113.4 g)
MA 5305	Polishing Paste—8 oz. (226.8 g)
MA 5085	Diamond Compound Lubricant—1 quart

POLISHING INSTRUCTIONAL DVD

Learn how to properly polish tablet compression tooling with Natoli's *Experts Guide to Tool Polishing* DVD.

POLISHING INSTRUCTIONAL DVD

Part No.	Item Description
SU 9000	Experts Guide to Tool Polishing DVD



LUBRICATION

Natoli lubricants are engineered to maximize tool life and minimize maintenance costs by providing superior protection. Applying one of **Natoli's Food-Grade Lubricants** to tooling will ensure proper lubrication not commonly found on tablet press start-up. A tool that is not properly lubricated will cause excessive friction and lead to emergency stops, tool binding, and tool damage.

H-1 Synthetic Food-Grade Grease NLGI Grade #2
Part No. SU 2516

H-1 Barrel Lube Aerosol Spray
Part No. SU 2521

H-1 Barrel Lube
Part No. SU 2525



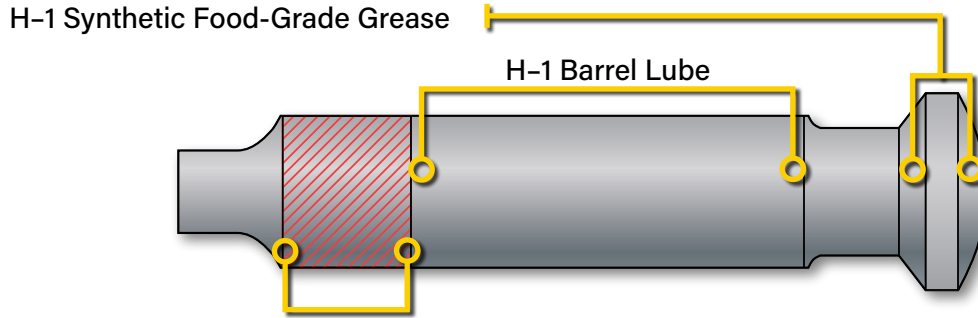
H-1 Tooling Storage Protectant
Part No. SU 2545

H-1 Synthetic Food-Grade Grease NLGI Grade #1
Part No. SU 2532

H-1 Synthetic Food-Grade Grease NLGI Grade #2
Part No. SU 2512

NATOLI PUNCH AND TABLET PRESS LUBRICANT GUIDE

Premium lubricants for all makes and models of tablet presses.



DO NOT lubricate this area

PUNCH BARRELS

- H-1 Barrel Lube
- H-1 Barrel Lube AL
- H-1 Barrel Lube AL HD
- H-1 White Mineral Oil

UPPER PRESSURE ROLLS

- H-1 General Purpose Synthetic Machine Gear Oil
- H-1 Synthetic Food-Grade Grease

CAM TRACKS & PUNCH HEADS

- H-1 Synthetic Food-Grade Grease

LOWER PRESSURE ROLLERS

- H-1 General Purpose Synthetic Machine Gear Oil
- H-1 Synthetic Food-Grade Grease
- NLGI Grade #2 Moly Supreme Heavy-Duty Grease

GEAR BOX

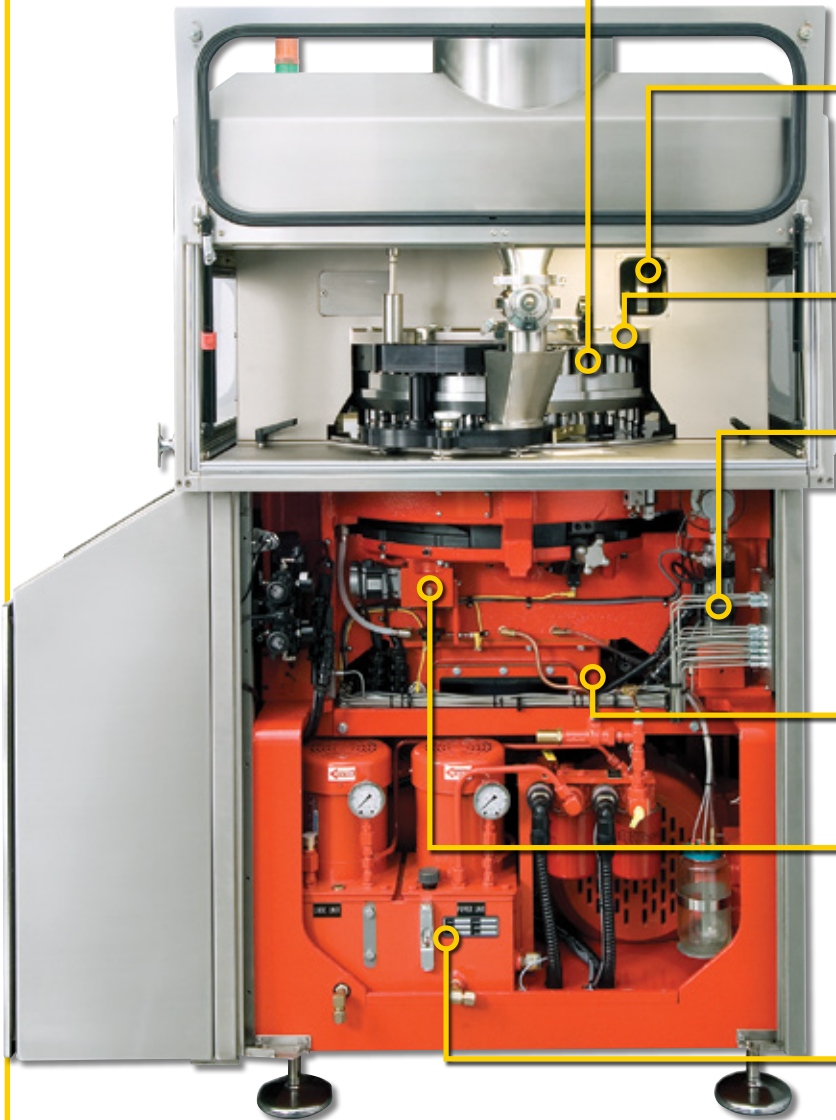
- H-1 General Purpose Synthetic Machine Gear Oil

