MATE®
PRECISION TECHNOLOGIES
RESPECT • SUPPORT • INSPIRE

Thick Turret Style Tooling

ULTRA® AND THICK TURRET TOOLING

SEVEN DECADES OF EXCELLENCE

Founded in 1962, Mate is a world-class manufacturer of precision metalworking solutions for factory producivity.

Mate products and services are fully supported by our team of expert Fabrication Specialists and a vast, knowledgeable, global dealer network.

PERSONAL RELATIONSHIPS

Mate does business with people, not companies. Our connection to you is personal. Mate's team of manufacturing and metalworking professionals know your business. With Mate, you have a partner that respects your knowledge and is dedicated to helping you succeed.

YOUR GO-TO SOURCE

Serving our customers is at the core of who we are. In your plant or on the phone, we're up for whatever metalworking challenges you face. Your Mate representatives are experts who know from experience what happens on the shop floor and provide our legendary in-field support. They speak your language, fully capable of helping you improve processes and solve problems. Mate customer service is ready to assist with fast quotes, guiding your order on to our top-notch machinists and shipping pros.

GET INSPIRED!

With our vast knowledge and broad product range, we inspire innovative thinking. Our customer's projects can be seen around the world: from unique buildings, façades thought to be impossible to make, to a new way to add strength to thin material. The possibilities are endless, so think big, bold, and beyond.

WE'VE GOT YOU COVERED

Dedicated to quality in every aspect of our business, Mate offers an extensive standard product line that can be delivered with same-day or next-day service. All Mate products are backed with our industry-leading 100% customer satisfaction guarantee.

THICK TURRET TOOLING SYSTEMS OVERVIEW

Mate offers the most comprehensive range of thick turret tooling systems designed to accommodate any punching application. Use this simple chart to determine which system is right for your typical thick turret applications.

LESS • •• ••• •••• ••••• MORE	QCT™	Ultra™	Ultra XT™	Original Style
Overall Value	•••••	••••	•••	••
Cost Savings	•••••	••••	•••	•
Ease of Use – Features that make it faster to install, simpler to set up, and more convenient to maintain.	•••••	••••	••	•
Interchangeability – Compatible with systems from major suppliers.	•••••	••••	•••	••
Quick Set-up – Integral features that maximize machine up time.	•••••	••••	•••	••
Grind Life – Total number of holes punched between regrinds AND the total grindable length of the punch tip before it needs to be replaced.	•••••	••••	•••	••
Slug Free Die – Advanced die geometry that prevents slug pulling.	•••••	•••••	•••••	•••••
Initial Purchase Price	••••	•••	••	•

QUICK CHANGE

QCT™ QUICK CHANGE TOOLING

Insert-style next-level punching systems. With its durable patent-pending design, tool-less punch retention mechanism and M4PM™ steel inserts, you'll be on your way to faster, more cost effective A and B station punching in no time.

- Simple to use — No tools required!
- Premium high speed tool steel punches
- Longer lasting, superior insert performance
- Robust construction
- Available in Ultra™, Metric, AMX™ and MXC™ styles
- Compatible with Ultra, XT, RapidSet and Original Style systems

PERFORMANCE

ULTRA™

Precision tooling system provides maximum flexibility and increases performance and flexibility. Ultra offers extended tool life and is interchangable with existing systems.

- Quick length adjustment-no shims or tools required
- Premium high speed tool steel punches
- Internal and external tool lubrication grooves
- Hardened guides
- Precision internal keyways
- Quick change strippers – no tools required
- Relieved strippers for extended grind life
- Slug Free die design
- Available in A-E stations

CONVENIENCE

ULTRA XT™

Precision tooling system that increases tool performance and flexibility. Ultra XT offers extended tool life and allows interchangeability with existing systems. Features of the Mate Ultra XT™ system include:

- Quick length adjustment - no shims or tooling required
- Premium high speed tool steel punches
- Internal and external lubrication grooves
- External keyways
- A & B stations feature quick change strippers – no tools required
- A & B stations utilize relieved strippers for extended grind life
- Slug Free die design
- Available in A-E stations

ECONOMY

RAPIDSET™ & ORIGINAL STYLE

OEM compatible systems with premium high speed steel punches

RAPIDSET FEATURES:

- Self-contained, single clamping screw length adjustment, spring pack canister
- Longer grind life than Original Style

ORIGINAL STYLE FEATURES:

- Hexagon shaped punch heads in 1/2" A and 1-1/4" B stations for easier adjustment
- Reversible spring retainers in 1/2" A and 1-1/4" B stations for additional tool life
- Hardened guides for reduced friction and longer service life
- Slug Free dies design

ULTRA FULLY GUIDED

Accurate and close tolerances between guide and stripper hold punches rigid, control against hole distortion and saw toothing.

Premium high speed tool steel punches at 60-62 Rockwell C
Specially formulated high speed steel and specially developed heat treatment processes result in unusually high tool performance, superior dimensional accuracy and maximum tool life.

Stripper opening 0.0015(0.04) TC to point
Guiding at punch point supports punches, increases hole accuracy, improves stripping and prevents scrap from rising into the assembly.

Quick length adjustment
The external quick length adjustment button on the side of the guide allows the punch length to be adjusted without disassembly.

Hardened and ground guide
Reduces abrasive action of punching, diffuses heat effectively, resists galling, extends tool life, increases turret life and improves up time.

Interior and exterior spiral grease grooves
Even and consistent tool lubrication increases tool life.

Tool Lubrication
Interior vertical fluid grooves and fluid through holes provide even and efficient transfer of lubrication fluid to internal surfaces and to external guide surface area, increases lubrication and tool life.

Mate Slug Free die design
Clearing the slug every cycle eliminates slug pulling, extends tool life, improves piece part quality and reduces scrap.

Availability
Fully Guided is available in B - E stations

MATE ULTRAFORM™ FORMING SYSTEM

Mate's ULTRAFORM tooling system features adjustable length holders for 1-1/4" B, 2" C, 3-1/2" D and 4-1/2" E stations. Each ULTRAFORM holder can be used with a variety of special forming inserts. Mate ULTRAFORM holders include precise and convenient length adjustment mechanisms that allows fine adjustment of any forming tool to achieve high quality piece parts. Enjoy the benefits of reduced tooling cost, increased flexibility and ease of length adjustment for accurate forms with ULTRAFORM.

MATE ULTRAFORM XT™ FORMING SYSTEM

Mate's ULTRAFORM XT is for situations where you desire flexibility but adjust tool length infrequently. ULTRAFORM XT features adjustable length holders for 1-1/4" B, 2" C, 3-1/2" D and 4-1/2" E stations. Designed to use Mate's ULTRAFORM tooling, each ULTRAFORM XT holder can be used with a variety of special forming inserts. ULTRAFORM XT provides all of benefits of the ULTRAFORM tooling system, including reduced tooling cost, increased flexibility and ease of length adjustment for accurate forms.

MATE ULTRAFORM FX™ FORMING SYSTEM

Mate's ULTRAFORM FX tooling system features fixed length holders for 1-1/4" B, 2" C, 3-1/2" D and 4-1/2" E stations. Perfect for machines with precision stroke control. Designed to use Mate's ULTRAFORM tooling, each ULTRAFORM FX holder can be used with a variety of special forming inserts. The benefits of the ULTRAFORM tooling system include reduced tooling cost, increased flexibility and ease of length adjustment for accurate forms.

MATE ORIGINAL STYLE FORMING TOOLS

Mate's Original Style forming tools feature adjustable length holders for 1-1/4" B stations. Original Style forming tools are designed for specific applications and machines. Eight specific form types are available. Ideal for hydraulic punch presses with programmable penetration control.

THE ULTRA FAMILY OF CANISTERS

Mate offers a variety of Ultra canister assemblies for your specific punching needs. If you're punching thick materials, thin/decorative materials or anything in between, we've got you covered! The spring assemblies are self-contained in the canisters. No tools are required to adjust the length.

ULTRA

- Quick length adjustment with guide attached
- No disassembly required
- Uniform spring pressure for reliable stripping
- Tool-less length adjustment: 0.006(0.15mm) for A Stations and 0.008(0.20mm) for B Stations
- Available in Ultra and Metric (Original) Style versions

ULTRA HEAVY DUTY

- Recommended for punching material 0.157(4.0mm) or greater thickness
- Quick length adjustment with guide attached
- No disassembly required
- Uniform spring pressure for reliable stripping
- Tool-less length adjustment: 0.006(0.15mm) for A Stations and 0.008(0.20mm) for B Stations
- Available in Ultra and Metric (Original) Style versions

ULTRA QUICKHIT

- For high-speed punching or nibbing applications
- Quick length adjustment with guide attached
- No disassembly required
- Uniform spring pressure for reliable stripping
- Tool-less length adjustment: 0.006(0.15mm) for A Stations and 0.008(0.20mm) for B Stations
- Available in Ultra and Metric (Original) Style versions

ULTRA LIGHT

- Recommeded for punching thin or decorative material
- Reduces sheetmarking for improved part quality and machine uptime
- Reduced noise levels for a better working environment
- Quick length adjustment with guide attached
- No disassembly required
- Uniform spring pressure for reliable stripping
- Tool-less length adjustment: 0.006(0.15mm) for A Stations and 0.008(0.20mm) for B Stations
- Available in Ultra and Metric (Original) Style versions

QUICK CHANGE TOOLING

Mate Precision Technologies's QCT thick turret tooling takes insert-style punching systems to a whole new level! With its durable patent-pending design, tool-less punch retention mechanism and M4PM™ steel inserts, you'll be on your way to faster, more cost effective punching in no time.

EASY SET-UP & MAINTENANCE. NO TOOLS REQUIRED!

QCT is designed to minimize effort and maximize uptime. There are no tools to use, break or lose to change the punch insert. Simply flip the durable latch to remove and snap the new insert into place. It's really that easy! Maintenance is a breeze, too. Use compressed air to clean away debris without damage.

LONGER LASTING, SUPERIOR INSERT PERFORMANCE

QCT punch inserts are made from Mate's proprietary M4PM™ steel, the longest lasting tool steel in the industry. At .770(19,56), the SBR is longer than our standard length punches, for more grind life. The punch is keyed at the perimeter providing better angularity control. Since the punch insert OD interfaces with the guide ID, punch guiding is superior, too.

ROBUST CONSTRUCTION

The punch driver is made from high speed steel and comes standard with Mate's proprietary next generation SuperMax™ coating for extended life*. To ensure durability, Mate's complete line of QCT Quick Change Tooling has undergone extensive product testing in customer locations.

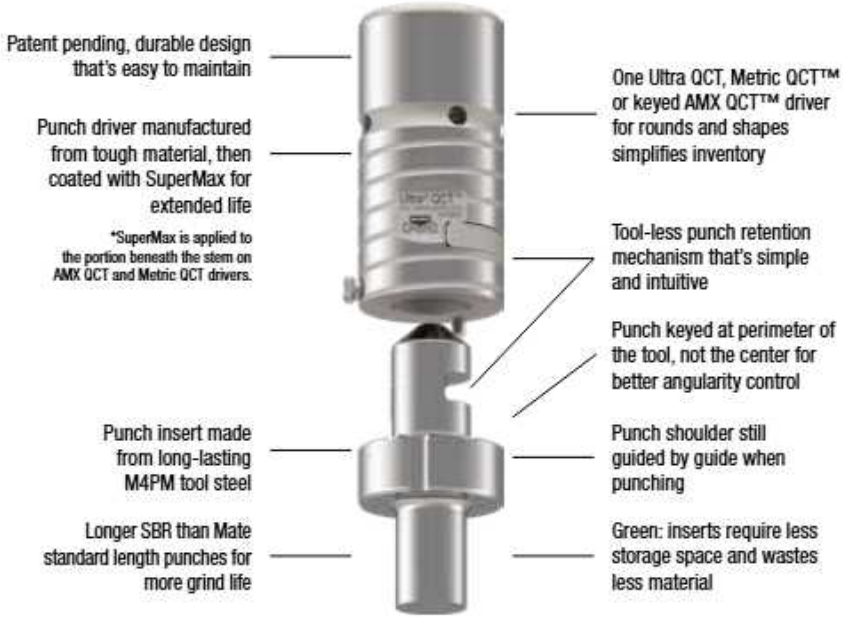
FULLY COMPATIBLE

There's no need to purchase a special or captive system. Mate's QCT works with all existing Ultra, Ultra XT and Ultra Fully Guided guides and canisters. Metric QCT is fully compatible with Mate Original Style and other long stem systems. AMX QCT™ is fully compatible with AMADA Air Blow Systems (ABS) assemblies and holders. MXC QCT™ is fully compatible with Wilson Series 90™ and HP™ tooling systems.

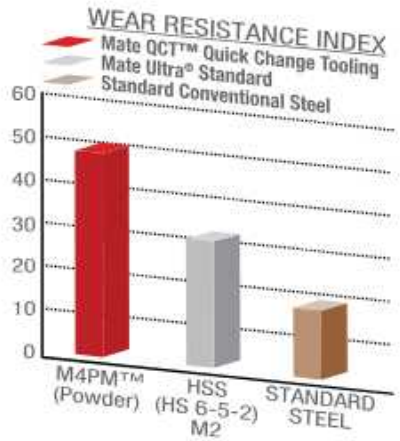
SIMPLE

Mate's QCT Quick Change Tooling simplifies your tooling storage needs. Only one punch driver is required for rounds or shapes with Ultra™ QCT, Metric QCT and AMX QCT drivers. Punch inserts take up less space than standard punches and waste less material.

OVERVIEW

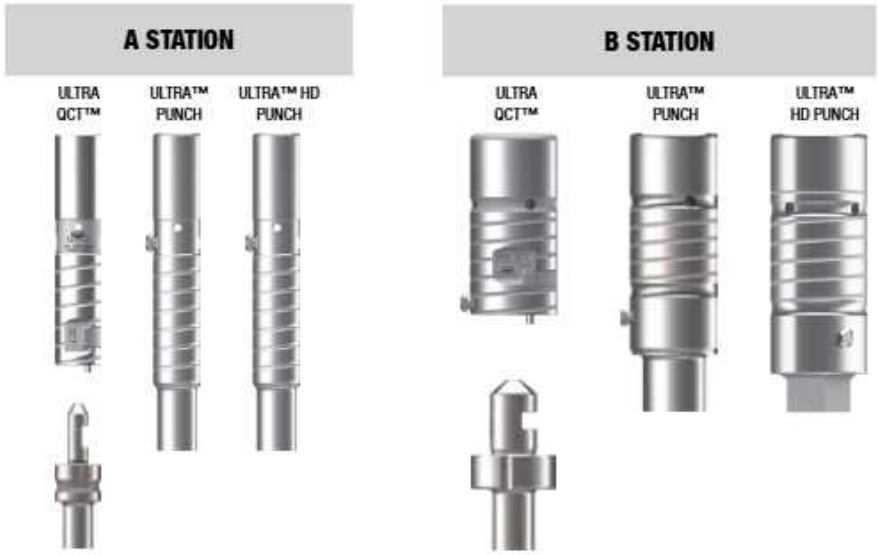


ULTRA QCT SHOWN ABOVE



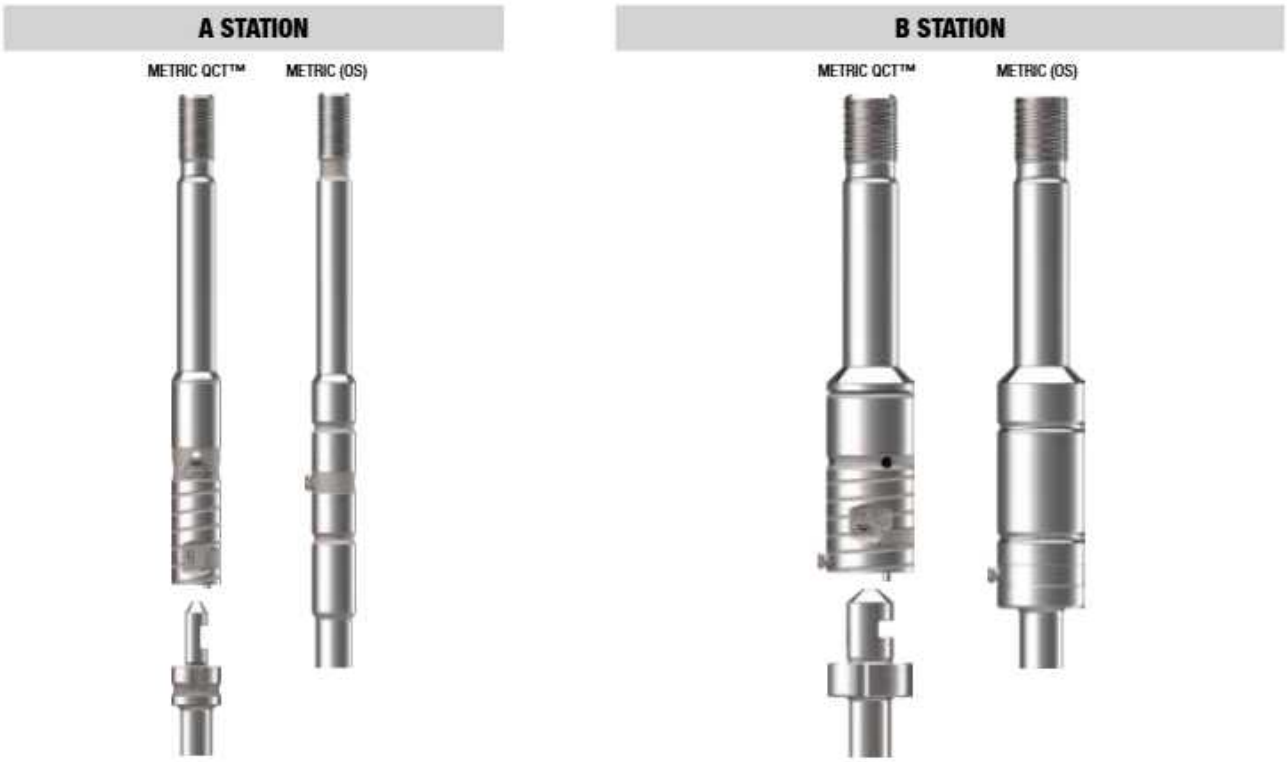
ULTRA PUNCHES

Mate Ultra punches are fully OEM compatible and designed to dramatically improve any punching operation. Made from premium high speed tool steel for extended grind life and maximum productivity, Ultra punches feature a 1/4 degree back taper and near polished flanks to reduce friction, eliminate galling and extend punch life. Ultra punches include external lubrication grooves to aid fluid flow. Available in Ultra QCT, Ultra and Ultra Heavy Duty styles. M4PM steel is available in Ultra A and B station punches for superior performance and longevity.