BELOW COMPRESSION ZONE

- Industrial EP Spindle and Gear Oil
- NLGI Grade #2 Moly Supreme Heavy-Duty Grease

HYDRAULIC SYSTEMS

- H-1 Pharma-Blend Hydraulic Oil



ALL PREMIUM NATOLI FOOD-GRADE LUBRICANTS MEET OR EXCEED USDA H-1 REQUIREMENTS AND FDA REGULATIONS AND ARE KOSHER AND HALAL CERTIFIED.

Natoli's premium quality, tested lubricants will meet or exceed the performance of other manufacturers' products.

- Apply as directed to inhibit oxidation, rust and wear on machinery and tooling
- Use with all processing equipment requiring H-1 lubrication, such as tablet presses, packaging equipment, mixing and blending equipment, etc.
- Safety Data Sheet (SDS) provided with each product

H-1 BARREL LUBE

- Use on punch barrels
- Manual application required
- Food-grade
- SAE 10
- Not for auto-lube systems
- Aerosol can is ground-shipping only - no air freight



H-1 BARREL LUBE	
Part No.	Item Description
SU 2521	15 oz. (425 g) Aerosol Can
SU 2525	16 oz. (473 ml) Pump

H-1 BARREL LUBE AL

- Specially formulated for punch barrel auto-lube systems
- Food-grade
- SAE 10



H-1 BARREL LUBE AL	
Part No.	Item Description
SU 2530	1 gal. (3.8 L)
SU 2560	5 gal. (18.9 L) Drum

H-1 BARREL LUBE AL HD (AUTO-LUBE HEAVY-DUTY)

Specially formulated heavy-duty punch barrel auto-lube system oil.

- Inhibits rust, corrosion, and wear
- Compatible with all types of seals
- Use where UH 1 150 oil is specified
- Antimicrobial
- Food-grade
- SAE 40



H-1 BARREL LUBE AL HD	
Part No.	Item Description
SU 2555	1 gal. (3.8 L)
SU 2556	5 gal. (18.9 L) Drum with Pull-Out Spout

H-1 NLGI GRADE #1 GREASE

For use on punch heads, pressure rolls, cam tracks or any process requiring food-grade grease.

- High melting point, anti-wear
- Fortified with Microshield®
- Food-grade



H-1 NLGI GRADE #1 GREASE

Part No.	Item Description
SU 2532	14 oz. (414 ml) Tube



H-1 NLGI GRADE #2 GREASE

For use on punch heads, pressure rolls, cam tracks or any process requiring food-grade grease.

- High melting point, anti-wear
- Fortified with Microshield®
- Food-grade

H-1 NLGI GRADE #2 GREASE

Part No.	Item Description
SU 2518	14 oz. (414 ml) Tube
SU 2508	14 oz. (414 ml) Can
SU 2512	7 lb. (3.17 kg) Can
SU 2516	40 lb. (18.14 kg) Drum



H-1 TOOLING STORAGE PROTECTANT

- Ideal for long-term tooling storage
- Prevents corrosion and discoloration of tools
- Easy to remove
- Food-grade
- SAE 30, ISO 100

H-1 TOOLING STORAGE PROTECTANT

Part No.	Item Description
SU 2545	1 gal. (3.8 L)



H-1 GENERAL PURPOSE SYNTHETIC MACHINE GEAR OIL

- For use in gear boxes
- Compatible with all types of seals and coatings
- Reduces deposit formation
- Food-grade
- SAE 90



H-1 GENERAL PURPOSE SYNTHETIC MACHINE GEAR OIL

Part No.	Item Description
SU 2533	5 gal. (18.9 L) Drum with Pull-Out Spout

H-1 PHARMA-BLEND HYDRAULIC OIL

Offers excellent stability over a wide temperature range. Pumps run cooler than systems filled with conventional oils virtually eliminating oxidation and varnishing.

- All natural and non-toxic
- Stable from 0–470°F (0–243°C)
- Food-grade
- ISO 46



H-1 PHARMA-BLEND HYDRAULIC OIL

Part No.	Item Description
SU 2537	1 gal. (3.8 L)

H-1 WHITE MINERAL OIL

- Inhibits rust, oxidation and wear
- For use on punch barrels
- Food-grade



H-1 WHITE MINERAL OIL

Part No.	Item Description
SU 2527	1 gal. (3.8 L)

ALL PREMIUM NATOLI NON-FOOD-GRADE LUBRICANTS WILL REDUCE MACHINERY AND TOOLING WEAR, EVEN UNDER THE MOST EXTREME PRESSURE.

For use in areas **NOT** requiring food-grade lubrication.

NLGI GRADE #2 MOLY SUPREME HEAVY-DUTY GREASE

- Use on variable-speed pulleys, drive shafts, worm gears, weight cam gear boxes or any area below the tablet compression zone
- Blended from 100% pure paraffin-base oils and the finest quality synthetic stocks
- Non-food-grade

NLGI GRADE #2 MOLY SUPREME HEAVY-DUTY GREASE	
Part No.	Item Description
SU 2531	14 oz. (414 ml) Tube



INDUSTRIAL EXTREME PRESSURE (EP) SPINDLE & GEAR OIL

- Non-foaming
- Anti-wear
- Non-food-grade
- SAE 90

INDUSTRIAL EXTREME PRESSURE (EP) SPINDLE & GEAR OIL	
Part No.	Item Description
SU 2515	½ gal. (1.9 L)



HEAVY-DUTY GREASE GUN

The zinc-plated, heavy-duty, lever-action grease gun features a rugged cast iron head with versatile three-way loading and can deliver up to 10,000 PSI. A flexible 12" (304.8 mm) hose and coupler are included to allow easy access to hard-to-reach areas.

HEAVY-DUTY GREASE GUN	
Part No.	Item Description
SU 2547	Zinc-Plated Grease Gun
SU 2548	12" (304.8 mm) Hose and Coupler Only



STORAGE & TRANSPORT SOLUTIONS

Tooling wear and damage caused by mishandling may cause black specks and product discoloration as well as capping, lamination, and other visual tablet defects. A systematic storage and handling procedure can be as simple as using **Natoli's Tooling Storage Boxes**, which safely store and protect punches and dies and are made from FDA-compliant materials. Natoli can also create customized storage solutions for your unique tool configurations, such as Kilian 20/28, FS12, FS19, and more!

"B" Type Tooling Storage Box in Red
Part No. MA 5178R



"B" Type Tooling Storage Box in Cream
Part No. MA 5178

"B" Type Tooling Storage Box in Black
Part No. MA 5178B

TOOL STORAGE CART/CABINET

Safely organize and store parts and tooling sets with Natoli's custom cabinets, or add caster wheels for transportation to and from production and cleaning rooms. Each cabinet/cart can be configured to match individual requirements — whether storing punches and dies, die segments, press/equipment parts, or a combination of each. Tooling and parts are safeguarded with the lock-and-key feature.

STANDARD FEATURES:

- 2" (50mm) drawers with punch/die tool trays (customer to specify tool size)
- Lock-and-key security
- Anti-tilt feature
- The weight capacity of each drawer is 450 lbs (204 kg)
- Top mat also serves as a maintenance workspace
- Powder-coated cold-rolled steel construction
- Heavy-duty caster wheels (cart) or reinforced base for forklift transport (cabinet)
- Lifetime warranty on material defects and workmanship

CUSTOMIZATION OPTIONS:

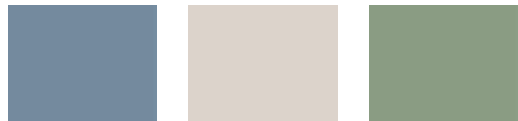
- FDA-compliant foam pads for die segments or dosing disks
- *Drawer count:* maximum of 20 drawers
- *Drawer size:* drawer sizes are customizable in width and depth
- *Drawer partitions:* drawers can be sectioned to separate multiple tooling sets in a single drawer

TOOLING STORAGE CART/CABINET	
Part No.	Item Description
MA 7645	Tooling Storage Cart/Cabinet

CUSTOM COLOR OPTIONS:



Beige (BE) Bright Blue (BB)* Black (BK)*



Classic Blue (CB)* Light Gray (LG)* Green (GG)



Dark Gray (GR)* Red (NR) Sand (SN)



White (FW)



TOOLING STORAGE BOXES

Safely store and protect punches and dies with Natoli's Tooling Storage Boxes and Tooling Storage Box Trays. Constructed of easy-to-clean, FDA-compliant materials, each box contains an easy lift-out tray and nested lid for stacking. **Available in cream, red, and black to differentiate tools for better organization!**

BOX FEATURES:

- Recessed handles to ensure secure handling
- Nested lid design that allows for stacking of multiple boxes

TRAY FEATURES:

- Enables tooling to be easily stored together in sets
- Molded keyways and guides prevent tool damage
- Head support enables easy tool removal
- Removable tray allows interchanging of four different tooling sizes
- Includes drainage holes for water and excess oil to escape
- **Optional handle kit allows for ease of use in multiple applications such as Ultrasonic Cleaning Systems (see pages 42-43)**

BOX EXTERIOR DIMENSIONS (L X W X H):

- 18 x 11 x 7" (457 x 279 x 178 mm)

TRAY CAPACITIES:

- **"B"**: 72 punches + 38 dies (1.187"/30.149 mm dia.) or 72 punches + 48 dies (0.945"/24.003 mm dia.)
- **"D"**: 48 punches + 24 dies (1.50"/38.1 mm dia.)
- **533/328-45**: 45 punches + 24 dies (1.312"/33.324 mm die dia.)
- **533/328-33**: 33 punches + 24 dies (1.625"/41.275 mm die dia.)



Handle and Leg Kit Shown on Removable Tray



TOOLING STORAGE BOXES

Part No.	Punch Type (Barrel Diameter)	Color
MA 5178	"B" (¾")	Cream
MA 5178R	"B" (¾")	Red
MA 5178B	"B" (¾")	Black
MA 5185	"B" Handle Kit	—
MA 5180	"D" (1")	Cream
MA 5180R	"D" (1")	Red
MA 5180B	"D" (1")	Black
MA 5187	"D" Handle Kit	—
MA 5083	533/328-45 (1½")	Cream
MA 5086	533/328-33 (1¼")	Cream

TOOLING STORAGE BOXES REPLACEMENT ITEMS

Part No.	Item Description	Color
MA 5184	"B" Tray	Cream
MA 5184R	"B" Tray	Red
MA 5184B	"B" Tray	Black
MA 5186	"D" Tray	Cream
MA 5186R	"D" Tray	Red
MA 5186B	"D" Tray	Black
MA 6030	533/328-45 Tray	Cream
MA 6029	533/328-33 Tray	Cream
MA 5182	Box	Cream
MA 5182R	Box	Red
MA 5182B	Box	Black
MA 5183	Lid	Cream
MA 5183R	Lid	Red
MA 5183B	Lid	Black

DIE SEGMENT STORAGE BOXES & TRANSPORT CART

Safely store and transport die segments with heavy-duty, FDA-compliant storage boxes. The two-piece design features rugged construction with a foam insert, ensuring secure storage for valuable die segments. Built-in side ID tag allows for easy identification.