METRIC/ORIGINAL STYLE PUNCHES

Mate Metric/Original Style punches are fully OEM compatible with several design enhancements. Made from premium high speed tool steel for extended grind life and maximum productivity, Metric/Original Style punches feature a 1/4 degree back taper and near polished flanks to reduce friction, eliminate galling and extend punch life. Available in QCT, Metric and Heavy Duty styles.



STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

ULTRA, ULTRA XT & ULTRA FULLY GUIDED GUIDES

Mate Ultra guides are hardened and ground to reduce wear and feature internal and external lubricaton grooves to ensure uniform distribution of oil. The snap in, self-locking stripper retention system makes installation and removal a breeze. Ultra XT guides offer many of the same features as Ultra with fewer keyways for a more cost-effective solution. Both styles are available in Round Only and Shaped versions.

A STATION

All Mate guides have precision ground keyways for superior accuracy, better piece part quality, and longer tool life.

ULTRA PUNCH GUIDE

3 internal slots:
90°, 180° and 315°
1 external slot at 0°

ULTRA PUNCH GUIDE (ROUND ONLY)

1 internal slot: 0°
1 external slot: 0°

ULTRA XT PUNCH GUIDE (0°, 90° SETTING)

1 internal slot: 0°
2 external slots: 0° and 90°

ULTRA XT PUNCH GUIDE (0°, 45° SETTING)

1 internal slot: 0°
2 external slots: 0° and 45°

B STATION

ULTRA PUNCH GUIDE

5 internal slots:
0°, 90°, 180°, 225° and 270°
1 external slot: 0°

ULTRA PUNCH GUIDE (ROUND ONLY)

1 internal slot: 0°
1 external slot: 0°

ULTRA XT PUNCH GUIDE (0°, 90° SETTING)

1 internal slot: 0°
2 external slots: 0° and 90°

ULTRA XT PUNCH GUIDE (0°, 45° SETTING)

1 internal slot: 0°
2 external slots: 0° and 45°

ULTRA PUNCH GUIDE (FULLY GUIDED)

5 internal slots:
0°, 90°, 180°, 225° and 270°
1 external slot: 0°

STRIPPERS

Mate Ultra strippers are relieved to allow 0.118(3.00mm) grind life and feature rounded edges to minimize sheet marking.

A STATION

B STATION

B STATION FULLY GUIDED

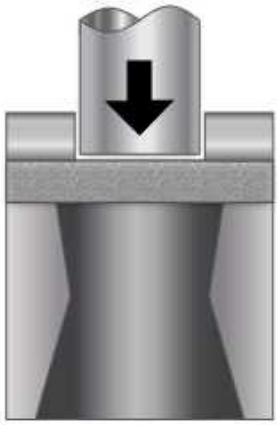
SLUG FREE™ DIES

Mate Slug Free dies eliminate slug pulling. The Slug Free is designed with an opening that has a constriction point below the surface so the slug cannot return once it passes this point. Once the slug is separated from the sheet, it is free to fall away from the punching area, eliminating slug pulling.

SLUG FREE™ DIES

Mate Slug Free dies eliminate slug pulling. Slug pulling is a condition where the slug returns to the top of the sheet during the stripping portion of the punching cycle. The slug comes between the punch and the top of the sheet on the next cycle. This causes damage to the piece part and the tooling. Slug Free dies eliminate this problem.

The Slug Free die has been designed with an opening that has a constriction point below the surface so the slug cannot return once it passes this point. Once the slug is separated from the punch, it is free to fall away from the punching area. Slug pulling is eliminated.



Material held securely by stripper before punch makes contact.

Punch penetrates the material. Slug fractures away from sheet.

Pressure point constricts slug. Punch stroke bottoms out as slug squeezes past pressure point.

Punch retracts and slug is free to fall down and away through exit taper of the Slug Free die.

SLUG FREE LIGHT™ DIES FOR THIN SHEET METAL

Mate Slug Free Light™ thick turret dies are designed to eliminate slug pulling when punching thin sheet metal material, where the recommended die clearance is less than 0.008(0.20).

The Mate Slug Free Light™ die works by introducing a series of small protrusions around the edge of the slug. Each protrusion is created by a small angled notch cut into the die opening. As the slug passes through the die, the position of the protrusion relative to the notch changes slightly. This change creates slight pressure between the slug and the die land, which traps the slug into the die and eliminates the possibility of the slug being pulled back through the die. By eliminating slug pulling with every punch cycle, the piece part quality is improved and tool life is increased.

Material Type	Maximum Suggested Material Thickness Inches(millimeters)
Stainless Steel	0.032(0.80)
Mild Steel	0.040(1.00)
Aluminum	0.048(1.20)

ULTRA™ PRECISION TOOLING SYSTEMS

DESIGNED TO DRAMATICALLY IMPROVE ANY PUNCHING OPERATION

Mate's Ultra™ is a precision thick turret tooling system offering exceptional tool performance and flexibility, fast tool-less adjustment, extended tool life and interchangeability with Mate and alternative systems.

CANISTER ASSEMBLIES:

- Quick length adjustment with guide attached. No disassembly required
- Uniform spring pressure for reliable stripping
- Available in multiple styles:
  - Ultra™
  - Metric (Original) style
  - Heavy Duty
  - Quickhit
  - Ultra Light

PUNCHES:

- Extended grind life
- Premium high speed tool steel for extended tool life
- 1/4 degree back taper and near polished flanks to reduce friction
- External lubrication grooves to allow fluid flow
- Available in multiple styles:
  - QCT™
  - Ultra™
  - Metric (Original) style
  - AMX™ style

UNIVERSAL GUIDES:

- Multiple angle settings
- Quick-change strippers - no tools required
- Tool remains assembled during tool length adjustment
- Internal and external lubrication grooves to reduce friction
- Hardened to reduce wear

STRIPPERS:

- 0.118(3.00) extra grind life from 3mm relief
- Quick-change mechanism
- Rounded edges to minimize sheet marking

SLUG FREE™ DIES:

- Eliminates slug pulling
- Highly wear resistant
- Uniform clearance radii in die corners improves cut quality
- Exceptional die strength
- Up to 0.125(3.20) grind life
- A and B stations also avaialble in optional MPM82 steel

OPTIONS

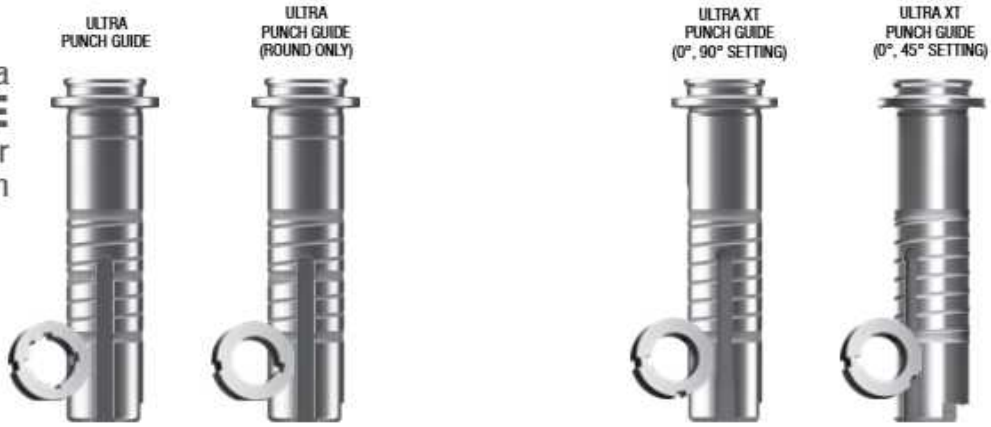
- M4PM™ steel available in punches for superior perfomance and longevity
- Punches may be ordered with SuperMax™, Maxima™ and Nitride coatings for increased punch life

ULTRA A-STATION COMPATIBILITY GUIDE

Select a CANISTER

Select a PUNCH style

Select a GUIDE for your application



(Ultra QCT shown)

ULTRA		Part Number	Price
CANISTERS			
Standard		MATE01361	
Heavy Duty*		MATE01866	
QUICKHIT™		A0VASTCQ	
Ultra Light™		MATE00276	
PUNCHES			
Ultra QCT Punch Driver		MATE02404	
Ultra QCT Punch Insert	Round	PAQA0A	
Ultra QCT Punch Insert	Shape	PAQA_A	
Ultra (Standard)	Round	PAUA0A	
Ultra (Standard)	Shape	PAUA_A	
Ultra Heavy Duty*	Round	PHUA0A	
Ultra Heavy Duty*	Shape	PHUA_A	
GUIDES			
Ultra / Ultra XT™	Round	A0VA0SGU	
Ultra	Shape	A0VA00GU	
Ultra XT 0°/90°	Shape	MATE00204	
Ultra XT 0°/45°	Shape	MATE00205	
STRIPPERS			
Ultra Stripper Plate	Round	S6KA0A	
Ultra Stripper Plate	Shape	S6KA_A	
Heavy Duty*	Round	SHKA0A	
Heavy Duty*	Shape	SHKA_A	
SLUG FREE DIES			
Slug Free Die	Round	D0AA00	
Slug Free Die	Shape	D0AA_0	
Heavy Duty*	Round	DHAA00	
Heavy Duty*	Shape	DHAA_0	
DIE SHIMS			
Package of 12 (3 each)			
0.008(0.20)		MSAA	
0.016(0.40)			
0.032(0.80)			
0.048(1.20)			

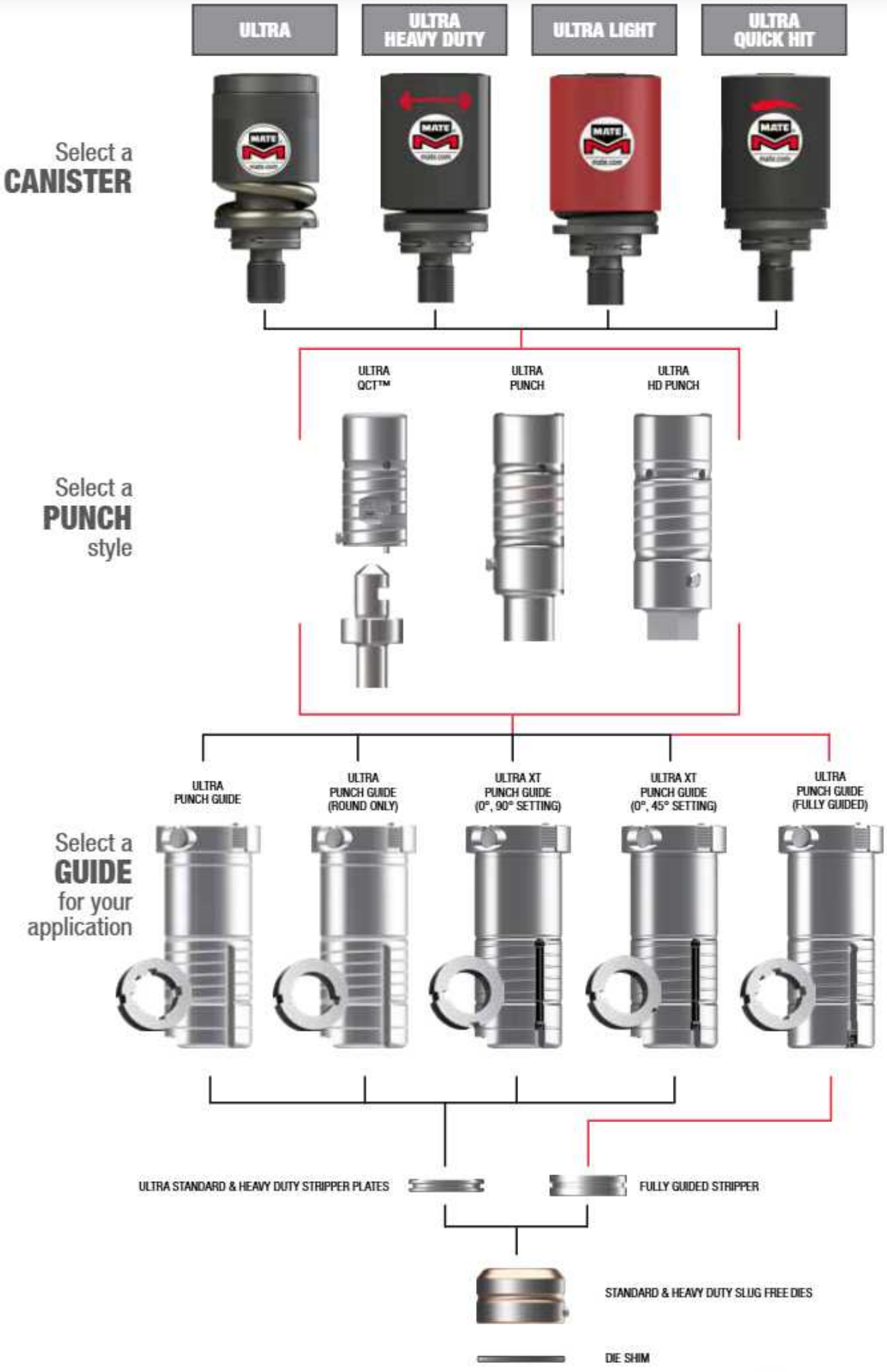
*Heavy Duty Canister, Punch, Stripper and Slug Free Die must be used together

QCT TONNAGE LIMITATIONS	
A Station	5 U.S. TONS / 4.54 METRIC TONS
B Station	14 U.S. TONS / 12.70 METRIC TONS

- Optional M4PM steel available for Ultra punches
- Optional MPM82 steel available for Slug Free dies

(see page 74-75 for details)

ULTRA B-STATION COMPATIBILITY GUIDE



(Ultra QCT shown)

ULTRA		Part Number	Price
CANISTERS			
Standard		MATE01078	
Heavy Duty*		A0VBHSCA6	
QUICKHIT™		A0VBSTCQ	
Ultra Light™		MATE00277	
PUNCHES			
Ultra QCT Punch Driver		MATE02401	
Ultra QCT Punch Insert	Round	PAQB0A	
Ultra QCT Punch Insert	Shape	PAQB_A	
Ultra (Standard)	Round	PAUB0A	
Ultra (Standard)	Shape	PAUB_A	
Ultra Heavy Duty*	Round	PHUB0A	
Ultra Heavy Duty*	Shape	PHUB_A	
GUIDES			
Ultra / Ultra XT™	Round	A0VB0SGU	
Ultra	Shape	A0VB00GU	
Ultra XT 0°/90°	Shape	MATE00206	
Ultra XT 0°/45°	Shape	MATE00207	
Ultra Fully Guided		A0VB00GG	
STRIPPERS			
Ultra	Round	S6KB0A	
Ultra	Shape	S6KB_A	
Heavy Duty*	Round	SHKB0A	
Heavy Duty*	Shape	SHKB_A	
Fully Guided	Round	S6KK0A	
Fully Guided	Shape	S6KK_A	
SLUG FREE DIES			
Slug Free Die	Round	D0AB00	
Slug Free Die	Shape	D0AB_0	
Heavy Duty*	Round	DHAB00	
Heavy Duty*	Shape	DHAB_0	
DIE SHIMS			
Package of 12 (3 each)			
0.008(0.20)		MSAB	
0.016(0.40)			
0.032(0.80)			
0.048(1.20)			

*Heavy Duty Canister, Punch, Stripper and Slug Free Die must be used together

QCT TONNAGE LIMITATIONS	
A Station	5 U.S. TONS / 4.54 METRIC TONS
B Station	14 U.S. TONS / 12.70 METRIC TONS

- Optional M4PM steel available for Ultra punches
- Optional MPM82 steel available for Slug Free dies

(see page 74-75 for details)

METRIC STYLE ULTRA A-STATION COMPATIBILITY GUIDE

Select a **CANISTER**

Select a **PUNCH** style

Select a **GUIDE** for your application

ULTRA STANDARD & HEAVY DUTY STRIPPER PLATES

STANDARD & HEAVY DUTY SLUG FREE DIES

DIE SHIM

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

(Metric QCT™ shown)

ULTRA METRIC			Part Number	Price
CANISTER				
	Metric		MATE01362	
	Heavy Duty*		MATE01867	
	Ultra Light™		MATE00278	
	QUICKHIT™		A0VAASCQ	
PUNCH				
	Metric QCT™ Punch Driver	Keyed	MATE02519	
	Metric QCT™ Punch Driver	Keyless	MATE02520	
	Ultra QCT™ Punch Insert	Round	PAQA0A	
	Ultra QCT™ Punch Insert	Shape	PAQA_A	
	Metric (Original Style)	Round	PAAA0A	
	Metric (Original Style)	Shape	PAAA_A	
GUIDE				
	Ultra / Ultra XT	Round	A0VA0SGU	
	Ultra	Shape	A0VA00GU	
	Ultra XT 0°/90°	Shape	MATE00204	
	Ultra XT 0°/45°	Shape	MATE00205	
STRIPPER				
	Ultra	Round	S6KA0A	
	Ultra	Shape	S6KA_A	
	Heavy Duty*	Round	S6KA0A	
	Heavy Duty*	Shape	S6KA_A	
SLUG FREE DIE				
	Slug Free Die	Round	D0AA00	
	Slug Free Die	Shape	D0AA_0	
	Heavy Duty*	Round	DHAA00	
	Heavy Duty*	Shape	DHAA_0	
DIE SHIMS				
	Package of 12 (3 each)			
	0.008(0.20)		MSAA	
	0.016(0.40)			
	0.032(0.80)			
	0.048(1.20)			