FEATURES:

- Two-piece construction
- Molded foam insert
- Stackable
- Works with other storage solutions



Segment Storage Box Cart

Storage cart features adjustable shelving that can fit up to five die segment storage boxes.



DIE SEGMENT STORAGE BOXES & TRANSPORT CART		
Part No.	Item Description	Capacity
MA 5650 KIT	Storage Box for 1090 or 1200 Die Segments	2 Segments
MA 5660 KIT	Storage Box for 2090 Die Segments	1 Segment
MA 5670 KIT	Storage Box for 3090 Die Segments	1 Segment
MA 5680 KIT	Segment Storage Box FE-55	1 Segment
MA 5690 KIT	Segment Storage Box FE-35	1 Segment
MA 5685 KIT	Segment Storage Box FE-75	1 Segment
LE 3025	Segment Storage Cart	—

CHROME WIRE SHELVING

Save valuable space with the ideal solution for general storage. Chrome Wire Shelving units can be used individually or can be connected to increase storage capacity. **Purchase optional locking casters to create a mobile unit.**

FEATURES:

- Shelves adjust in 1" (25.4 mm) increments
- Posts are constructed of 1" (25.4 mm) round 16-gauge tubing
- Promotes air circulation
- Does not block lighting
- Flexible for growth and room layouts
- Specialty sizes can be ordered

SHELF LENGTH AND CAPACITY:

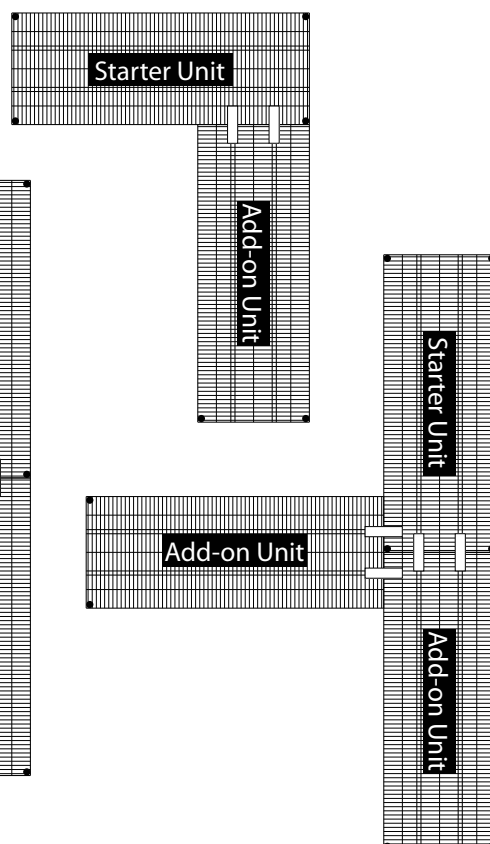
- 48" (1.219 m) or less—1000 lb. (453.59 kg)
- 60" (1.524 m)—800 lb. (362.87 kg)
- 72" (1.828 m)—600 lb. (272.15 kg)

STARTER UNITS:

- Includes four posts and five shelves

ADD-ON UNITS:

- Starter unit required to use add-on units
- Includes two posts, five shelves and 10 "S" hooks



CHROME WIRE SHELVING	
Part No.	Item Exterior Dimensions
MA 6042	36 x 24 x 72" (0.914 x 0.610 x 1.829 m) Starter Unit
MA 6043	42 x 24 x 72" (1.067 x 0.610 x 1.829 m) Starter Unit
MA 6073	48 x 24 x 72" (1.219 x 0.610 x 1.829 m) Starter Unit
MA 6074	60 x 24 x 72" (1.524 x 0.610 x 1.829 m) Starter Unit
MA 6075	72 x 24 x 72" (1.829 x 0.610 x 1.829 m) Starter Unit
MA 6095	36 x 24 x 72" (0.914 x 0.610 x 1.829 m) Add-On Unit
MA 6096	42 x 24 x 72" (1.067 x 0.610 x 1.829 m) Add-On Unit
MA 6097	48 x 24 x 72" (1.219 x 0.610 x 1.829 m) Add-On Unit
MA 6098	60 x 24 x 72" (1.524 x 0.610 x 1.829 m) Add-On Unit
MA 6099	72 x 24 x 72" (1.829 x 0.610 x 1.829 m) Add-On Unit
MA 7010	36 x 24" (914 x 610 mm) Individual Shelf
MA 7011	42 x 24" (1067 x 610 mm) Individual Shelf
MA 7012	48 x 24" (1219 x 610 mm) Individual Shelf
MA 7013	60 x 24" (1524 x 610 mm) Individual Shelf
MA 7014	72 x 24" (1829 x 610 mm) Individual Shelf
MA 6071	Set of 4 Locking Casters

UTILITY CARTS

Transport tooling, parts, and other supplies safely and easily with a utility cart. Natoli carries multiple styles of carts to suit your transportation needs.

STAINLESS STEEL UTILITY CART

- Stainless steel construction
- Two swivel and two locked casters
- 1200 lb. (544.31 kg) capacity

STAINLESS STEEL UTILITY CART	
Part No.	Shelf Dimensions (L x W X H)
MA 2001	24 x 36 x 35" (610 x 914 x 889 mm)



POLYPROPYLENE UTILITY CARTS

Utility carts clean easily, making them ideal for a variety of uses.

- Won't chip, rust, or dent
- Includes 5" (127 mm) swivel casters
- 500 lb. (226.79 kg) capacity

POLYPROPYLENE UTILITY CARTS	
Part No.	Shelf Dimensions (L x W X H)
MA 6000	40 x 18 x 33" (1016 x 457 x 838 mm)
MA 6002	45 x 25 x 33" (1143 x 635 x 838 mm)



CLEAR MEMBRANE PLASTIC TABLET STORAGE BOX

Enable inspection of tablets without physical contact.

- Membrane suspends tablet for easy 360° viewing



PLASTIC TABLET STORAGE BOX

Part No.	Item Description
MA 7006	1.25" (31.75 mm) Plastic Tablet Storage Box (12-pack)

EQUIPMENT COVERS

Economical, FDA-compliant covers facilitate the clean and dry storage of various types of equipment in a wide selection of sizes. **Custom sizes also available.**

STANDARD EQUIPMENT COVERS:

- Constructed of anti-static polyethylene
- Transparent pink color
- Elastic band at bottom

CUSTOM EQUIPMENT COVERS:

- Constructed of 3-ply vinyl laminate
- Solid white color
- Zipper
- Features Natoli logo

Custom Equipment Cover



Standard Equipment Cover



EQUIPMENT COVERS

Part No.	Dimensions/Item Description
LE 7054	10-14" (254-356 mm)
LE 7053	20-24" (508-610 mm)
LE 7055	60 x 48 x 76" (1.524 x 1.219 x 1.930 m)
LE 7056	64 x 60 x 82" (1.626 x 1.524 x 2.083 m)
LE 7051	Equipment Cover for Natoli LVS System
LE 7050	Custom Equipment Cover

REUSABLE PLASTIC DIE STORAGE TUBES WITH RUBBER ENDS

Protect dies during transportation and storage.

REUSABLE PLASTIC DIE STORAGE TUBES		
Part No.	Diameter	Capacity
MA 7020	1.25" (31.75 mm)	15 "B" Dies
MA 7021	1.50" (38.1 mm)	15 "D" Dies



CARDBOARD PUNCH SHIPPING TUBES

Safely ship punches with this economical solution.

CARDBOARD PUNCH SHIPPING TUBES		
Part No.	Punch Type	Tube Length
MA 5066	"B"	5¼" (133.35 mm)
MA 5068	"D"	5¼" (133.35 mm)
MA 5072	DS3	5¼" (133.35 mm)
MA 5070	533/328	7¼" (184.15 mm)



REUSABLE PLASTIC PUNCH & DIE STORAGE TUBES

Protects punches during storage or shipping. Constructed of transparent, moisture-resistant plastic, the square shape prevents rolling and accidental damage.

- Telescoping length adjustment (4.75–7.875"/120.65–200 mm)



REUSABLE PLASTIC PUNCH & DIE STORAGE TUBES			
Part No.	Type	Barrel Diameter	Style
MA 7007	"B" Punches	¾" (19.05 mm)	Foam insert not required
MA 7016	"B" Die Storage	1" (25.4 mm)	Foam insert included
MA 7015	"BB" Die Storage	¾" (19.05 mm)	Foam insert included
MA 7008	"D" Punches	1" (25.4 mm)	Foam insert not required
MA 7009	328 or "D" dies	1½–1¼" (28.58–31.75 mm)	Foam insert included

EZ LEVEL™

FEEDER BASE LEVELING SYSTEM

Significantly Reduce Setup Damage.
More Efficient Leveling Process.



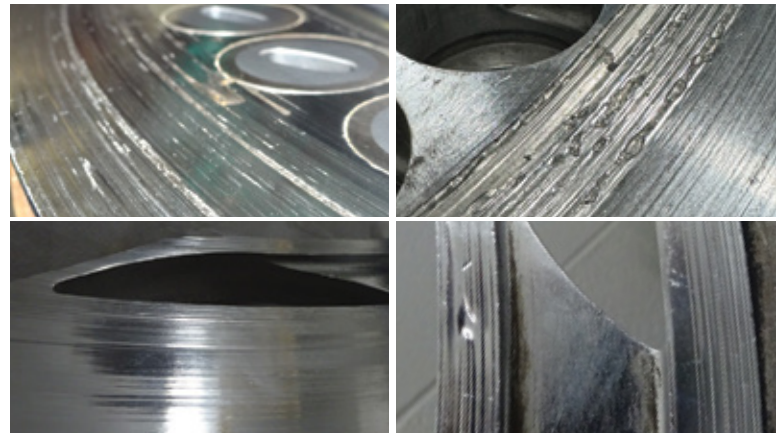
DON'T SETTLE FOR "CLOSE ENOUGH":

You don't need to spend hours on the time-consuming and frustrating process of leveling your tablet press feeder platform, and settle for "close enough." That can lead to excessive formulation loss or even severe damage to your equipment. With the Natoli EZ Level™ Feeder Base Leveling System, you never have to settle for "close enough".

BENEFITS

- ✓ Precise, efficient, and reliable
- ✓ Ensures consistent level feeding for optimal production
- ✓ Durable construction built for heavy-duty use
- ✓ Easy-to-use interface for streamline operations

Level up your operations and boost your bottom line with Natoli's EZ Level Feeder Base Leveling System!