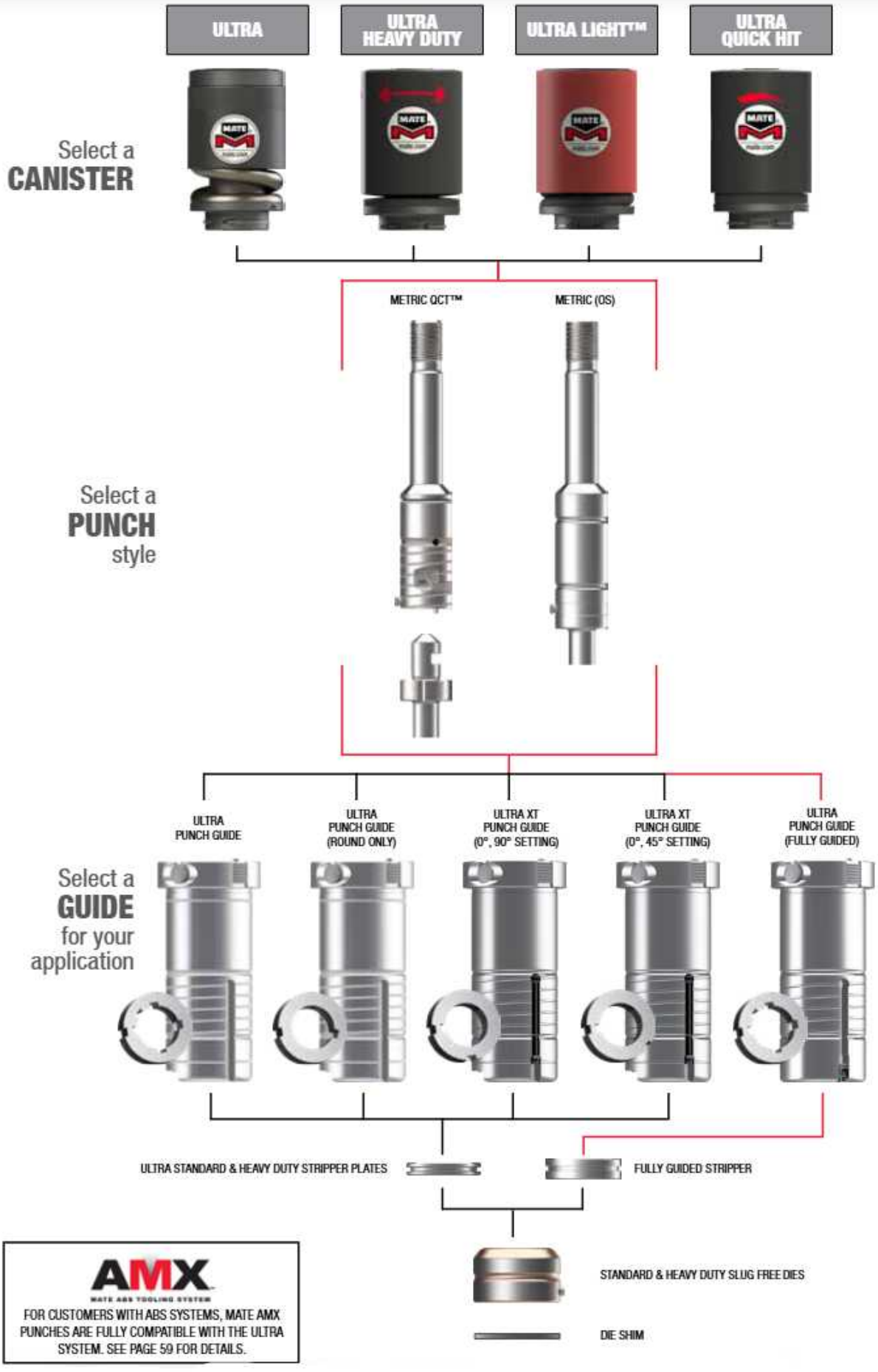
*Heavy Duty Canister, Punch, Stripper and Slug Free Die must be used together

QCT TONNAGE LIMITATIONS	
A Station	5 U.S. TONS / 4.54 METRIC TONS
B Station	14 U.S. TONS / 12.70 METRIC TONS

- Optional M4PM steel available for Ultra punches
- Optional MPM82 steel available for Slug Free dies

(see page 74-75 for details)

METRIC STYLE ULTRA B-STATION COMPATIBILITY GUIDE



AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

(Metric QCT™ shown)

ULTRA METRIC			Part Number	Price
CANISTER				
	Metric		MATE01076	
	Heavy Duty*		A0VBHMCA	
	Ultra Light		MATE00279	
	QUICKHIT		A0VAASCQ	
PUNCH				
	Metric QCT Punch Driver	Keyed	MATE02521	
	Metric QCT Punch Driver	Keyless	MATE02522	
	Ultra QCT Punch Insert	Round	PAQB0A	
	Ultra QCT Punch Insert	Shape	PAQB_A	
	Metric (Original Style)	Round	PAAB0A	
	Metric (Original Style)	Shape	PAAB_A	
GUIDE				
	Ultra / Ultra XT	Round	A0VB0SGU	
	Ultra	Shape	A0VB00GU	
	Ultra XT 0°/90°	Shape	MATE00206	
	Ultra XT 0°/45°	Shape	MATE00207	
	Ultra Fully Guided		A0VB00GG	
STRIPPER				
	Ultra	Round	S6KB0A	
	Ultra	Shape	S6KB_A	
	Heavy Duty*	Round	S6KB0A	
	Heavy Duty*	Shape	S6KB_A	
	Fully Guided	Round	S6KK0A	
	Fully Guided	Shape	S6KK_A	
SLUG FREE DIE				
	Slug Free Die	Round	D0AB00	
	Slug Free Die	Shape	D0AB_0	
	Heavy Duty*	Round	DHAB00	
	Heavy Duty*	Shape	DHAB_0	
DIE SHIMS				
	Package of 12 (3 each)			
	0.008(0.20)		MSAB	
	0.016(0.40)			
	0.032(0.80)			
	0.048(1.20)			

*Heavy Duty Canister, Punch, Stripper and Slug Free Die must be used together

QCT TONNAGE LIMITATIONS	
A Station	5 U.S. TONS / 4.54 METRIC TONS
B Station	14 U.S. TONS / 12.70 METRIC TONS

- Optional M4PM steel available for Ultra punches
- Optional MPM82 steel available for Slug Free dies

(see page 74-75 for details)

A & B STATION RAPIDSET™/ORIGINAL STYLE OVERVIEW

MATE RAPIDSET CANISTERS INCLUDE THE FOLLOWING FEATURES

- Fast, easy punch length adjustment without removal from the guide reducing downtime and increases prouctivity
- Self-contained pre-loaded spring pack for consistent stripping pressure and reliable operation.
- Consistent die penetration reduces slug pulling
- Canisters feature textured surface with knurled Griptionᵀᴹ ring for ease of handling
- Only 1 clamping screw needed to adjust length
- 0.315"(8,00mm) grind life in 0.039"(1,00mm) material with 0.118"(3,00mm) die penetration
  - Mate Original Style grind life is much less: only 0.189"(4,82mm)

FULLY COMPATIBLE WITH:

- Mate Original Style tooling
- Mate AMX tooling
- Amada Standard Style tooling
- Amada Standard Style ABS tooling

MATE ORIGINAL STYLE THICK TURRET TOOLING INCLUDES THE FOLLOWING FEATURES

PUNCH HEAD:
Hexagonal design and 12.9 grade socket head cap screw for easier installation and adjustment

SPRING:
High performance spring shot peened prior to painting for extended service life

SPRING RETAINER:
Reversible design returns the punch point to "new" position by turning over retainer after 0.078(2.00) has been removed during regrinding

FULLY COMPATIBLE WITH:

- Mate Original Style tooling
- Mate AMX tooling
- Amada Standard Style tooling
- Amada Standard Style ABS tooling

ORIGINAL STYLE COMPATIBLE PUNCH, STRIPPER AND DIE FEATURES

ORIGINAL STYLE PUNCHES:

- Premium high speed tool steel for optimual edge wear resistance
- 1/4 degree back taper and near polished flanks reduce friction and eliminate galling
- Exceptional dimensional accuracy and tool life
- Minute corner radii to reduce chipping
- Superior angularity and concentricity

ORIGINAL STYLE STRIPPERS:

- Closer tolerance openings and precision alignment slots for superior piece part quality
- Hardened and ground to reduce friction
- Radiussed face to reduce sheet marking

SLUG FREE DIES:

- High wear resistant, chrome air hardened tool steel
- Slug Free Die geometry elimates slug pulling
- Uniform clearance radii in die corners for improved piece part quality
- Precision orientation with hardened pin
- Up to 0.125"(3.20mm) grind life
- Improved die strength
- Superior roundness and flatness

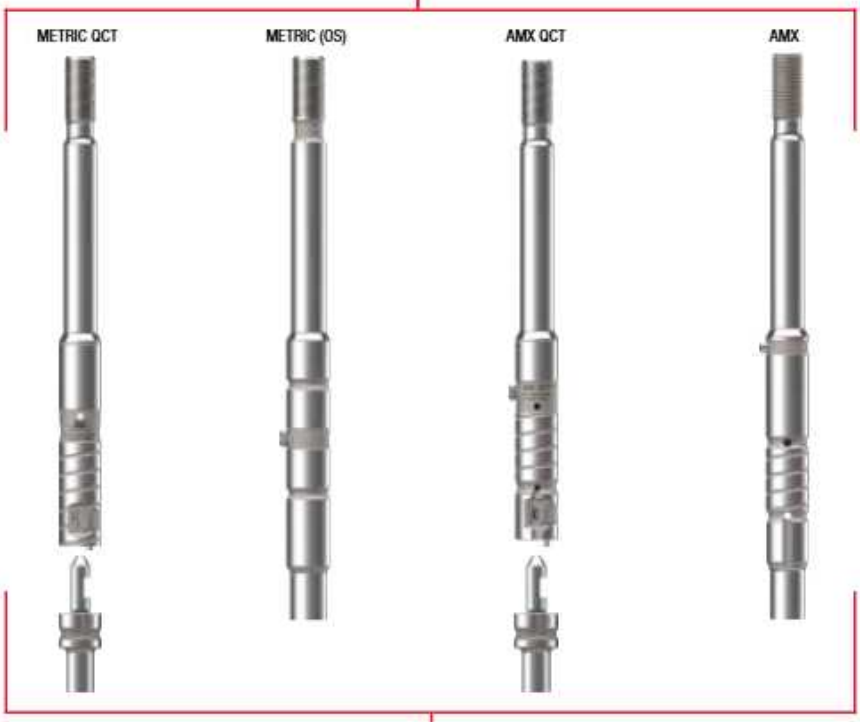
AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH AMADA® ABS ASSEMBLIES. SEE PAGE 59 FOR DETAILS.

A-STATION RAPIDSET/ORIGINAL STYLE COMPATIBILITY GUIDE

Select a **CANISTER**

Select a **PUNCH** style



Select a **GUIDE** for your application

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH AMADA® ABS ASSEMBLIES. SEE PAGE 59 FOR DETAILS.

STANDARD & HEAVY DUTY SLUG FREE DIES

DIE SHIM

RAPIDSET/ORIGINAL STYLE

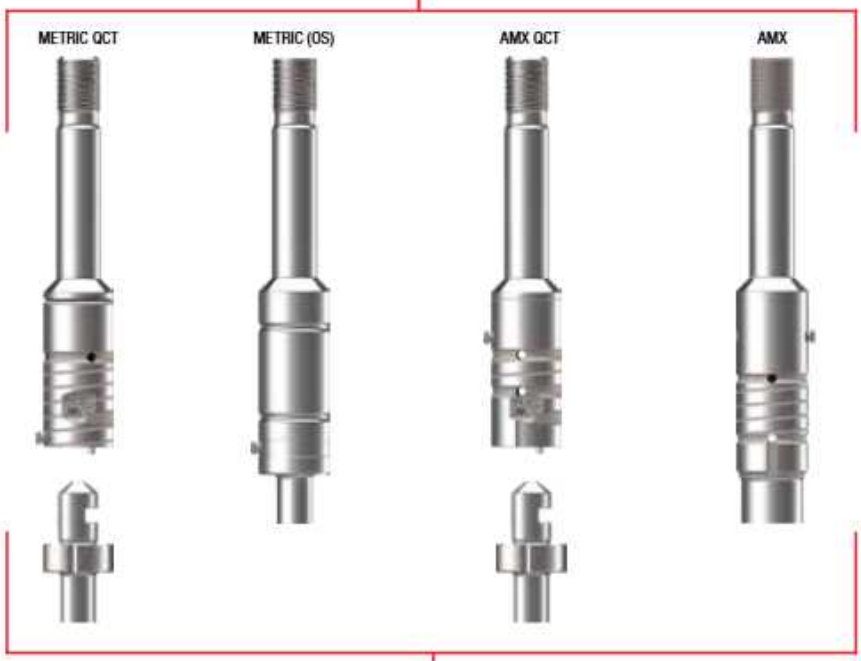
			Part Number	Price
ORIGINAL STYLE UPPER				
	Complete Assembly		XPAAAA	
		Punch Head	A0LA00PH	
		Stripping Spring	SPR33662	
		Spring Retainer	A0LA00SR	
RAPIDSET CANISTER				
	Complete Canister Assembly		MATE02044	
PUNCH — METRIC				
	Original Style	Round	PAAA0A	
	Original Style	Shape	PAAA_A	
	AMX QCT Punch Driver	Keyed	MATE02551	
	AMX QCT Punch Driver	Keyless	MATE02553	
	QCT Punch Insert	Round	PAQA0A	
	QCT Punch Insert	Shape	PAQA_A	
	AMX ABS	Round	PMXA0A	
	AMX ABS	Shape	PMXA_A	
GUIDE (includes O-ring				
	Original Style	Round	S6AA00	
	Original Style	Shape	S6AA_0	
	AMX	Round	SMXA0A	
	AMX	Shape	SMXA_A	
GUIDE HARDWARE				
	O-Ring (12 minimum*)		MIS60548	
	O-Ring (12 minimum*)		MIS60468	

DIE

			Part Number	Price
SLUG FREE DIE				
	Round		D0AA00	
	Shape		D0AA_0	
DIE SHIMS				
	Package of 12 (3 each)			
	0.008(0.20)		MSAA	
	0.016(0.40)			
	0.032(0.80)			
	0.048(1.20)			
AMX SEAL KIT (Required for use in AMX/ABS Environments)				
	A Station Original Style Seal Kit		MATE01880	

B-STATION RAPIDSET/ORIGINAL STYLE COMPATIBILITY GUIDE

Select a **PUNCH** style



Select a **GUIDE** for your application

STANDARD & HEAVY DUTY SLUG FREE DIES

DIE SHIM

[Dimensions in Inches (mm)]

ORIGINAL STYLE

			Part Number	Price
UPPER ASSEMBLY				
	Complete Assembly		XPABAA	
		Punch Head	A0LB00PH	
		Stripping Spring	SPR33689	
		Spring Retainer	A0LB00SR	
RAPIDSET CANISTER				
	Complete Canister Assembly		MATE02050	
PUNCH — METRIC				
	Original Style	Round	PAAB0A	
	Original Style	Shape	PAAB_A	
	AMX QCT Punch Driver	Keyed	MATE02552	
	AMX QCT Punch Driver	Keyless	MATE02554	
	QCT Punch Insert	Round	PAQB0A	
	QCT Punch Insert	Shape	PAQB_A	
	AMX ABS	Round	PMXB0A	
	AMX ABS	Shape	PMXB_A	
GUIDE (includes O-Ring)				
	Original Style	Round	S6AB00	
	Original Style	Shape	S6AB_0	
	AMX	Round	SMXB0A	
	AMX	Shape	SMXB_A	
GUIDE HARDWARE				
	O-Ring (12 minimum*)		MIS60556	

DIE

			Part Number	Price
SLUG FREE DIE				
	Round		D0AB00	
	Shape		D0AB_0	
DIE SHIMS				
	Package of 12 (3 each)			
	0.008(0.20)		MSAB	
	0.016(0.40)			
	0.032(0.80)			
	0.048(1.20)			

* Items may be added individually beyond minimum quantity

AMX SEAL KIT (Required for use in AMX/ABS Environments)			
	B Station Original Style Seal Kit	MATE01883	

ULTRA C, D AND E STATION PRECISION TOOLING SYSTEM – DESIGNED TO DRAMATICALLY IMPROVE ANY PUNCHING OPERATION

- 0.212(5.38) more punch grind life than original style tooling
- Quick change strippers
  Quick length adjustment
- Internal lubrication within punch guide
- External lubrication between guide and turret bore ensures uniform distribution of oil within the turret bore
- Hardened guides to reduce turret bore wear
- Slug Free dies eliminate slug pulling

PUNCHES:
- Premium high speed tool steel for extended life between regrinds and maximum productivity
- 1/4 degree back taper and near polished flanks to reduce friction and eliminate galling
- Superior angularity, concentricity, and dimensional accuracy
- Robust full-body design
- Fully compatible with original style thick turret tooling

STRIPPERS:
- Relieved to allow 0.078(2.00) extra grind life
- Recessed to allow collection of lubrication fluid at punch tip
- Quick-change mechanism to allow rapid tool change
- Rounded edges to minimize sheet marking
- Optional urethane stripper pads to eliminate sheet marking

SLUG FREE DIES:
- Highly wear resistant, chrome air hardened tool steel to balance hardness and toughness
- Slug Free die geometry eliminates slug pulling
- Uniform clearance radii in die corners to improve edge quality
- Precision orientation keyway
- Up to 0.125(3.20) grind life
- Superior roundness and flatness with exceptional die strength

PUNCH GUIDE ASSEMBLY:
- Quick-change stripper release mechanism allows stripper to be removed easily, without tools
- Quick length adjustment mechanism on the side of the guide allows the punch length to be adjusted without disassembly
- Hardened and ground to stay round and true to size to greatly reduce turret bore wear
- Internal and external lubrication grooves to reduce friction
- High performance disc springs to optimize stripping force throughout the service life of the machine

GUIDE ASSEMBLIES WITH M14 BOLTS:
- Same Ultra guide assemblies described above, but with M14 bolts
- Provide full compatibility with existing M14 threaded punches
- Conversion kit available for compatibility with M12 threaded punches

[Dimensions in Inches (mm)]

Mate offers a wide range of C, D and E Station tooling systems to fit virtually any punching application.