Examples of die table and feeder damage from improper leveling

Example of tablet with metal contamination from a damaged tablet press



SCAN HERE TO LEARN MORE OR TO GET A QUOTE TODAY!

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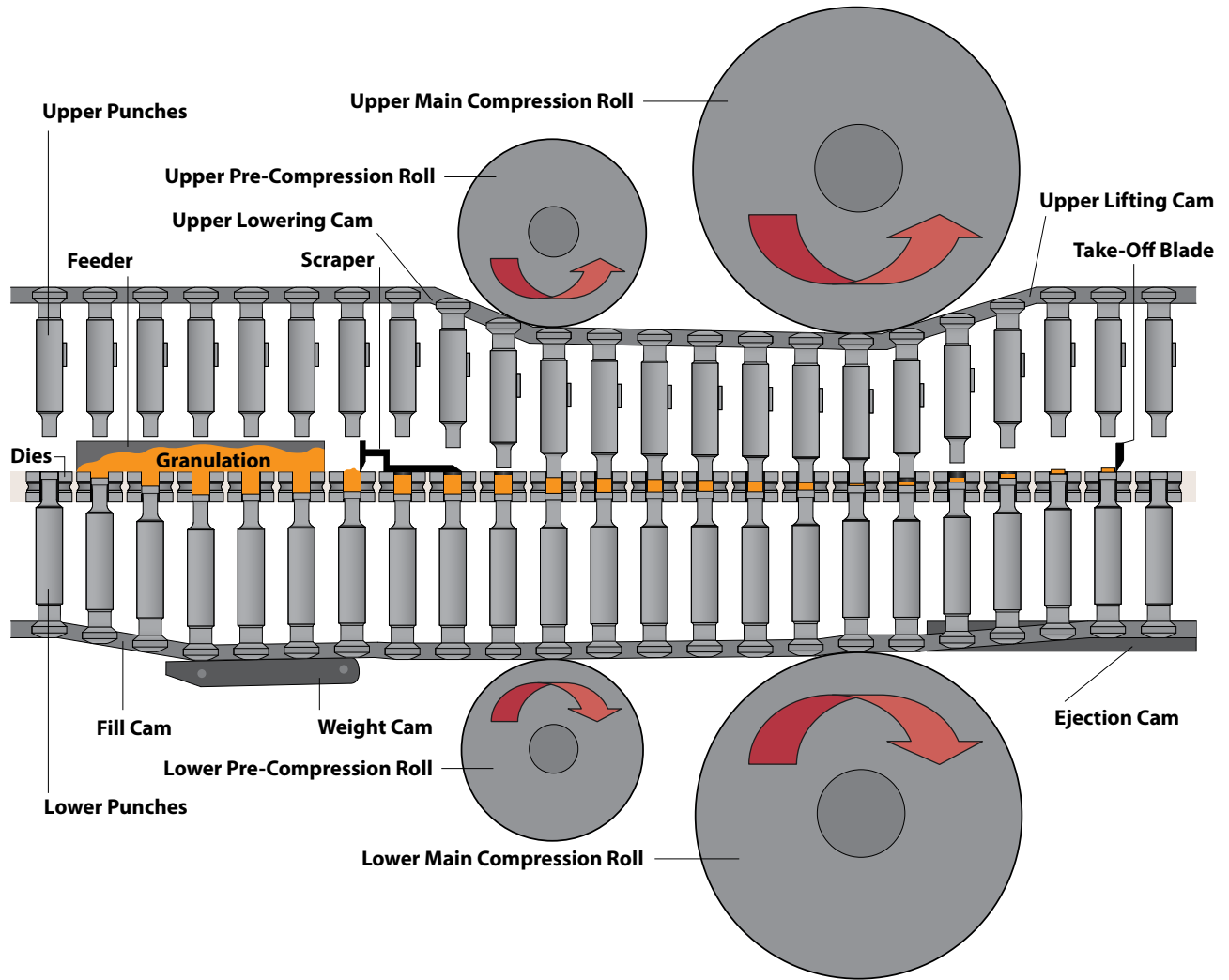
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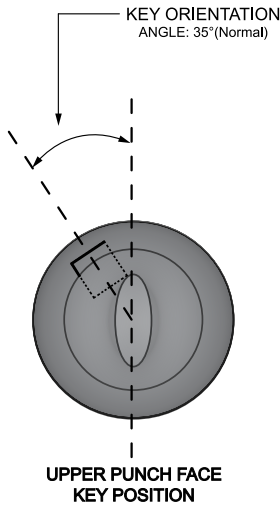
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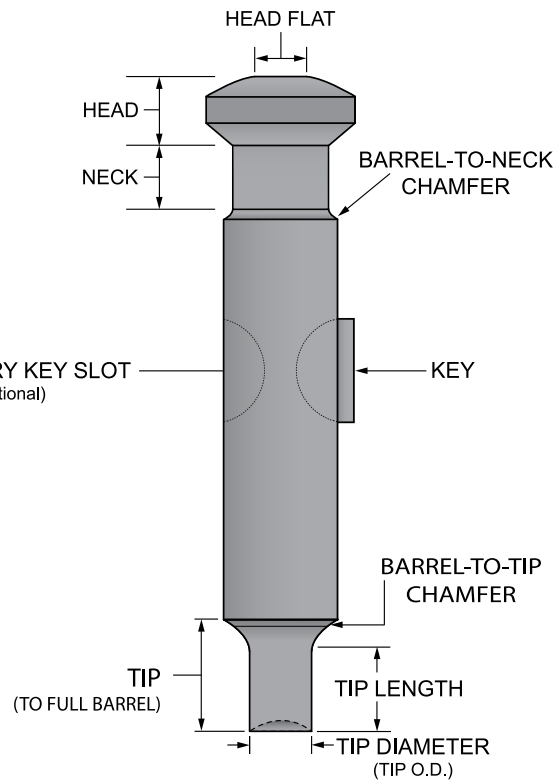
THE TABLET COMPRESSION CYCLE