ULTRA

- 0.212(5.38) more punch grind life than Original Style
- Quick change strippers
- Quick length adjustment
- Internal lubrication within punch guide
- External lubrication between guide and turret bore ensures uniform distribution of oil within the turret bore
- Hardened guides to reduce turret bore wear
- Slug Free dies eliminate slug pulling

ULTRA FULLY GUIDED

- Includes all of the features of Ultra tooling PLUS:
  - Accurate and close tolerances between guide and stripper hold punches rigid to control against hole distortion and saw toothing
  - Stripper opening 0.0015(0.04) TC to point
  - Guiding at punch point supports punches, increases hole accuracy, improves stripping and prevents scrap from rising into the assembly

ULTRA XT

- Quick tool change with easy click length adjustment
- Grooved guides for better lubrication
- Slug Free die design
- Compatible with machine tool lubrication systems.
- OEM compatible strippers in the 2" C, 3-1/2" D, 4-1/2" E stations

ORIGINAL STYLE

- Fully OEM compatible
- Hardened and ground to reduce turret bore wear
- Internal and external lubrication grooves to reduce friction
- High performance disc springs to optimize stripping force throughout the service life of the machine

ULTRA LIGHT SPRING PACK

- Reduced spring pressure to eliminate unwanted sheet marking
- Designed for thin or decorative materials
- Ideal for high polish, textured, pre-painted or reflective metals where finish appearance is critical
- Quieter punching in all applications. Noise levels reduced by as much as 10 decibels

ORIGINAL STYLE PUNCHES

Mate Original Style punches are fully OEM compatibale. Made from premium high speed tool steel for optimal wear resistance, the punches include a 1/4 degree back taper and near polished flanks to reduce friction and eliminate galling.

C STATION	D STATION	E STATION
		

ORIGINAL STYLE HEAVY DUTY PUNCHES

C STATION	D STATION	E STATION
 Maximum Heavy Duty Punch Size 1.752(44.50) diameter/diagonal 	 Maximum Heavy Duty Punch Size 3.169(80.50) diameter/diagonal 	 Maximum Heavy Duty Punch Size 4.173(106.00) diameter/diagonal 

ORIGINAL STYLE SLITTING TOOLS

C STATION	D STATION	E STATION
 PUNCH RETAINER  SLITTING INSERT	 PUNCH RETAINER  SLITTING INSERT	 PUNCH RETAINER  SLITTING INSERT

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

STANDARD STRIPPER PLATE OPTIONS

Fully OEM compatible with close tolerance openings for superior piece part quality.

C STATION	D STATION	E STATION
 ULTRA STRIPPER PLATE	 ULTRA STRIPPER PLATE	 ULTRA STRIPPER PLATE
 FULLY GUIDED STRIPPER PLATE	 FULLY GUIDED STRIPPER PLATE	 FULLY GUIDED STRIPPER PLATE
 ULTRA HEAVY DUTY STRIPPER PLATE	 ULTRA HEAVY DUTY STRIPPER PLATE	 ULTRA HEAVY DUTY STRIPPER PLATE
 ULTRA XT & ORIGINAL STYLE STRIPPER PLATE	 ULTRA XT & ORIGINAL STYLE STRIPPER PLATE	 ULTRA XT & ORIGINAL STYLE STRIPPER PLATE

STANDARD DIE OPTIONS

Highly wear resistant, chrome air hardened tool steel to balance hardness and toughness. Slug Free die geometry eliminates slug pulling. Uniform clearance radii in die corners to improve edge quality. Precision orientation keyway. Up to 0.125(3.20) grind life.

C STATION	D STATION	E STATION
 SLUG FREE DIE	 SLUG FREE DIE	 SLUG FREE DIE
 MAXIMUM HEAVY DUTY DIE SIZE 1.791(45.50) DIAMETER/DIAGONAL (INCLUDES CLEARANCE)  HEAVY DUTY SLUG FREE DIE	 MAXIMUM HEAVY DUTY DIE SIZE 3.209(81.50) DIAMETER/DIAGONAL (INCLUDES CLEARANCE)  HEAVY DUTY SLUG FREE DIE	 MAXIMUM HEAVY DUTY DIE SIZE 4.213(107.00) DIAMETER/DIAGONAL (INCLUDES CLEARANCE)  HEAVY DUTY SLUG FREE DIE

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH AMADA® ABS ASSEMBLIES. SEE PAGE 60 FOR DETAILS.

ULTRA C-STATION COMPATIBILITY GUIDE

Select a **GUIDE** assembly

ORIGINAL STYLE | HEAVY DUTY | SLITTING

Select a **PUNCH** style

Select a **DIE** style

DIE SHIM

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

ULTRA		Part Number	Price
GUIDE ASSEMBLY			
	Ultra	AGVC1Y	
	Ultra with M14 Bolt	MATE02396	
	Fully Guided	AGVS1Z	
	Fully Guided with M14 Bolt	MATE00657	
	XT	MATE00209	
PUNCHES			
	Original Style Round	PAAC0A	
	Original Style Shape	PAAC_A	
	Heavy Duty* Round	PHAC0A	
	Heavy Duty* Shape	PHAC_A	
STRIPPERS PLATE			
	Ultra Stripper Plate Round	S6KC0A	
	Ultra Stripper Plate Shape	S6KC_A	
	Fully Guided Round	S2KL0A	
	Fully Guided Shape	S2KL_A	
	Heavy Duty* Round	SHKC0A	
	Heavy Duty* Shape	SHKC_A	
SLUG FREE DIES			
	Slug Free Die Round	D0AC00	
	Slug Free Die Shape	D0AC_0	
	Heavy Duty* Round	DHAC00	
	Heavy Duty* Shape	DHAC_0	
DIE SHIMS			
	Package of 12 (3 each)		
	0.008(0.20)	MSAC	
	0.016(0.40)		
	0.032(0.80)		
	0.048(1.20)		

*Heavy Duty Punch, Stripper and Slug Free Die must be used together

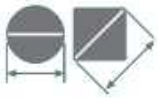
SLITTING TOOL COMPONENTS

PUNCH RETAINER			
	Original Style	A0LC00PR	
INSERTS			
	Slitting Insert	P4AP_A	
	Die Insert	D0KP_0	
SLITTING DIE BODY			
	Slitting Insert	A0LC00SD	

M14 PUNCH DRIVER CONVERSION KIT		
Ultra/Ultra XT C STATION M14 Punch Driver Conversion Kit	MATE00651	

Also available is an M14 punch driver conversion kit to convert existing Mate Ultra guides with M12 bolts to suit punches with an M14 thread.

ORIGINAL STYLE C-STATION OVERVIEW



Maximum
2.000(50.80)
diameter/diagonal

D/L = Diagonal/Length
R C = Radius Corners

Slitting Insert with Slug Free Die
2.000(50.80) max. D/L
0.709(18.00) max. width

Slug Free Die
2.059(52.30) max. D/L
0.768(19.50) max. width

Slitting Insert with Die Inserts
2.000(50.80) max. D/L
0.268(6.80) max. width

Die Inserts, Rectangles and Ovals
2.028(51.50) max. D/L
0.295(7.50) max. width

ORIGINAL STYLE

Select a **PUNCH** style

Select a **DIE** style

DIE SHIM

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

ORIGINAL STYLE		Part Number	Price
GUIDE ASSEMBLY			
	Punch Guide	AGLC1	
PUNCH SHIMS			
	Package of 9 (3 each)		
	0.016(0.40)	VSAC	
	0.032(0.80)		
	0.048(1.20)		
PUNCH BODY			
	Original Style	Round	PAAC0A
	Original Style	Shape	PAAC_A
	AMX	Round	PMXC0A
	AMX	Shape	PMXC_A
STRIPPERS PLATE			
	Stripper Plate	Round	S6AC0A
	Stripper Plate	Shape	S6AC_A
	Heavy Duty*	Round	SHKC0A
	Heavy Duty*	Shape	SHKC_A
SLUG FREE DIES			
	Slug Free Die	Round	D0AC00
	Slug Free Die	Shape	D0AC_0
	Heavy Duty*	Round	DHAC00
	Heavy Duty*	Shape	DHAC_0
DIE SHIMS			
	Package of 9 (3 each)		
	0.016(0.40)	MSAC	
	0.032(0.80)		
	0.048(1.20)		

SLITTING TOOL COMPONENTS

PUNCH RETAINER		
Original Style	A0LC00PR	
INSERTS		
Slitting Insert	P4AP_A	
Die Insert	D0KP_0	
SLITTING DIE BODY		
Slitting Insert	A0LC00SD	

ULTRA FULLY GUIDED CLAMP CLEARING SLITTING SYSTEM

This tool is specially designed for slitting and parting applications. Separating piece parts, trimming sheet edges, and reducing sheet sizes often requires the use of a tool with long narrow dimensions. Rectangles with radius corners or ovals are recommended.

Slitting and parting applications require the tool to pierce material cleanly and accurately while overcoming various side load and twisting pressures. For example, parting a sheet will include an amount of overlap in each step where sheet resistance is absent. This causes the force of resistance to build on one side which can cause the hole to distort or saw tooth. The same is true when trimming the edge of a sheet.

FULLY GUIDED ASSEMBLY

Accurate and close tolerances between guide and stripper hold punches rigid, control against hole distortion and saw toothing.

ADDITIONAL 0.079(2.00) PUNCH GRIND LIFE

Use insert style punches from Mate with our specially designed stripper to gain additional grind life.

CLAMP CLEARING RELIEF

The stripper and the die are relieved so the clamp can pass between the upper and the lower unit. No need to reposition the clamps, saves time, improves piece part quality.

SLUG FREE DIE DESIGN

Eliminating slugs cleanly and effectively extends tool life, improves piece part quality and reduces scrap.

VERSADIE™ & VERSADIE HD™ THICK TURRET INSERT SLITTING DIE

Clamp clearing dies are necessary to maximize sheet usage — reducing both material cost and waste. Mate Versadie uses a different approach to slitting dies because you just replace the die insert, not the entire die. Versadie inserts are designed to allow for lengths up to 4.560(115.82mm) for E Stations and 3.560(90.42mm) for D Stations. With tighter tolerances of the insert to the holder, Versadie has superior overall quality over the competition. If you are slitting thicker materials that require more than 0.016"(0.406mm) total die clearance, Versadie HD improves slitting performance by incorporating more rigidity.

Versadie and Versadie HD use the same replaceable inserts made from MPM82 tool steel. MPM82 is a high speed tooling steel designed for use in high performance tooling systems. Its particle metallurgy is intended to provide high value and exceptional versatility, making it perfect for slitting operations.

DIE INSERT

- Premium MPM82 tool steel for superior performance and longevity
- Maximum diagonals — inches(mm)
  - D Station up to 3.560(90.42mm)
  - D Station for HD up to 3.209(81.51mm)
  - E Station up to 4.560(115.82mm)
  - E Station for HD up to 4.213(107.01mm)
- Widths up to .509(12.93mm)
- Mate SLUG FREE design

VERSADIE™

DIE BODY

- S7 Shock-Resisting Tool Steel

SHIMS

- D Station, package of 3 each: 0.016(0.41); 0.032(0.81); 0.048(1.22)
- E Station, package of 3 each: 0.016(0.41); 0.032(0.81); 0.048(1.22)

For maximum longevity, the die body allows shimming after the insert is sharpened during routine maintenance. There's no need for special shims — simply use standard thick turret die shims.

VERSADIE HD™

[Dimensions in Inches (mm)]

ORIGINAL STYLE SLITTING TOOLS

D STATION

PUNCH RETAINER

SLITTING INSERT

E STATION

PUNCH RETAINER

SLITTING INSERT

FULLY GUIDED CLAMP CLEARING STRIPPER OPTIONS

Use this tooling to work close to work holder clamps. The stripper is relieved so the clamp can pass between the upper and lower unit. No need to reposition the clamps, which saves time and improves piece part quality. Guiding at punch point supports punches, increases hole accuracy, improves stripping and prevents scrap from rising into the assembly. Stripper opening 0.0015(0.014) TC to point.

D STATION

"DD" STRIPPER PLATE

"D" STRIPPER PLATE

E STATION

"DD" STRIPPER PLATE

"D" STRIPPER PLATE

CLAMP CLEARING DIE OPTIONS

Use this tooling to work close to work holder clamps. The dies are relieved so the clamp can pass between the upper and lower unit. No need to reposition the clamps, which saves time and improves piece part quality. Slug Free die design clears the slug every cycle, extending tool life, improving piece part quality and reducing scrap.

D STATION

"DD" CLAMP CLEARING
SLUG FREE DIE

"D" CLAMP CLEARING
SLUG FREE DIE

VERSADIE WITH INSERT
(ALSO AVAILABLE IN HEAVY DUTY)

E STATION

"DD" CLAMP CLEARING
SLUG FREE DIE

"D" CLAMP CLEARING
SLUG FREE DIE

VERSADIE WITH INSERT
(ALSO AVAILABLE IN HEAVY DUTY)

ULTRA D STATION COMPATIBILITY GUIDE

Select a **GUIDE** assembly

CLAMP CLEARING MAXIMUM LENGTH/WIDTH

3.500(88.90) maximum punch diagonal/length

0.315(8.00) maximum punch width

3.560(90.40) maximum die diagonal/length

0.374(9.50) maximum die width

Select a **PUNCH** style

Select a **DIE** style

CLAMP CLEARING

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

ULTRA		Part Number	Price
GUIDE ASSEMBLY			
Ultra		AGVD1Y	
Ultra with M14 Bolt		MATE00658	
Fully Guided		AGVT1Y	
Fully Guided with M14 Bolt		MATE00657	
XT		MATE00211	
PUNCHES			
Original Style	Round	PAAD0A	
Original Style	Shape	PAAD_A	
Heavy Duty*	Round	PHAD0A	
Heavy Duty*	Shape	PHAD_A	
STRIPPERS PLATE			
Ultra Stripper	Round	S6KD0A	
Ultra Stripper	Shape	S6KD_A	
Fully Guided Stripper	Round	S2KM0A	
Fully Guided Stripper	Shape	S2KM_A	
Heavy Duty*	Round	SHKD0A	
Heavy Duty*	Shape	SHKD_A	
SLUG FREE DIES			
Slug Free Die	Round	D0AD00	
Slug Free Die	Shape	D0AD_0	
Heavy Duty*	Round	DHAD00	
Heavy Duty*	Shape	DHAD_0	
DIE SHIMS			
Package of 12 (3 each)			
0.008(0.20), 0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAD	

*Heavy Duty Punch, Stripper and Slug Free Die must be used together

M14 PUNCH DRIVER CONVERSION KIT		
Ultra/Ultra XT D Station M14 Punch Driver Conversion Kit	MATE00652	

Also available is an M14 punch driver conversion kit to convert existing Mate Ultra guides with M12 bolts to suit punches with an M14 thread.

SLITTING/CLAMP CLEARING OPTIONS

STRIPPER PLATE OPTIONS		
"DD" Clamp Clearing	S6KW_A	
"D" Clamp Clearing	S6KT_A	
PUNCH RETAINER & INSERT		
Punch Retainer	A0LD00PR	
Slitting Insert	P4AQ_A	
STANDARD SLITTING DIE BODY & INSERT		
Slitting Die Body	A0LC00SD	
Slitting Die Insert	D0KP_0	
CLAMP-CLEARING DIE OPTIONS		
"DD" Clamp Clearing	D0AW_0	
"D" Clamp Clearing	D0AT_A	
VERSADIE CLAMP CLEARING DIE OPTIONS		
VersaDie Standard Body	MATE02223	
VersaDie Heavy Duty Body	MATE02606	
VersaDie Insert	D8AQ_A	
VersaDie Insert Shim (9)	MATE02338	

ORIGINAL STYLE D-STATION OVERVIEW

Maximum
3.500(88.90)
diameter/diagonal

D/L = Diagonal/Length
R C = Radius Corners

Slitting Insert with Slug Free® Die
3.500(88.90) max. D/L
0.709(18.00) max. width

Slug Free® Die
3.559(90.40) max. D/L
0.768(19.50) max. width

Slitting Insert with Die Inserts
3.500(88.90) max. D/L
0.315(8.00) max. width

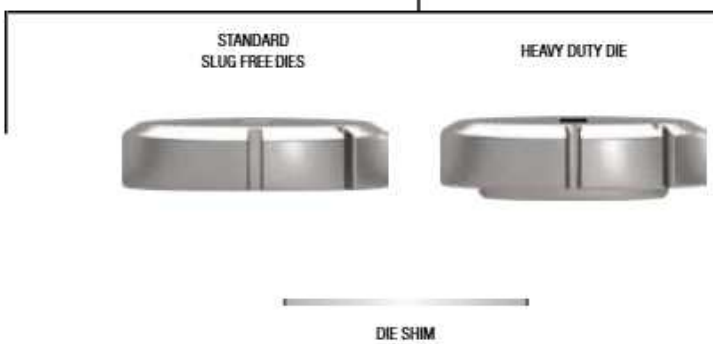
Die Inserts R C ≤ 0.125(3.18)
3.384(85.95) max. length
0.335(8.50) max. width
OR
3.539(89.90) max. length
0.175(4.45) max. width

Die Inserts R C > 0.125(3.18) and Ovals
3.520(89.40) max. length
0.335(8.50) max. width

ORIGINAL STYLE

Select a **PUNCH** style

Select a **DIE** style



AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

ORIGINAL STYLE			Part Number	Price
GUIDE ASSEMBLY				
	Punch Guide		AGLD1	
PUNCH SHIMS				
	Package of 9 (3 each)			
	0.016(0.40)		VSAD	
	0.032(0.80)			
	0.048(1.20)			
PUNCH BODY				
	Original Style	Round	PAAD0A	
	Original Style	Shape	PAAD_A	
	Heavy Duty*	Round	PHAD0A	
	Heavy Duty*	Shape	PHAD_A	
STRIPPERS PLATE				
	Stripper Plate	Round	S6AD0A	
	Stripper Plate	Shape	S6AD_A	
	Heavy Duty*	Round	SHKD0A	
	Heavy Duty*	Shape	SHKD_A	
SLUG FREE DIES				
	Slug Free Die	Round	D0AD00	
	Slug Free Die	Shape	D0AD_0	
	Heavy Duty*	Round	DHAD00	
	Heavy Duty*	Shape	DHAD_0	
DIE SHIMS				
	Package of 9 (3 each)			
	0.016(0.40)		MSAD	
	0.032(0.80)			
	0.048(1.20)			

SLITTING/CLAMP CLEARING OPTIONS

PUNCH RETAINER & INSERT			
	Punch Retainer	A0LD00PR	
	Slitting Insert	P4AQ_A	
STANDARD SLITTING DIE BODY & INSERT			
	Slitting Die Body	A0LD00SD	
	Slitting Die Insert	D0KQ_0	
CLAMP-CLEARING DIE OPTIONS			
	"DD" Clamp Clearing	D0AW_0	
	"D" Clamp Clearing	D0AT_A	
VERSADIE CLAMP CLEARING DIE OPTIONS			
	VersaDie Standard Body	MATE02223	
	VersaDie Heavy Duty Body	MATE02606	
	VersaDie Insert	D8AQ_A	
	VersaDie Insert Shim (9)	MATE02338	

*Heavy Duty Punch, Stripper and Slug Free Die must be used together

ULTRA E STATION COMPATIBILITY GUIDE

Select a **GUIDE** assembly

CLAMP CLEARING MAXIMUM LENGTH/WIDTH

4.500(114.30) maximum punch diagonal/length

0.315(8.00) maximum punch width

4.560(115.80) maximum die diagonal/length

0.374(9.50) maximum die width

Select a **PUNCH** style

ORIGINAL STYLE

HEAVY DUTY

SLITTING

PUNCH RETAINER

SLITTING INSERT

Select a **DIE** style

STANDARD SLUG FREE DIES

HEAVY DUTY SLUG FREE DIES

STANDARD SLITTING DIE BODY & INSERT

DIE SHIM

CLAMP CLEARING

"DD" STRIPPER PLATE

OR

"D" STRIPPER PLATE

PUNCH RETAINER

SLITTING INSERT

"DD" CLAMP CLEARING DIE

OR

"D" CLAMP CLEARING DIE

OR

VERSADIE/VERSADIE HD WITH INSERT

DIE SHIM

AMX

MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

*Heavy Duty Punch, Stripper and Slug Free Die must be used together

M14 PUNCH DRIVER CONVERSION KIT		
Ultra/Ultra XT E STATION M14 Punch Driver Conversion Kit	MATE00653	

Also available is an M14 punch driver conversion kit to convert existing Mate Ultra guides with M12 bolts to suit punches with an M14 thread.

ULTRA			Part Number	Price
GUIDE ASSEMBLY				
	Ultra		AGVERZ	
	Ultra with M14 Bolt		MATE01809	
	Fully Guided		AGVURZ	
	Fully Guided with M14 Bolt		MATE01813	
	XT™		MATE01814	
PUNCHES				
	Original Style	Round	PAAE0A	
	Original Style	Shape	PAAE_A	
	Heavy Duty*	Round	PHAE0A	
	Heavy Duty*	Shape	PHAE_A	
STRIPPERS PLATE				
	Ultra Stripper	Round	S6KE0A	
	Ultra Stripper	Shape	S6KE_A	
	Fully Guided Stripper	Round	S2KN0A	
	Fully Guided Stripper	Shape	S2KN_A	
	Heavy Duty*	Round	SHKE0A	
	Heavy Duty*	Shape	SHKE_A	
SLUG FREE DIES				
	Slug Free Die	Round	D0AE00	
	Slug Free Die	Shape	D0AE_0	
	Heavy Duty*	Round	DHAE00	
	Heavy Duty*	Shape	DHAE_0	
DIE SHIMS				
	Package of 12 (3 each)			
	0.008(0.20), 0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAE	

SLITTING/CLAMP CLEARING OPTIONS

STRIPPER PLATE OPTIONS			
	"DD" Clamp Clearing	S6KX_A	
	"D" Clamp Clearing	S6KU_A	
PUNCH RETAINER & INSERT			
	Punch Retainer	A0LE00PR	
	Slitting Insert	P4AR_A	
STANDARD SLITTING DIE BODY & INSERT			
	Slitting Die Body	A0LC00SD	
	Slitting Die Insert	D0KP_0	
CLAMP-CLEARING DIE OPTIONS			
	"DD" Clamp Clearing	D0AX_0	
	"D" Clamp Clearing	D0AU_A	
VERSADIE CLAMP CLEARING DIE OPTIONS			
	VersaDie Standard Body	MATE02225	
	VersaDie Heavy Duty Body	MATE02608	
	VersaDie Insert	D8AR_A	
	VersaDie Insert Shim (9)	MATE02339	

ORIGINAL STYLE E-STATION OVERVIEW

Maximum
4.500(114.30)
diameter/diagonal

D/L = Diagonal/Length
R C = Radius Corners

Slitting Insert with Slug Free Die
4.500(114.30) max. D/L
0.709(18.00) max. width

Slug Free Die
4.559(115.80) max. D/L
0.768(19.50) max. width

Slitting Insert with Die Inserts
4.500(114.30) max. D/L
0.315(8.00) max. width

Die Inserts R C ≤ .125(3.18)
4.411(112.05) max. length
0.335(8.50) max. width
OR
4.539(115.30) max. length
0.236(6.00) max. width

Die Inserts R C > .125(3.18) and Ovals
4.539(115.30) max. length
0.335(8.50) max. width

ORIGINAL STYLE

Select a **PUNCH** style

ORIGINAL STYLE

HEAVY DUTY

SLITTING

Select a **DIE** style

STANDARD SLUG FREE DIES

HEAVY DUTY DIE

DIE SHIM

AMX
MATE ABS TOOLING SYSTEM

FOR CUSTOMERS WITH ABS SYSTEMS, MATE AMX PUNCHES ARE FULLY COMPATIBLE WITH THE ULTRA SYSTEM. SEE PAGE 59 FOR DETAILS.

ORIGINAL STYLE		Part Number	Price
GUIDE ASSEMBLY			
	Punch Guide	AGLE1	
PUNCH SHIMS			
	Package of 9 (3 each)		
	0.016(0.40)	VSAE	
	0.032(0.80)		
	0.048(1.20)		
PUNCH BODY			
	Original Style Round	PAAE0A	
	Original Style Shape	PAAE_A	
	Heavy Duty* Round	PHAE0A	
	Heavy Duty* Shape	PHAE_A	
STRIPPERS PLATE			
	Stripper Plate Round	S6AE0A	
	Stripper Plate Shape	S6AE_A	
	Heavy Duty* Round	SHKE0A	
	Heavy Duty* Shape	SHKE_A	
SLUG FREE DIES			
	Slug Free Die Round	D0AE00	
	Slug Free Die Shape	D0AE_0	
	Heavy Duty* Round	DHAE00	
	Heavy Duty* Shape	DHAE_0	
DIE SHIMS (FOR ORIGINAL STYLE AND VERSADIE)			
	Package of 9 (3 each)		
	0.016(0.40)	MSAE	
	0.032(0.80)		
	0.048(1.20)		

SLITTING/CLAMP CLEARING OPTIONS

PUNCH RETAINER & INSERT		
Punch Retainer	A0LE00PR	
Slitting Insert	P4AR_A	
STANDARD SLITTING DIE BODY & INSERT		
Slitting Die Body	A0LC00SD	
Slitting Die Insert	D0KP_0	
CLAMP-CLEARING DIE OPTIONS		
"DD" Clamp Clearing	D0AX_0	
"D" Clamp Clearing	D0AU_A	
VERSADIE CLAMP CLEARING DIE OPTIONS		
VersaDie Standard Body	MATE02225	
VersaDie Heavy Duty Body	MATE02608	
VersaDie Insert	D8AR_A	
VersaDie Insert Shim (9)	MATE02339	

*Heavy Duty Punch, Stripper and Slug Free Die must be used together

ULTRA XT™ F STATION COMPATIBILITY GUIDE

Select a **GUIDE** assembly

ULTRA XT

ORIGINAL STYLE

HEAVY DUTY

Select a **Ppunch** style

Select a **DIE** style

STANDARD SLUG FREE DIES

HEAVY DUTY DIE

DIE SHIM

ULTRA XT			Part Number	Price
GUIDE ASSEMBLY				
	XT		MATE02070	
PUNCHES				
	Original Style	Round	PAAF0A	
	Original Style	Shape	PAAF_A	
	Heavy Duty*	Round	PHAF0A	
	Heavy Duty*	Shape	PHAF_A	
STRIPPERS PLATE				
	Stripper Plate	Round	S6AF0A	
	Stripper Plate	Shape	S6AF_A	
SLUG FREE DIES				
	Slug Free Die	Round	D0AF00	
	Slug Free Die	Shape	D0AF_0	
	Heavy Duty*	Round	DHAF00	
	Heavy Duty*	Shape	DHAF_0	
DIE SHIMS				
	Package of 12 (3 each)			
	0.008(0.20)		MSAF	
	0.016(0.40)			
	0.032(0.80)			
	0.048(1.20)			

*Heavy Duty Punch and Slug Free Die must be used together

ORIGINAL STYLE F-STATION OVERVIEW

Maximum
6.000(152.40)
diameter/diagonal

D/L = Diagonal/Length

Slug Free Die
6.060(153.92) max. D/L
0.768(19.50) max. width

ORIGINAL STYLE

Select a **PUNCH** style

ORIGINAL STYLE

HEAVY DUTY

Select a **DIE** style

STANDARD SLUG FREE DIES

HEAVY DUTY DIE

DIE SHIM

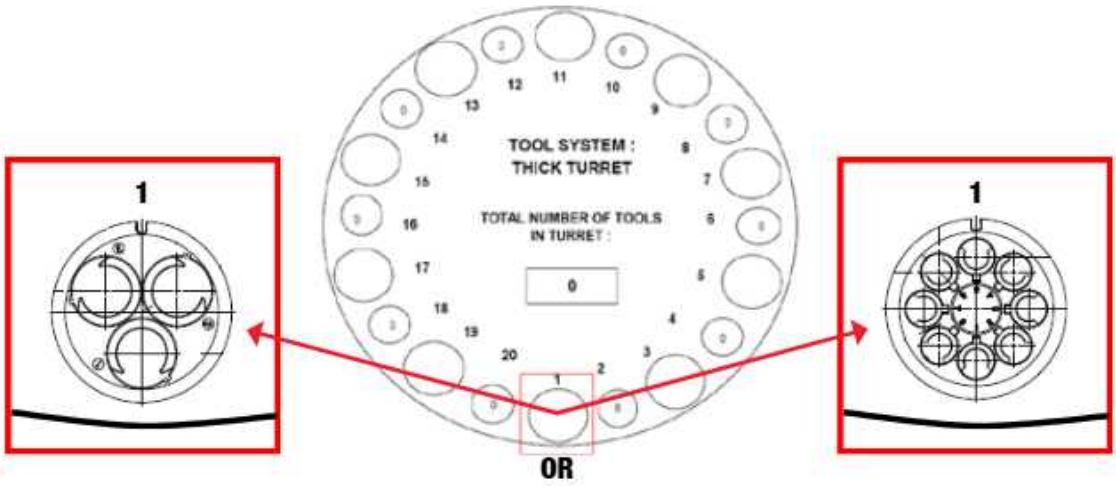
ORIGINAL STYLE			Part Number	Price
GUIDE ASSEMBLY				
	Punch Guide		AGLF1	
PUNCH SHIMS				
	Package of 9 (3 each)			
	0.016(0.40)		VSAF	
	0.032(0.80)			
	0.048(1.20)			
PUNCH BODY				
	Original Style	Round	PAAF0A	
	Original Style	Shape	PAAF_A	
	Heavy Duty*	Round	PHAF0A	
	Heavy Duty*	Shape	PHAF_A	
STRIPPERS PLATE				
	Stripper Plate	Round	S6AF0A	
	Stripper Plate	Shape	S6AF_A	
SLUG FREE DIES				
	Slug Free Die	Round	D0AF00	
	Slug Free Die	Shape	D0AF_0	
	Heavy Duty*	Round	DHAF00	
	Heavy Duty*	Shape	DHAF_0	
DIE SHIMS (FOR ORIGINAL STYLE AND VERSADIE)				
	Package of 9 (3 each)			
	0.016(0.40)		MSAF	
	0.032(0.80)			
	0.048(1.20)			

*Heavy Duty Punch and Slug Free Die must be used together

THE ULTRA FAMILY OF MULTI TOOLS

Ultra, Ultra UMT, Ultra IMT multi tool assemblies make full use of the advantages of Mate Ultra QCT and Ultra punches, strippers and Slug Free dies. They provide complete compatibility with existing tooling inventory for added convenience. Mate Ultra multi tools fit into 3-1/2" D-Index stations and are available in two versions for maximum flexibility.

A multi tool allows a standard indexing D-Station in a punch press to accept 8 or 3 "mini" stations. By using just one multi tool, your 20 station punch press becomes a 22 or 27 station press, expanding your capacity much more economically than purchasing an additional machine.



MULTI TOOL ADVANTAGES

- Multi Tools add more available stations to a punch press reducing set-up and changeover time
- Multi Tools provide a convenient way to quickly exchange/stage multiple punches, dies, strippers
- Multi Tools can either be dedicated or a drop-in style for an auto-index station
- Drop-in Multi Tools add more indexing stations to a punch press and allow a standard D Station to be used if needed
- Multi Tools can offer constant die penetration through programming adjustments:
  - For the Fixed Station multi tools, punches should be ground to the same length
  - Mate recommends 3mm die penetration on slug-free dies

ULTRA & ULTRA QCT:
Mate Ultra Multi Tools accept Ultra & Ultra QCT punches for exceptional life between regrinds. Strippers are recessed for an additional 0.118(3.00) punch grind life. Slug Free dies eliminate slug pulling and increase part quality.

QUICK TOOL CHANGE:
The twist-lock design of the upper assembly allows tools to be changed in seconds, without the need for additional hand tools, and without the need for disassembly. Faster tool changes optimize machine productivity and efficiency.

INTEGRAL PUNCH LENGTH ADJUSTMENT:
Each punch length can be independently adjusted to ensure the precise punch-to-stripper lead is maintained for optimum punching performance across a wide range of material thickness from 0.020(0.50) to 0.236(6.00).

FULLY INDEXABLE ULTRA IMT-8A MULTI TOOL 8 STATION ASSEMBLY

Ultra IMT 8-Station (not machine specific)
Upper: MATE01840
Lower: MATE00050

Ultra IMT 8-Station (machine specific uppers & lowers)

Upper Only:	MATE02068	JFY MACHINES
Upper Only:	MATE02007	BAYKAL MACHINES
Lower Only:	MATE02060	DURMA MACHINES

SPECIFICATIONS

Punch point range:	.020(.51mm) to .618(15.70mm)
Tooling:	Ultra & Ultra QCT 1/2" A station punches, strippers, and Slug Free dies
Maximum tonnage:	U.S. 7 Tons – 62 kN – 6.3 Metric Tons
Max material thickness:	6mm (.236")

The fully indexable Ultra IMT 8-Station multi tool works with Ultra & Ultra QCT A station punch, strippers and Thick Turret Slug Free dies up to a maximum punch diagonal of .618" (15,70 mm). The multi tool accepts 8 "mini" stations. The multi tool can achieve any angle setting on the work piece.

FULLY INDEXABLE ULTRA IMT-3B MULTI TOOL 3 STATION ASSEMBLY

Ultra IMT 3-Station (not machine specific)
Upper: MATE01850
Lower: MATE00697

Ultra IMT 3-Station (machine specific uppers & lowers)

Upper Only:	MATE02069	JFY MACHINES
Upper Only:	MATE02010	BAYKAL MACHINES
Lower Only:	MATE02058	DURMA MACHINES

SPECIFICATIONS

Punch point range:	.020(.51mm) to 1.250(31.75mm)
Tooling:	Ultra & Ultra QCT 1-1/4" B station punches, strippers, and Slug Free dies
Maximum tonnage:	U.S. 12 Tons – 107kN – 11 Metric Tons
Max material thickness:	6mm (.236")

The fully indexable Ultra IMT 3-Station multi tool works with Ultra & Ultra QCT B Station punch, strippers and Thick Turret Slug Free dies up to a maximum punch diagonal of 1.250" (31,75 mm). The multi tool can achieve any angle setting on the work piece.

See Ultra IMT Product Bulletin for additional information (LIT00745)

*Ultra IMT is patented under: US: 7,726,554 and 8,152,052 and 8,464,928 and 8,413,561
China: CN 101528427B
Mexico: 306,976 and 305,729
Canada: CA 2,664,784

ULTRA MULTI TOOL 8 STATION ASSEMBLY

UPPER:	LOWER:	
MATE00967	MATE00968	Achieved angles: Stations 1, 3, 5, 7: Rounds only Stations 2, 4, 6, 8: 0°, 90°, 225°
	MATE01764 for Danobat machines (more slots).	Achieved angles: Station 1, 3, 7: 90° Station 2, 4, 6, 8: 0°, 90°, 225° Station 5: Rounds Only

SPECIFICATIONS:

Punch point range:	0.020(0.80) to 0.618(15.70)
Tooling:	Ultra & Ultra QCT 1/2" A station punches, strippers, and Slug Free dies
Maximum tonnage:	U.S. 6 Tons - 54 kN - 5.4 Metric Tons
Max material thickness:	6mm (.236")

ULTRA MULTI TOOL 3 STATION ASSEMBLY

UPPER:	LOWER:	
MATE00969	MATE00970	Achieved angles: Each station: 0°, 45°, 90°
	MATE01030 for non-indexable machines.	Achieved angles: Station 1, 3: 0°, 90°, Station 2: 0°, 315°
	MATE02371* for Ermaksan single head machines with 103 mm slug hole.	Achieved angles: Each station: 0°, 45°, 90°

* if slug hole is 90mm, use MATE00970

SPECIFICATIONS:

Punch point range:	0.020(.80) to 1.250(31.70)
Tooling:	Ultra & Ultra QCT 1-1/4" B station punches, strippers, and Slug Free dies
Maximum tonnage:	U.S. 12 Tons - 107 kN - 11 Metric Tons
Max material thickness:	6mm (.236")

PATENT INFORMATION:
US 7726554 8376215
US 8464928 8152052
CA 2664784
MX 305729 306976 305727
CN 101528427
PAT. PEND

USAGE NOTES:
Requires compatibility with machine ram and programming software.

Contact your punch press machine supplier for compatibility.

Part numbers for Multi Tool assemblies do not include punches and dies.