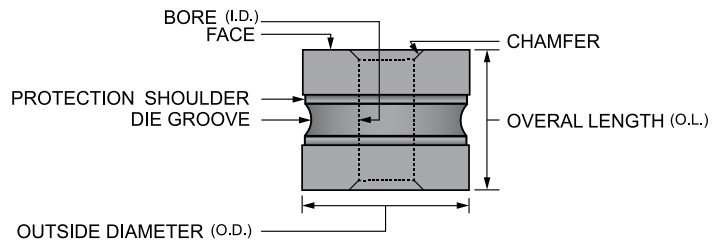
TOOLING TERMINOLOGY



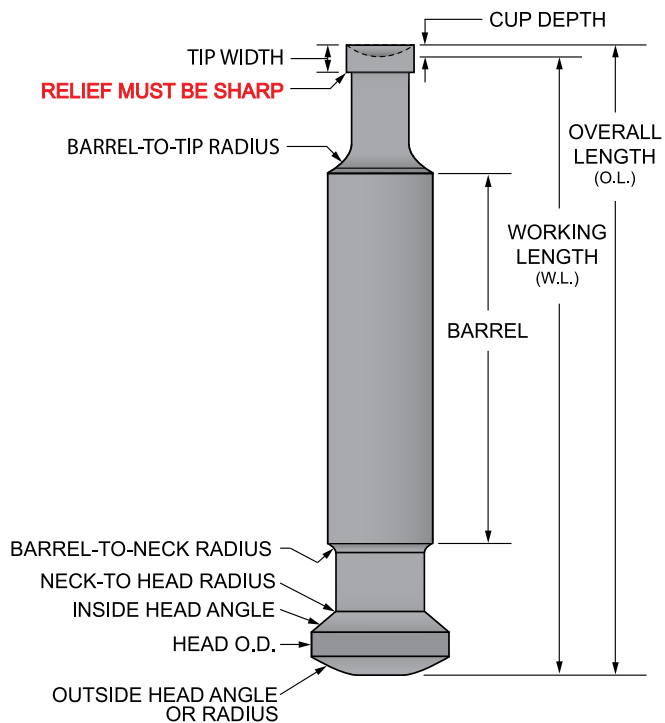
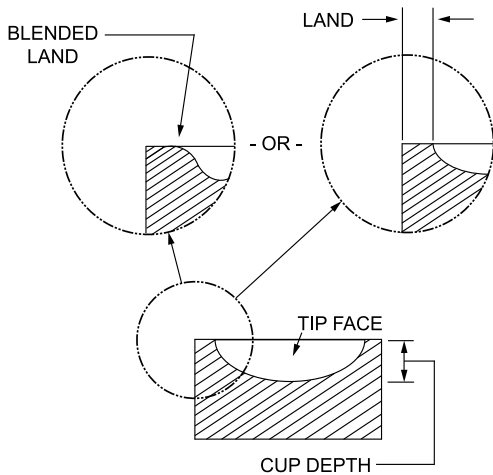
SECONDARY KEY SLOT
(Optional)



UPPER PUNCH



DIE



LOWER PUNCH

<u>ABBREVIATION</u>	<u>EXPLANATION</u>
°C/°F	Degrees Celsius/Fahrenheit
API	Active Pharmaceutical Ingredient
AFS	Automatic Feed System
cCSAus	Canada & United States Approved
CCW	Counterclockwise
CE	Certified for European Standards
CFM	Cubic Feet per Minute
CFR	Code of Federal Regulations
cGMP	Current Good Manufacturing Practices
CSA	Canadian Standards Association
CW	Clockwise
dia	Diameter
DSP	Digital Signal Processing
EP	European Pharmacopeia
FDA	Food and Drug Administration
ft	Foot
g	Gram
H-1	Food-Grade Lubricant
Hz	Hertz
ID	Inside Diameter
IEC	International Electrotechnical Commission
in	Inch
ISO	International Organization for Standardization
kg	Kilogram
Kp	Kilopond
kW	Kilowatt
L	Liter
lb	Pound
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LIF	Light Induced Fluorescence
LVS	Laser Vision System
m	Meter
MIL	Military
ml	Milliliter
mm	Millimeter
MPGM	Multi-Purpose Grease with Moly
ms	Millisecond
N	Newton
NIST	National Institute of Standards and Technology
NLGI	National Lubricating Grease Institute
OD	Outside Diameter
OL	Overall Length
OPC	OLE for Process Control (Data Communication)
oz	Ounce
PCB	Printed Circuit Board

<u>ABBREVIATION</u>	<u>EXPLANATION</u>
PMT	Photomultiplier Tube
POE	Power Over Ethernet
ppm	Parts per Million
PSI	Pounds per Square Inch
PTFE	Polytetrafluoroethylene (Teflon)
QC	Quality Control
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers
SC	Strong Cobb
SDS	Safety Data Sheets
SPC	Standard Process Control
TLR	Timken Load Rating (Indicates wear-protection)
TPM	Tablets Per Minute
TPH	Tablets Per Hour
µm	Micrometer
UHMW	Ultra High Molecular Weight
UL	Underwriters Laboratories
USB	Universal Serial Bus
USDA	United States Department of Agriculture
USP	United States Pharmacopeia
V	Volt
VAC	Volts Alternating Current
VDC	Volts Direct Current
W	Watt
WEP	Wires Equivalent Privacy
WLAN	Wireless Local Area Network