3 or 8 Station Hardened Shim **MATE02330**

FULLY INDEXABLE ULTRA UMT-8A MULTI TOOL 8 STATION ASSEMBLY

UPPER: MATE02467 **LOWER: MATE02463**

SPECIFICATIONS

Punch point range:	.020(.51mm) to .618(15.70mm)	
Tooling:	Ultra & Ultra QCT 1/2" A station punches, strippers, and Slug Free dies	
Maximum tonnage:	U.S. 6 Tons - 54 kN - 5.4 Metric Tons	
Max material thickness:	6mm (.236")	
Achieved angles: (if not using a rotating ram machine)	Station 1: 90° Station 2: 135° Station 3: 180° Station 4: 225°	Station 5: 300° Station 6: 315° Station 7: 0° Station 8: 45°

FULLY INDEXABLE ULTRA UMT-3B MULTI TOOL 3 STATION ASSEMBLY

Upper: MATE02854 **Lower: MATE02455**

SPECIFICATIONS

Punch point range:	.020(.51mm) to 1.250(31.70mm)
Tooling:	Ultra & Ultra QCT 1-1/4" B station punches, strippers, and Slug Free dies. 100% Compatible with MXC, MXC ABS, Wilson HP, HP WLS/ABS B station punches
Maximum tonnage:	U.S. 12 Tons – 107 kN – 11 Metric Tons
Max material thickness:	6mm (.236")
Achieved angles: (if not using a rotating ram machine)	Station 1: 90° Station 2: 180° Station 3: 0°

FORMING SOLUTIONS ULTRAFORM AND ORIGINAL STYLE

Mate offers a comprehensive range of thick turret forming solutions designed to accommodate any forming application in your thick turret punch press. Use the chart below to help you decide the forming solution that's best for you.

ULTRAFORM FORMING SYSTEM

ONE HOLDER – MULTIPLE APPLICATIONS

The Ultraform holder system is designed to allow an unlimited number of forming tools to be used with the same holder, which reduces tooling inventory costs.

ADJUSTMENT BELOW THE SHOULDER

The length adjustment is made below the shoulder of the assembly, thus maintaining the gap between the ram and the tool at top of stroke to prevent the ram from hitting the tool.

HARDENED GUIDES

The hardened guides, combined with the lubrication grooves, reduce friction and extend turret bore life.

TOOL LUBRICATION:

ULTRAFORM holders provide external grease grooves to allow lubrication of forming tools. ULTRAFORM is compatible with all popular punch press machine tool lubrication systems.

MULTIPLE ANGLE SETTINGS

All Ultraform holders can be set at 0, 90, 180 and 270 degrees as a standard, for maximum flexibility.

ECONOMICALLY INTERCHANGABLE

All ULTRAFORM inserts for ULTRAFORM, ULTRAFORM XT and ULTRAFORM FX holders are completely interchangeable, further enhancing your economies of scale.

ORIGINAL STYLE FORMING

Mate's Original Style forming tools feature adjustable length holders for 1-1/4" B stations. Original Style forming tools are designed for specific applications and machines. Eight specific form types are available. Ideal for hydraulic punch presses with programmable penetration control.

MORE ← **** *** ** * → LESS	Ultraform®	Ultraform XT™	Ultraform FX™[1]	Original Style
Overall Value: The combination of standard features, purchase price and operating costs.	****	***	***	**
Cost Savings: The ongoing cost savings of operating the system over an extended period of time.	****	***	***	*
Ease of Use and Set-Up: Design features that make it faster to install, easier for the operator to set up and more convenient to maintain.	****	***	****	**
Interchangeability: The ability to use the form with other Mate forming holders.	****	****	****	*
Durability/Longevity: Hardened guides and ability to transfer machine lubrication.	****	**	**	**
Purchase Price: The ***initial*** purchase price of the system.	****	***	**	*

1. Machine requires precise stroke control without the use of a bottom stroke feature. Tool length adjustment is not possible. Contact your Mate representative for details.

THE ULTRAFORM CONCEPT

One adjustable length holder can be used with a variety of special forming inserts. The benefits include reduced tooling cost, increased flexibility, and the length of the assembly can be accurately pre-set.

QUICK LENGTH ADJUSTMENT
The push-button length adjustment mechanism allows the overall length of the assembly to be set in 0.002(0.05) increments, without disassembly or removal from the machine.

FIXED LENGTH
Between the shoulder and the punch head. Eliminates risk of over penetration that may damage the turret.

ADJUSTABLE LENGTH
Between the shoulder and the tip of the forming tool, for precise form height adjustment.

ULTRAFORM	Part Number	Price
QUICK ADJUST HOLDER		
B Station	AFKB2	
C Station	AFKC2	
D Station	AFKD2	
E Station	AFKE2	

ULTRAFORM XT™ FORMING SYSTEM

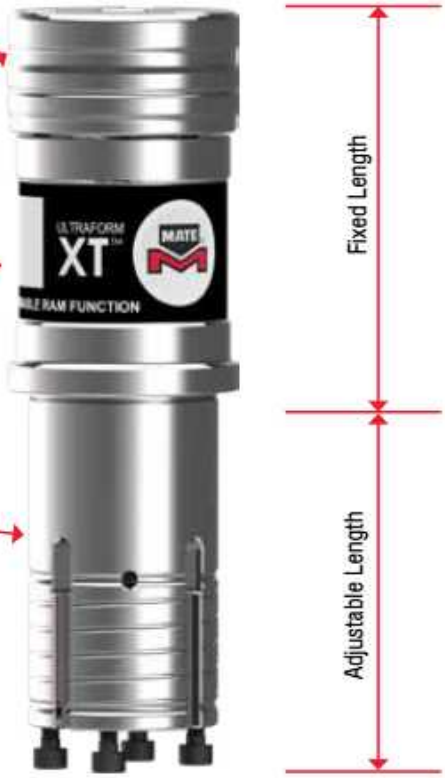
ULTRAFORM XT is for situations where you desire flexibility but adjust tool length infrequently. ULTRAFORM XT lets you change forms efficiently, quickly and economically.

LENGTH ADJUSTMENT:
Adjust the overall length of the assembly by simply loosening screws and turning the punch head to the desired length.

FIXED LENGTH
Between the shoulder and the punch head. Eliminates risk of over penetration that may damage the turret.

ADJUSTABLE LENGTH
Between the shoulder and the tip of the forming tool for precise form height adjustment.

NOTE: Machine lubrication system compatibility available as an option.



ULTRAFORM XT	Part Number	Price
ADJUSTABLE HOLDER		
B Station	MATE01755	
C Station	MATE01821	
D Station	MATE01824	
E Station	MATE01827	

You want forming flexibility, but your machine has precision stroke control. Mate's solution: ULTRAFORM FX™, a fixed length forming tool that still provides you with the efficiency you desire. The grooved guides enhance lubrication and feature multiple angle settings for maximum flexibility.

FIXED LENGTH
ULTRAFORM FX holders are designed for machines with precision stroke control eliminating the need for length adjustment.

NOTE: Machine lubrication system compatibility available as an option.

ULTRAFORM FX	Part Number	Price
FIXED LENGTH HOLDER		
B Station	MATE01798	
C Station	MATE01800	
D Station	MATE01802	
E Station	MATE01804	

ORIGINAL STYLE 1-1/4" B STATION FORMING TOOLS

Combine the economy of original style thick turret tooling, with the convenience of integrated tool body construction, and the simplicity of the hexagon shaped punch head. Ideal for hydraulic punch presses with programmable ram control.

DEDICATED COUNTERSINK DOWN

Complete Assembly with blank die	XAABD0B399
Replacement Countersink Tip	XAABD0B316

DEDICATED COUNTERSINK UP

Complete Assembly with non-spring loaded lower	XAABD0B199

ROUND EMBOSS WITH DOME TOP

Complete Assembly with spring loaded lower	XAABD0E099

ROUND EMBOSS WITH FLAT TOP

Complete Assembly with spring loaded lower	XAABD0E199

ROUND EMBOSSED COUNTERSINK UP

Complete Assembly with spring loaded lower	XAABD0E999

ROUND EXTRUDE UP

Complete Assembly with spring loaded lower	XAABD0D199
Replacement Lower Insert	XAABD0D104

SINGLE ROUND KNOCKOUT UP

Complete Assembly with spring loaded lower	XAABD0K199

SHEAR BUTTON UP

Complete Assembly with spring loaded lower	XAABD0S199
Replacement Lower Insert	XAABD0S104

All 1-1/4" B station original style forming tools are designed to your specific material type, thickness, and machine model requirements. Interchangeability between machines is not recommended due to the variations in the shut height between different machines. For fully adjustable and interchangeable forming tools, we recommend the Mate Ultraform forming tool system.

AMX
MATE ABS TOOLING SYSTEM

AMX — ABS/AIR BLOW SYSTEM TOOLING

AMX ABS Tooling is a superior replacement alternative to AMADA tooling. AMX Tooling provides 100% worry-free compatability with AMADA® Air Blow System (ABS) assemblies and holders. PLUS, you have the flexibility of using AMX punches with Mate's Ultra Tooling System.

Mate's AMX QCT tooling provides all of the advantages of the QCT system for AMADA® ABS. It delivers the flexibility of using the AMX QCT system with Mate's AMX guides, spring packs and Rapidset canisters, as well as Amada NCT, NEX and Z-Tooling air blow systems.

Mate incorporated advanced metallurgy and lubrication delivery systems to prevent galling, slivering, and slug pulling. As with all Mate products, AMX is backed by Best-In-Class service and our 100% Customer Satisfaction Guarantee.

AMX PUNCHES

- M2 High Speed Steel - OEM equivalent. Superior to other after-market replacements, M2 lasts longer between regrinds
- Precision gun drilled ABS channels on A and B-station punches
- Standard external spiral lubrication grooves on A & B-station punches ensures uniform fluid flow for friction free punch-to-guide operation
- 1/4 degree total back taper reduces galling
- Hardened pin for precise orientation of punches for improved piece part quality
- Maxima coating and Nitride treatment available for special application needs
- Compatible with Ultra and Ultra Fully Guided systems

AMX A AND B-STATION STRIPPER GUIDES

- Stripper opening incorporates blips for ABS compatibility
- Fully hardened and ground for maximum precision and long life
- Two styles:
  - Rounds, with internal keyway
  - Shapes, with multiple precision keyways
- Stripper relieved to allow 0.118(3,00) extra grind life
- Rounded edges to minimize sheet marking

AMX C, D, AND E STRIPPERS

- Relieved to allow 0.078(2,00) extra grind life
- Rounded edges to minimize sheet marking
- Blips around stripper opening for ABS functionality

A STATION
AVAILABLE IN AMX & AMX QCT (AMX QCT SHOWN)

B STATION
AVAILABLE IN AMX & AMX QCT (AMX SHOWN)

C STATION PUNCH

D STATION PUNCH

E STATION PUNCH

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

SLITTING COMPONENTS		Part Number	Price
PUNCH RETAINER			
	D Station	MATE01988	
	E Station	MATE01990	
INSERTS WITH M4 MATERIAL			
	D Station	P4AQ_A	
	E Station	P4AR_A	

PUNCHES/STRIPPERS			Part Number	Price
A STATION				
	AMX QCT Punch Driver	Round	MATE02553	
	AMX QCT Punch Driver	Shape	MATE02551	
	QCT Punch Insert	Round	PAQA0A	
	QCT Punch Insert	Shape	PAQA_A	
	Standard AMX	Round	PMXA0A	
	Standard AMX	Shape	PMXA_A	
A STATION STRIPPER GUIDE				
	Round		SMXA0A	
	Shape		SMXA_A	
B STATION				
	AMX QCT Punch Driver	Round	MATE02554	
	AMX QCT Punch Driver	Shape	MATE02552	
	QCT Punch Insert	Round	PAQB0A	
	QCT Punch Insert	Shape	PAQB_A	
	Standard AMX	Round	PMXB0A	
	Standard AMX	Shape	PMXB_A	
B STATION STRIPPER GUIDE				
	Round		SMXB0A	
	Shape		SMXB_A	
C STATION				
	Round		PMXC0A	
	Shape		PMXC_A	
C STATION STRIPPER GUIDE				
	Round		SMXC0A	
	Shape		SMXC_A	
D STATION				
	Round		PMXD0A	
	Shape		PMXD_A	
D STATION STRIPPER GUIDE				
	Round		SMXD0A	
	Shape		SMXD_A	
E STATION				
	Round		PMXE0A	
	Shape		PMXE_A	
E STATION STRIPPER GUIDE				
	Round		SMXE0A	
	Shape		SMXE_A	

Mate's MXC™ Tooling System (available in standard MXC and MXC QCT) is a thick turret replacement system for Wilson HP™ and Series 90™ tooling systems. These high-precision products increase tool performance and flexibility, offer extended tool life and are interchangeable with other systems. The drivers are 100% compatible with and are available in both Standard and (for HP WLS® style) ABS versions.

Some features of the MXC system include:

- DuraSteel™ punches
- 100% Compatible with:
  - HP™
  - HP™ WLS
  - HP™ ABS
- Compatible with:
  - Ultra
  - Ultra XT™
- Slug Free die design

MXC STANDARD PUNCH AND MXC QCT PUNCH DRIVER

- DuraSteel™ with superior hardness and toughness for extended interval between regrinds.
- Hardened double-D key for precise orientation of punches for improved piece part quality.
- 1/4 degree back taper and near polished punch flanks to reduce friction, eliminate galling, and maximize punch life.
- Maxima™ coating available to reduce friction in extreme applications. Less friction means less heat build up, less galling and longer tool life.

Option: M4PM™ steel available for superior perfomance and longevity.

MXC QCT PUNCH INSERT

- M4PM™ steel standard for superior perfomance and longevity.

STRIPPER

- Smooth rounded edges to eliminate sheet marking and improve piece part quality.
- Compatible with existing conventional tooling inventory for maximum flexibility.

SLUG FREE DIE

- Slug Free die geometry eliminates slug pulling to improve piece part quality and increase tool life.
- Highly wear-resistant tool steel provides optimum balance between hardness and toughness, for extended life.

MXC QCT A STATION DRIVER:
Wilson's HP/Series 90 A station product design uses a slightly narrower diameter than all other thick turret systems. This means the standard QCT A Station punch insert cannot be used with the MXC QCT driver. The MXC QCT A station driver requires a unique QCT punch insert (PXQA), which are etched MXC QCT on the side of the insert to assist in identification.

- DuraSteel with superior hardness and toughness for extended interval between regrinds.
- Hardened pin for precise orientation of punches for improved piece part quality.

- Smooth rounded edges to eliminate sheet marking and improve piece part quality.

- Slug Free die geometry eliminates slug pulling to improve piece part quality and increase tool life.

- 1/4 degree back taper and near polished punch flanks to reduce friction, eliminate galling, and maximize punch life.
- Maxima™ coating available for extreme applications.

- Compatible with existing HP (Series 90) tooling inventory for maximum flexibility.

- Highly wear-resistant tool steel provides optimum balance between hardness and toughness, for extended life.

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

MXC™ A & B STATION PART NUMBER & PRICE GUIDE

STANDARD MXC

ABS STYLE

MXC A & B STATION			Part Number	Price
PUNCH				
	A STATION Punch	Round	PXCA0A	
	A STATION Punch	Shape	PXCA_A	
	B STATION Punch	Round	PXCB0A	
	B STATION Punch	Shape	PXCB_A	
	B STATION Anti-Rotation Pin		MATE00752	
	B STATION Retaining Ring		RRI00010	
MXC PUNCH - ABS STYLE*				
	A STATION Punch	Round	PLCA0A	
	A STATION Punch	Shape	PLCA_A	
	B STATION Punch	Round	PLCB0A	
	B STATION Punch	Shape	PLCB_A	
	B STATION Anti-Rotation Pin		MATE00752	
	B STATION Retaining Ring		RRI00010	
	B STATION Felt Pad***		FLT00001	
MXC STRIPPER				
	A STATION	Round	SXCA0A	
	A STATION	Shape	SXCA_A	
	B STATION	Round	SXCB0A	
	B STATION	Shape	SXCB_A	
	B STATION Retaining Ring**		MATE00754	
SLUG FREE DIE				
	A STATION	Round	D0AA00	
	A STATION	Shape	D0AA_0	
	B STATION	Round	D0AB00	
	B STATION	Shape	D0AB_0	
SLUG FREE LIGHT DIE				
	A STATION	Round	add	
	A STATION	Shape	add	
	B STATION	Round	add	
	B STATION	Shape	add	
DIE SHIMS				
	A STATION package of 12 (3 each)			
	0.008(0.20), 0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAA	
	B STATION package of 12 (3 each)			
	0.008(0.20), 0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAB	

* ABS Style also works in WLS environment
** Stripper retaining ring not included with stripper
*** Add felt pad (not included with punch) to ABS style punch to work in WLS environment

MXC™ ABS B-station punches are compatible with Wilson Fully Indexable R series 3 station MT for Finn-Power

MXC QCT™ A & B STATION		Part Number	Price
PUNCH DRIVERS			
A STATION MXC QCT	Round	MATE02545	
A STATION MXC QCT	Shape	MATE02546	
A STATION MXC QCT ABS	Round	MATE02543	
A STATION MXC QCT ABS	Shape	MATE02544	
B STATION MXC QCT	Round	MATE02524	
B STATION MXC QCT	Shape	MATE02525	
B STATION MXC QCT ABS	Round	MATE02568	
B STATION MXC QCT ABS	Shape	MATE02526	
MXC QCT INSERTS			
A STATION MXC QCT Punch	Round	PXQA0A	
A STATION MXC QCT Punch	Shape	PXQA_A	
B STATION MXC QCT Punch	Round	PAQB0A	
B STATION MXC QCT Punch	Shape	PAQB_A	

C STATION

D STATION

MXC C & D STATION		Part Number	Price
PUNCH			
C STATION Punch	Round	PXCC0A	
C STATION Punch	Shape	PXCC_A	
C STATION Ultra Adapter		A0VCWSPA	
D STATION Punch	Round	PXCD0A	
D STATION Punch	Shape	PXCD_A	
D STATION CLAMP CLEARING PUNCH		PXCW	
D STATION Ultra Adapter		A0VDWSPA	
MXC STRIPPER			
C STATION	Round	SXCC0A	
C STATION	Shape	SXCC_A	
D STATION	Round	SXCD0A	
D STATION	Shape	SXCD_A	
SLUG FREE DIE			
C STATION	Round	D0AA00	
C STATION	Shape	D0AA_0	
D STATION	Round	D0AB00	
D STATION	Shape	D0AB_0	
SLUG FREE LIGHT DIE			
C STATION	Round	add	
C STATION	Shape	add	
D STATION	Round	add	
D STATION	Shape	add	
DIE SHIMS			
C STATION package of 9 (3 each)			
0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAC	
D STATION package of 9 (3 each)			
0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAD	

MXC™ E STATION PART NUMBER & PRICE GUIDE

MXC E STATION		Part Number	Price
PUNCH			
E STATION Punch	Round	PXCE0A	
E STATION Punch	Shape	PXCE_A	
E STATION CLAMP CLEARING PUNCH		PXCX	
E STATION Ultra Adapter		A0VEWSPA	
MXC STRIPPER			
E STATION	Round	SXCE0A	
E STATION	Shape	SXCE_A	
SLUG FREE DIE			
E STATION	Round	D0AE00	
E STATION	Shape	D0AE_0	
SLUG FREE LIGHT DIE			
E STATION	Round	add	
E STATION	Shape	add	
DIE SHIMS			
E STATION package of 9 (3 each)			
0.016(0.40), 0.032(0.80), 0.048(1.20)		MSAE	

PUNCH
- DuraSteel™ with superior hardness and toughness for extended interval between regrinds.
- Hardened double-D key for precise orientation of punches for improved piece part quality.
- 1/4 degree back taper and near polished punch flanks to reduce friction, eliminate galling, and maximize punch life.
- Maxima™ coating available to reduce friction in extreme applications. Less friction means less heat build up, less galling and longer tool life.

STRIPPER
- Smooth rounded edges to eliminate sheet marking and improve piece part quality.
- Compatible with existing conventional tooling inventory for maximum flexibility.

SLUG FREE DIE
- Slug Free die geometry eliminates slug pulling to improve piece part quality and increase tool life.
- Highly wear-resistant tool steel provides optimum balance between hardness and toughness, for extended life.

SMALL DIAMETER ROUND TOOLS		
Point diameter 0.031(0.79) - 0.061(1.55) - to punch, stripper and die		
Point diameter 0.062(1.56) - 0.092(2.35) - to punch, stripper and die		
NARROW WIDTH SHAPED TOOLS		
Width is less than 0.079(2.00) - to punch, stripper and die		
ANGLE SETTING		
Non-Standard Angle Setting - to punch, stripper and die		
COATINGS	**SUPERMAX™**	**MAXIMA™**
1/2" A Station		
1-1/4" B Station		
2" C Station		
3-1/2" D Station		
4-1/2" E Station		

MXC™ THICK TURRET TOOLING SYSTEM PARTS & ACCESSORIES

1-1/4" B Station Punch Retaining Ring
RRI00010

Replacement Part

1-1/4" B Station Punch Anti Rotation Pin
MATE00752

Replacement Part

1-1/4" B Station Punch Felt Pad
FLT00001

To convert ABS punch to WLS style

1-1/4" B Station Stripper Retaining Ring
MATE00754

Replacement Part

Round Punches Only Anti-rotation Clip
A0VBWBAC

2" C Station HP™ Punch Adapter
A0VCWSPA

3-1/2" D Station HP™ Punch Adapter
A0VDWSPA

4-1/2" E Station HP™ Punch Adapter
A0VEWSPA

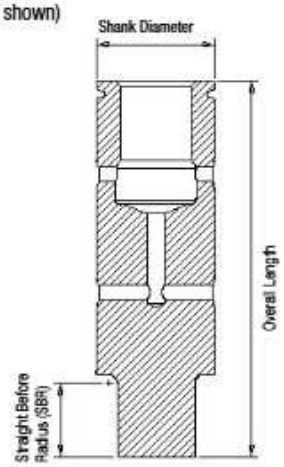
These Punch Adapters allow an HP™ and/or MXC™ punch to be used in an Original Style Thick Turret, Ultra or Ultra ABS holder.

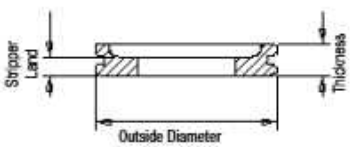
HP™ is a trademark of Wilson Tool International, Inc.

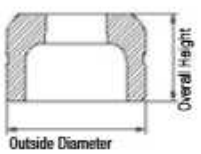
MXC™ CRITICAL DIMENSIONS

MXC™ PUNCH					
Station	**1/2" A**	**1-1/4" B**	**2" C**	**3-1/2" D**	**4-1/2" E**
Part Number	**PXCA or PLCA**	**PXCB or PLCB**	**PXCC**	**PXCD**	**PXCE**
Maximum Punch Diagonal	0.500(12.70)	1.250(31.75)	2.000(50.80)	3.500(88.90)	4.500(114.30)
Overall Length	4.640(117.86)	3.957(100.51)	2.360(59.94)	2.360(59.94)	2.360(59.94)
Shank Diameter	0.624(15.85)	1.249(31.72)	1.250(31.75)	1.250(31.75)	1.250(31.75)
Shoulder Diameter	n/a	n/a	2.000(50.80)	3.500(88.90)	4.500(114.30)
Straight Before Radius	0.740(18.80)	0.740(18.80)	1.004(25.50)	1.004(25.50)	1.004(25.50)
MXC™ STRIPPER					
Part Number	**SXCA**	**SXCB**	**SXCC**	**SXCD**	**SXCE**
Outside Diameter	0.768(19.51)	1.497(38.02)	2.356(59.84)	4.011(101.88)	4.866(123.60)
Thickness	0.272(6.91)	0.272(6.91)	0.390(9.91)	0.390(9.91)	0.390(9.91)
Stripper Land	0.157(3.99)	0.157(3.99)	0.315(8.00)	0.315(8.00)	0.315(8.00)
Slug Free and Slug Free LIGHT™ DIES					
Part Number	**D0AA**	**D0AB**	**D0AC**	**D0AD**	**D0AE**
Outside Diameter	1.000(25.40)	1.875(47.63)	3.500(88.90)	4.938(125.43)	6.249(158.72)
Overall Height	1.187(30.15)	1.187(30.15)	1.187(30.15)	1.187(30.15)	1.187(30.15)
Die Penetration	0.118(3.00)	0.118(3.00)	0.118(3.00)	0.118(3.00)	0.118(3.00)

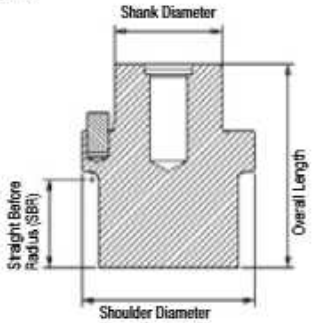
For 1/2" A and 1-1/4" B Station (B station shown)

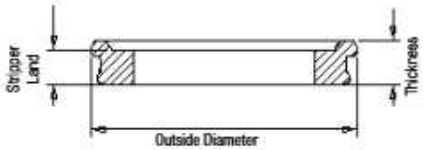


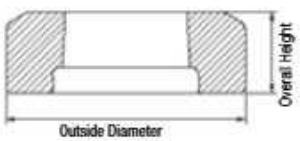




For 2" C, 3-1/2" D and 4-1/2" E Station (C station shown)







Inch Style tooling is designed with features to enhance punching performance, including:

- Premium High Speed Steel which is specially formulated to deliver superior abrasion resistance to extend the interval between regrinds.
- Near polished punch flanks with a 1/4 degree back taper to minimize friction, eliminate galling during stripping and improve piece part quality.
- Minute corner radii to eliminate chipping and extend punch life.
- Superior angularity and concentricity for improved hole quality.
- Thread size clearly marked for ease of use.
- Maxima™ coating available.

1/2" A STATION

Maximum Diagonal
0.500(12.70)

Round **PAJA0A**
Shaped **PAJA_A**

Heavy Duty
Round **PHJA0A**
Shaped **PHJA_A**

Replacement Clip
MATE02094

1-1/4" B STATION

Maximum Diagonal
1.250(31.75)

Round **PAJB0A**
Shaped **PAJB_A**

Heavy Duty
Round **PHJB0A**
Shaped **PHJB_A**

2" C STATION

Maximum Diagonal
2.000(50.80)

Round **PAJC0A**
Shaped **PAJC_A**

HeavyDuty
Round **PHJC0A**
Shaped **PHJC_A**

3-1/2" D STATION

Maximum Diagonal
3.500(88.90)

Round **PAJD0A**
Shaped **PAJD_A**

HeavyDuty
Round **PHJD0A**
Shaped **PHJD_A**

4-1/2" E STATION

Maximum Diagonal
4.500(114.30)

Round **PAJE0A**
Shaped **PAJE_A**

HeavyDuty
Round **PHJE0A**
Shaped **PHJE_A**

Fully Compatible with Wilson Inch Style

STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

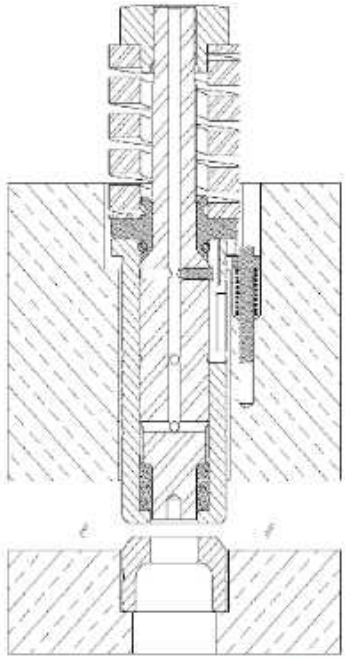
ELIMINATOR PADS™ FOR THICK TURRET PUNCH PRESS ASSEMBLIES

Mate Eliminator (patents pending) punch tip lubrication pads assist in keeping the punch tip lubricated during the punching process.

Studies have shown that properly lubricated punch tips help extend tool life and keep the punch from overheating. In many situations, lubrication helps eliminate unwanted galling during the punching process.

Mate Eliminator lubrication pads are easy to install, especially on Mate Ultra A and B stations. Simply use the punch and stripper to "punch" the hole into the foam. Saturate the pad with 46-68 ISO viscosity hydraulic oil and you're ready for gall-free punching.

MATE ELIMINATOR LUBRICATION PADS:
Made from polyether filter foam
Available in A through E stations
Compatible with all thick turret punch presses
Made in U.S.A.



STATION	PART NUMBER
A station, qty of 5	**MATE02028**
B station, qty of 5	**MATE02029**
C station, qty of 5	**MATE02030**
D station, qty of 4	**MATE02031**
E station, qty of 4	**MATE02032**

The Mate Pilot Turret Calibration System is the most accurate system for ensuring precision concentric and angular alignment of thick turret punch press stations available. The Mate Pilot Turret Calibration System operates in two modes:

- **Verification Mode** – Confirm the precise concentric and angular alignment of your turret to maintain high quality piece part production and maximum tool life.
- **Alignment Mode** – Restore the concentric and angular alignment of each station with the same or better precision as the initial machine installation.

THE MATE PILOT™ TURRET CALIBRATION SYSTEM IS SIMPLY THE BEST SYSTEM AVAILABLE.

Accurate:
Each calibration instrument is machined from a single piece of high quality tool steel. The upper and lower halves are separated near the end of the production process, just prior to installation of the hardware. This eliminates the possibility of cumulative tolerances adversely affecting the accuracy of the finished instrument.

Simple to Use:
Install the two halves of the calibration instrument into the turret station to be aligned. Rotate turret to position the station to be aligned under the machine ram. Use the integral adjustment handle to draw the two halves of the calibration instrument together.

The interlocking design of the interface between the two halves causes the loosened die holder assembly to be drawn into concentric and angular alignment relative to the upper bore as the two halves of the calibration instrument engage.

The tri-color light indicates alignment.

- Engaged, but not aligned
- Angularity and concentricity within 0.0012(0.030)
- Angularity and concentricity within 0.0003(0.008)*

Comprehensive:
The Mate Pilot Calibration System is available in all five thick turret station sizes and is also available to suit the Prima-Power Multi-Tool stations. The Mate Pilot Calibration System is available as a set to suit thick turret presses.

Station	Part Number	Package A	Package F
1/2" A	**MATE00670**	•	
1-1/4" B	**MATE00666**	•	•
2" C	**MATE00667**	•	•
3-1/2" D	**MATE00668**	•	•
4-1/2" E	**MATE00669**	•	
Multi-Tool	**MATE00671**		•
Accessory Kit	**MATE00662**	•	•
		MATE00665	**MATE00672**

MATE THICK TURRET LINE UP TOOL ALIGNMENT BAR UPGRADE.
The upgraded bar is larger and easier to use. It allows for easier access for the alignment process.

Line Up Tool Bar **MATE02227**

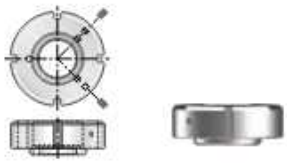
*Angularity and concentricity within 0.0003(0.008) - Green Indicator Light - is recommended when punching materials with a thicknesses of 0.048(1.20) or less.

THICK TURRET AND ULTRA ADAPTERS

1-1/4" to 1/2"
B to A Station
Punch Guide Adapter
APLG00AD

2" to 1-1/4"
C to B Station
Punch Guide Adapter
APLH00AD

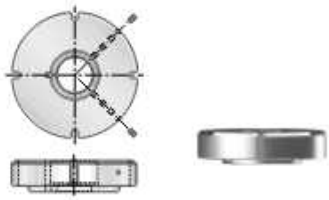
1-1/4" to 1/2"
B to A Station
Die Adapter
ADLG00AD



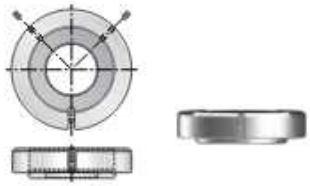
2" to 1-1/4"
C to B Station
Die Adapter
ADLH00AD

3-1/2" to 1-1/4"
D to B Station
Punch Guide Adapter
APLK00AD

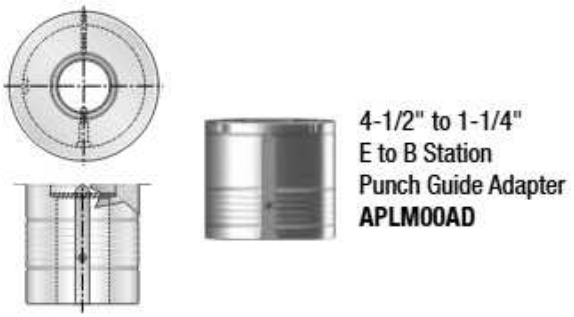
3-1/2" to 2"
D to C Station
Punch Guide Adapter
APLJ00AD



3-1/2" to 1-1/4"
D to B Station
Die Adapter*
ADLK00AD



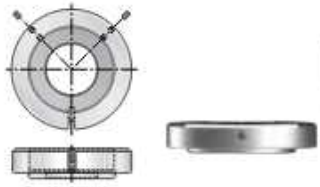
3-1/2" to 2"
D to C Station
Die Adapter*
ADLJ00AD



4-1/2" to 1-1/4"
E to B Station
Punch Guide Adapter
APLM00AD

4-1/2" to 2"
E to C Station
Punch Guide Adapter
APLL00AD

4-1/2" to 1-1/4"
E to B Station
Die Adapter
ADLM00AD



4-1/2" to 2"
E to C Station
Die Adapter
ADLL00AD

*Use this table to select the appropriate die adapter for use in the Prima Power upforming station.
When using a die adapter in an upforming station, the press upper ram stroke may need to be reduced by 0.079(2.00).

	Non-Indexable Upform Station				Indexable Upform Station			
	Piercing		Forming		Piercing		Forming	
3-1/2" D to 1-1/4" B	**MATE00727**		**MATE00725**		**MATE00727**		**MATE00725**	
3-1/2" D to 2" C	**MATE00721**		**ADLJFUAD**		**MATE00721**		**MATE00723**	

ULTRA SYSTEM ANTI-ROTATION CLAMPS FOR ROUND PUNCHES

1/2" A Station
Original Style Round Punch
Anti-Rotation Clamp

A0VAASAC

1-1/4" B Station
Original Style Round Punch
Anti-Rotation Clamp

A0VBASAC

1-1/4" B Station HP (Series 90)
Style Punch with hook ring
Anti-Rotation Clip

A0VBWBAC**

1-1/4" B Station Punch
Length Adjustment Clamp
HP (Series 90) Driver Assembly

A0VBWGAC***

Ultra B Station Anti-Rotation Clip
For Wilson HP Double D Canister

A0VBWHAC***

Ultra B Station Anti-Rotation Clip
For Wilson HP2 Canister Assembly

A0VBWKAC***

SOFT FACE STRIPPER PADS - ADHESIVE BACKED URETHANE

Soft faced stripper pads for thick turret and Ultra style tooling - 0.009(0.25) thick adhesive backed urethane to prevent material scratching and reduce noise levels.

A Station Soft Face Stripper Pad - Package 6	**A0LA00SF**
B Station Soft Face Stripper Pad - Package 6	**A0LB00SF**
C Station Soft Face Stripper Pad - Package 6	**A0LC00SF**
D Station Soft Face Stripper Pad - Package 4	**A0LD00SF**
E Station Soft Face Stripper Pad - Package 4	**A0LE00SF**

MORE ACCESSORIES FOR ULTRA AND ULTRAFORM

Roller Die for Ultraform System Special Applications (1-1/4" B Station Only)

A0LB00FG

Brush Die for Ultraform System Special Applications (B thru E Stations)

B Station	**ADLB0001**
C Station	**ADLC0001**
D Station	**ADLD0001**
E Station	**ADLE0001**

Pin for Original Style Round Punch when used with Ultra Guide 1/2" A and 1-1/4" B Station (12 minimum)

MIS60256*

Replacement Brush Assembly for Brush Dies (3 minimum)

*Not compatable with the new plastic Thick Turret brush dies.