CONVERSIONS

Dimensions

- 1 micrometer = 0.001 millimeters
- 1 inch = 25.4 millimeters
- 1 foot = 12 inches
- 1 foot = 0.3048 meters

Liquid Measurements

- 1 gal = 3.785 liters
- 1 gram = 0.0352739619 ounce
- 1 ounce = 0.125 cup
- 1 ounce = 29.5735296 milliliter
- 1 ounce = 0.0295735296 liter
- 1 milliliter = 0.0338140227 ounce
- 1 milliliter = 0.00422675284 cup
- 1 milliliter = 0.001 liter
- 5 gal = 18.927 liters

Temperature Conversion Formulas

- °C x 9/5 + 32 = °F
- (°F - 32) x 5/9 = °C

TOOLING & TABLET TERMINOLOGY

ANNEAL

A heat-treating process used on fragile punch tips to decrease the hardness of the punch cups, reducing punch tip fracturing

BAKELITE TIP RELIEF

An undercut groove between the lower punch tip straight and the relief; it ensures a sharp corner to assist in scraping product adhering to the die wall; normally a purchased option for lower punches

BARREL OR SHANK

The vertical bearing surface of a punch that makes contact with the punch guides in the machine turret for vertical guidance

BARREL CHAMFER

Chamfers at the ends of the punch barrel; eliminates outside corners

BARREL FLUTES

Vertical slots machined into the punch barrel to reduce the bearing surface and assist in removing product in the punch guides; a purchased option for upper and lower punches

BARREL-TO-STEM RADIUS

The radius that blends the punch barrel to the stem

CAPPING

A tablet defect in which air trapped during compression creates a layer of granulation with air between the granules, which in turn weakens the structure and allows a capping fracture (the tablet top and/or bottom curvature breaks off at or above the band)

CHIPPING

A defect in the tablet in which a piece has broken off the edge

CONCENTRICITY

The measurement from a common center point

DIE

A component used in conjunction with the upper and lower punches; it accepts the product for compaction and is responsible for the tablet's perimeter size and configuration

DIE BORE

The cavity of a die that accepts the product for compaction and determines the tablets size and shape configuration

DIE CHAMFER

The angled area between the top of the die and the die bore; it assists in guiding the upper punch into the die bore

DIE GROOVE

The radial groove around the die OD that accepts the die lock to secure the die in position in the die table

DIE HEIGHT OR OVERALL LENGTH

The entire height or overall length of a die

DIE LOCK

The mechanism used to lock a die in position after it is installed in the die table

DIE OUTSIDE DIAMETER

The largest diameter of a die, commonly referred to as the die OD

DIE TAPER

A gradual increase in dimension, starting from a given depth in the die bore and increasing to the die chamfer; used normally to release air from the die cavity during the compression cycle

FLASHING

A slight imperfection in a tablet in which the material has been compressed above the land in the clearance between the punch tip and the die bore, causing a raised edge

HEAD

The largest diameter of a common punch; it contacts the machine's cams and accepts pressure from the pressure rollers

HEAD BACK ANGLE

Sometimes referred to as the inside head angle, located underneath the top head angle or the top head radius; it contacts the machine camming for vertical movement of the punch within the punch guides

HEAD FLAT

The flat portion of the head, which makes contact with the pressure rollers and determines the maximum dwell time for compression

J-HOOK

A defect of the punch tip caused by wear in which the edge curls inward toward the punch face

KEY

A projection, normally of mild steel, that protrudes above the surface of the punch barrel; it maintains alignment of the upper punch for reentry into the die; mandatory on upper punches with multiple tips and all tablet shapes other than round; commonly used with embossed round tablet shapes when rotation of punch causes a condition known as a double impression

KEY POSITION

The radial and height position of a key on the punch barrel; not found in all presses

LAND

The area between the edge of the punch cup and the outside diameter of the punch tip; this adds strength to the tip to reduce punch tip fracturing

NECK

Located below the head; it provides clearance as the punch cycles through the machine cams

PUNCH OVERALL LENGTH

The total length of a punch, other than flat-face tablet configurations, that is normally a reference dimension that consists of a combination of the working length and the cup depth dimensions

STEM

The area from the barrel to the edge of the punch tip

STICKING

A tablet defect in which material adheres to the smooth surface of the punch tip face

TAPER

A gradual increase in the size of the die bore that extends from the point of compaction to the chamfer of the bore

TIP FACE OR CUP

The portion of the punch tip that determines the contour of the tablet face; it includes the tablet embossing

TIP LENGTH

The straight portion of the punch stem

TIP RELIEF

The portion of the punch stem that is undercut or made smaller than the punch tip straight; most common for lower punches to aid in reducing friction from the punch tip and die wall as the punch travels through the compression cycle; the area where the punch tip and relief meet must be sharp to scrape product from the die wall as the lower punch travels down for the fill cycle

TIP STRAIGHT

The section of the tip that extends from the tip relief to the end of the punch tip; it maintains the punch tip size tolerance

TOOLING SET

A complete set of punches and dies that accommodates all stations in a tablet press

TOOLING STATION

The upper punch, lower punch and die, which accommodate one station in a tablet press

TOP HEAD ANGLE

Angle from the outside head diameter to the top head radius; it allows for sufficient head thickness and smoother camming

TOP HEAD RADIUS

The radius on the top of the head that blends the top head angle to the head flat. Some head configurations may consist of only the head radius without the head angle. This radius makes the initial contact with the pressure roll and allows a smoother transition into the compression cycle

WORKING LENGTH

The dimension from the head flat to the lowest measurable point of the tip face, responsible for the consistency of the tablet overall thickness

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