MIS61188*

Urethane Slug Ejectors
3 and 6 mm Diameters
(12 minimum)

3 mm Urethane Slug Ejectors

URE40002*

6 mm Urethane Slug Ejectors

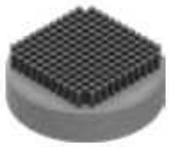
URE40010*

Medium India Oil Stone

ST029807

6" Cratex Rubber Abrasive Stick

ST029911



Thick Turret Brush Die

A Station	**MATE01895**
B Station	**MATE01896**
C Station	**MATE01897**
D Station	**MATE01898**
E Station	**MATE01899**

Lifter "T" Handle

A0LEH

Clip Tool for Ultra 1-1/4" B Station Fully Guided Punch Guide Stripper Clip

MIS59723

* Items sold separately beyond minimum quantity

** Order A0VBWBAC when using Series 90 punches with wire ring and pin or ball.

*** A0VBWGAC, A0VBWHAC & A0VBWGAC adapt canister to allow using Ultra punches but only in Wilson shape guides. Round guides will not work.

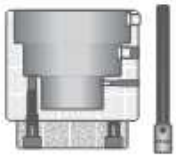
HP (SERIES 90) PUNCH ADAPTERS

C Station HP (Series 90)
Punch Adapter
A0VCWSPA

D Station HP (Series 90)
Punch Adapter
A0VDWSPA

E Station HP (Series 90)
Punch Adapter
A0VEWSPA

ULTRA 2" C, D AND E STATION TORQUE STAND ASSEMBLY AND ACCESSORIES



MIS59483
10mm Hex Key
also available separately

Ultra / Thick Turret Torque Stand
Assembly with 3/8" Drive 10mm Hex Key
2" C, 3-1/2" D and 4-1/2" E Stations
MATE00083

Torque Wrench
for use with Torque Stand
Fixed setting at 75 lbs. ft. (102 N • m)
MIS99030

Ultra Spacer for
Amada Tightening
Fixture 2" C Station
APLEP

ULTRA FIELD SERVICE KITS

Replacement Spring Cover
C **MIS99709**
D **A0VDSTCV ***
E **A0VDSTCV ***

Replacement Spring Kit
C **MIS61647P** (18 springs)
D **MATE00270** (7 springs) *
E **MATE00270** (7 springs) *

Replacement Guide Body Kit
C **MATE02392**
D **MATE00632**
E **MATE01808**

Fully Guided Replacement Guide Body Kit
C **MATE00634**
D **MATE00636**
E **MATE01812**

Replacement Locking Ring Kit
C **MATE00628**
D **MATE00629**
E **MATE00630**

* Part fits both D and E station assemblies

WHAT IS MATE'S SUPERMAX COATING? Mate SuperMax is a proprietary next generation coating applied using the latest nano-layer technology. Specifically formulated for punch press tooling, SuperMax's harder, denser film provides a lubricious coating greatly increasing wear resistance and lowering friction coefficients about 20%. Lower friction means less heat build-up, less galling and longer tool life. SuperMax is particularly good for adhesive wear tooling applications. The lubricity is also beneficial when punching sharp cornered shapes with a 90 degree or smaller angle.

In customer testing, SuperMax outperforms currently available premium coatings by 2 to 8 times, depending on the application. SuperMax can be applied to M4PM, M2, and Durasteel™ punches.

WHAT IS MAXIMA COATING?
Maxima is a multilayer Zirconium Titanium Nitride coating that is hard, wear resistant, and lubricious. It acts as a barrier between the punch and the sheet metal being punched and, because of its exceptional lubricity, greatly improves stripping. Maxima is an extremely hard, wear resistant, slippery material which reduces the friction that occurs during the stripping portion of the punching cycle, it is particularly good for adhesive wear tooling applications. Less friction means less heat build up, less galling and longer tool life. The lubricity is also beneficial when punching sharp cornered shapes with a 90 degree or smaller angle.

In real life applications, Maxima has increased tool life by a factor of 2 to 10 times, keeping tools in production longer with increased up time. Maxima can be applied to M-2, M4PM, and Durasteel.

WHAT IS NITRIDE TREATMENT?
Nitride is an optional heat treatment for abrasive and adhesive wear environments when punching thin materials. It is a surface treatment which becomes an integral component of the structure of the material itself, therefore extending tool life.

Punches with Nitride Treatment are recommended for punching abrasive materials such as fiberglass or materials that cause galling such as stainless steel, galvanized steel, and aluminum. It is also recommended for high speed punching (see below for nibbling limitations). Nitride can be applied to M-2 and M4PM tool steel.

APPLICATION RECOMMENDATIONS:

COATING OR TREATMENT	3000 & 5000 Series Aluminum	Galvanized Steel	Stainless Steel	Stainless Steel Under 14 gauge	Cold Rolled Steel	Vinyl Coated Materials	Pre-painted Materials Under 16 gauge	Fiberglass
SuperMax™	X	X	X	X	X	X	X	X
Maxima™	X	X	X	X		X	X	
Nitride	X			X	X		X	X

SHAPE	MINIMUM PUNCH SIZE FOR **SUPERMAX™ COATING**	MINIMUM PUNCH SIZE FOR **MAXIMA™ COATING**	MINIMUM PUNCH SIZE FOR **NITRIDE TREATMENT**	MINIMUM PUNCH SIZE FOR **NITRIDE WHEN NIBBLING**
Round	Minimum diameter = 0.098(2.50)	Minimum diameter = 0.098(2.50)	Minimum diameter = 0.158(4.01)	Minimum diameter = 0.500(12.70)
Rectangle	If length is > 0.250(6.35) The minimum width is 0.060(1.50) If length is < 0.250(6.35) The minimum width is 0.098(2.50)	If length is >0.250(6.35) The minimum width is 0.060(1.50) If length is <0.250(6.35) The minimum width is 0.098(2.50)	Minimum width = 0.158(4.01)	Minimum width = 0.500(12.70)
Oval	If length is > 0.250(6.35) The minimum width is 0.060(1.50) If length is < 0.250(6.35) The minimum width is 0.098(2.50)	If length is >0.250(6.35) The minimum width is 0.060(1.50) If length is <0.250(6.35) The minimum width is 0.098(2.50)	Minimum width = 0.158(4.01)	Minimum width = 0.500(12.70)
Square	Minimum width = 0.098(2.50)	Minimum width = 0.098(2.50)	Minimum width = 0.158(4.01)	Minimum width = 0.500(12.70)
Others	Consult a Mate application specialist			

MATE DURASTEEL HIGH PERFORMANCE TOOL STEEL

Mate DuraSteel is an air hardening tool steel designed specifically for use in high performance tooling systems.

A combination of the chemical composition of Mate DuraSteel and the closely controlled manufacturing process results in an upgrade to conventional High Chrome D2 tool steel. It offers better wear resistance, greater toughness, better compressive strength, and higher attainable hardness.

Mate DuraSteel is a high quality tool steel which has many advantages when compared to alternative tool steels commonly available. These advantages include:

Superior Wear Resistance – Mate DuraSteel offers superior resistance to adhesive- and abrasive-wear to maximize the interval between regrinds.

- Increased Vanadium carbides – harder wearing than chromium carbides for greater resistance to abrasive-wear
- Increased Tungsten carbides – harder wearing and offer better red hardness; increased resistance to high temperatures which may anneal or damage the material
- Higher hardness – increased alloy content results in higher effective hardness for better wear resistance

Increased Toughness – The chemical composition and heat treatment processes used with Mate DuraSteel make it tougher than conventional tool steels in impact strength tests.

- The inclusion of tungsten and vanadium allows the carbon content to be reduced, which increases the toughness

Better Value – Customer trials have shown that tools manufactured in Mate DuraSteel last 100% longer between regrinds than tools manufactured using conventional tool steels. By increasing the interval between regrinds, the tooling lasts longer and punches many more holes before needing to be replaced.

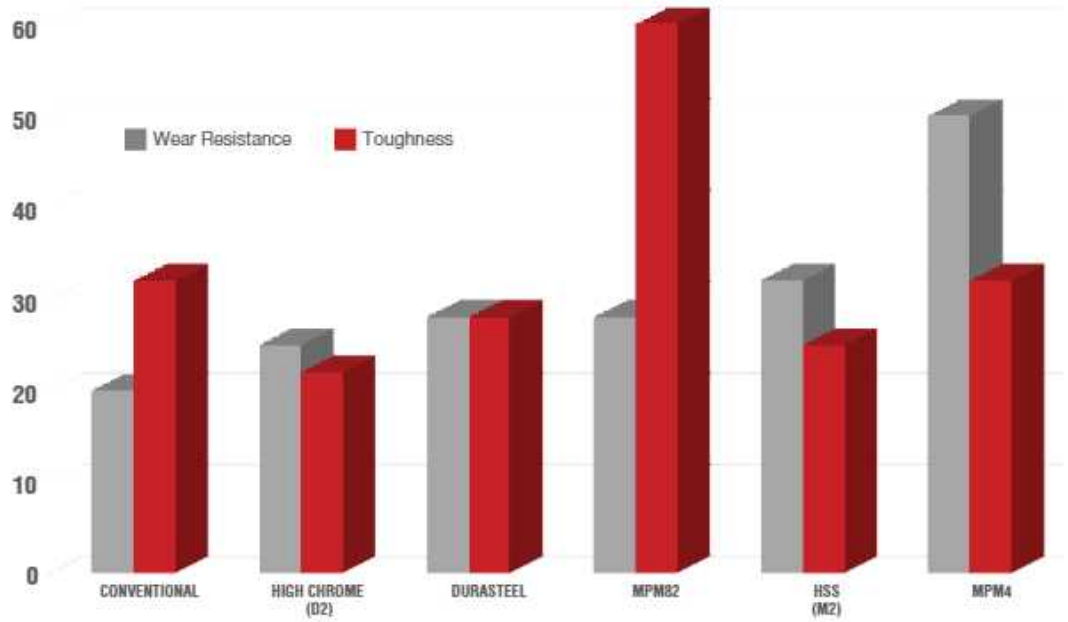
MATE MPM82 HIGH PERFORMANCE TOOL STEEL

MPM82 is a specially formulated, high-speed particle metallurgy tool steel that shares the same chemistry as our DuraSteel products.

With similar wear properties to that of DuraSteel, MPM82 exhibits even higher toughness due to the particle metallurgy process. This combination of wear and toughness resists adhesive and abrasive wear while avoiding edge chipping.

This material is available optionally in Mate's A and B station dies, and standard in Mate's Versadie die inserts.

WEAR RESISTANCE INDEX COMPARISONS*



*Wear Resistance index values were developed by an independent metallurgical expert, evaluating both adhesive and abrasive wear characteristics of tool steels at typical levels of hardening.

Toughness:
Charpy C-Notch impact strength test.

Relative Wear Resistance:
10x Cross cylinder adhesive wear test. Based upon steel manufacturers data.

Micrograph shows that the particle metallurgy process produces a very homogeneous, high quality tool steel with superior wear resistance, toughness and dimensional stability.

MATE TOOLING LASTS LONGER WITH M4PM STEEL

Mate has long offered the most comprehensive range of tooling for all major punch press manufacturers. Mate's tooling is even better with the superior performance and longevity of Mate's M4PM tool steel, standard on the following products:

M4PM STEEL

Designed for use in high performance tooling systems, M4PM is a high speed, particle metallurgy steel that combines the chemical composition of M4, particle metallurgy manufacturing and a triple temper heat treatment process.

M4PM offers superior resistance to adhesive and abrasive-wear to maximize the interval between regrinds. The increased alloy content results in higher effective hardness for better wear resistance. A more uniform distribution of smaller carbides results in significantly reduced tool breakage and edge chipping.

LONGER LASTING TOOLING

With the clear advantage of M4PM steel, Mate's superior accuracy and precision, and you have a winning combination: reliable, consistent, long-lasting tooling. Compared to conventional high speed steel used by other manufacturers, Mate's tooling with M4PM has at least 50% or greater wear resistance.*

What does long-lasting tooling mean to you?

- Increased machine uptime
- Improved sheet metal products
- Reduced overall tooling costs
- Lower overall production costs

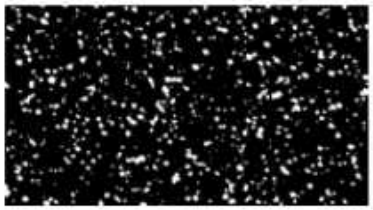
MATE M4PM TOOL STEEL IN STANDARD ON THE FOLLLOWING THICK TURRET STYLE PRODUCTS:

- All Thick Turret C, D and E station slitting inserts
- Thick Turret cluster inserts from 2mm-20mm
- QCT™ A & B station inserts

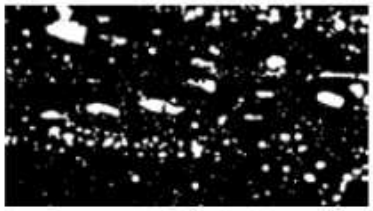
MATE M4PM TOOL STEEL IS OPTIONAL ON THE FOLLLOWING THICK TURRET STYLE PRODUCTS:

- Ultra A and B station punches
- MXC A and B station punches

Micrograph shows that the particle metallurgy process produces a very homogeneous, high quality tool steel with superior wear resistance, toughness and dimensional stability.



M4PM



CONVENTIONAL TOOL STEEL

INTERNATIONAL MATERIAL STANDARDS			
	D2	M2	M4PM
JIS	SKD 11	SKH 51	SKH 54
WNr	1.2379	1.3343	none
DIN	X155 CrVMo 12-1	HS 6-5-2	none

JIS: Japanese Industrial Standard
WNr: Werkstoffnummer
DIN: Deutsches Institut für Normung e.V.

M4PM CHEMICAL COMPOSITION	
Carbon	1.42%
Chromium	4.00%
Vanadium	4.00%
Tungsten	5.50%
Molybdenum	5.25%

Cluster – Round

Cluster – Shape

Card Guide

Centerpoint

Countersink – Round

Countersink – Shape

Emboss – Beading

Emboss – Edgeform

Emboss – Formed (Round and Shaped)

Emboss – Cold Forged

Extrusion – Tapping

Extrusion – Flanged Hole

Hinge Tool

Knockout

Lance And Form

Louver

Special Piercing

Shearbutton (Round and Shaped)

Rollerball™

Sheetmarker™

Stamping – Alpha Numeric

Stamping – V-line

Threadform

Mate Rollerball™

Use:
The Rollerball™ is an exciting new concept designed by Mate Precision Technologies to take advantage of the extended programming capabilities of hydraulic and other punch presses capable of operating in the x and y axis with the ram down. The Rollerball™ gives you the benefit of making forms not possible with single hit forming tools.

Typical Application:
- Maximum workable material thickness is 0.105(2.70) mild steel.

Comments:
- The press must be capable of holding the ram down while the sheet is moved in the x and/or y.

Mate Sheetmarker™

Use:
For markings or etchings on the surface of sheet metal. The tool uses a diamond pointed insert in a spring loaded holder to create the marking.

Typical Application:
- The Sheetmarker™ Tool can be used on all material types and thicknesses.

Comments:
- A wide variety of results can be produced, ranging from very light etching to fairly deep grooves in the sheet.
- Variations are achieved with a combination of three spring pressures and two insert point angles.

Comments:
- The press must be capable of holding the ram down while the sheet is moved in the x and/or y.

Mate SnapLock™

Use:
For joining materials, thus eliminating secondary operations such as spot welding, riveting, or fastening with threaded hardware.

Typical Application:
- Material thickness from 0.020(0.50) up to 0.118(3.00).
- Other limitations include material type, station size, and press tonnage capacity.

Comments:
- Suitable for joining materials of dissimilar type and/or thickness.
- Positive locking and locating feature for fast and accurate assembly.

Mate HexLock™

Use:
To provide a reliable and secure method of retaining common threaded fasteners in sheet metal.

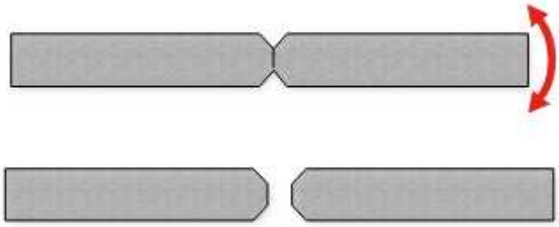
Typical Application:
- Material thickness from 0.020(0.50) up to 0.118(3.00).
- Other limitations include material type, station size, and press tonnage capacity.

Comments:
- Suitable for hexagon nuts and hexagon headed bolts that conform to DIN933 or DIN934.

Mate EasySnap™

Use:
Scrapless retention system to allow fabricator to snap punched parts out of sheet metal.

Typical Application:
- Material thickness from 0.020(0.50) up to 0.078(2.00) for mild steel and aluminium, and 0.020(0.50) up to 0.059(1.50) for stainless steel.
- Maximum length of form is 36.00(914.40) depending on material type and thickness.



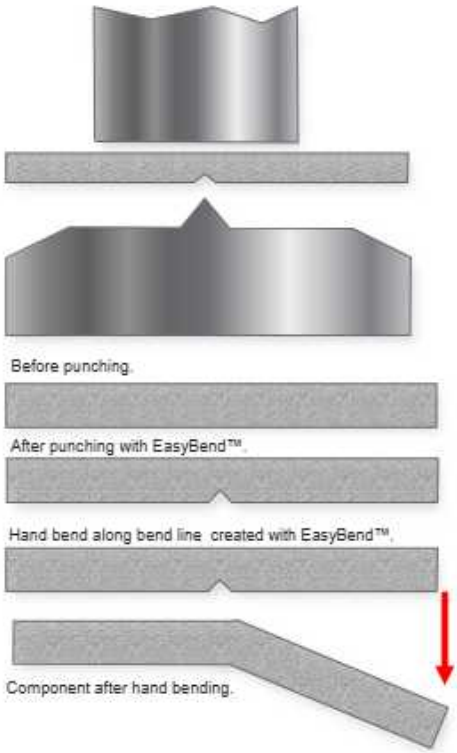
Comments:
- Reduces the need for slitting and micro joints for part retention.
- Material type and thickness must be specified at time of order.

Mate EasyBend™

Use:
Create bend lines suitable for subsequent hand bending operations. Ideal for intricate fabricated assemblies where conventional press break forming techniques are impractical. Simply bend along the bend line for quick, accurate, and convenient forms.

Typical Application:
- Material thickness from 0.020(0.50) up to 0.078(2.00) for mild steel and aluminium, and 0.020(0.50) up to 0.059(1.50) for stainless steel.
- Maximum length of form is 36.00(914.40) depending on material type and thickness.

Comments:
- Eliminates secondary operations.
- Material type and thickness must be specified at time of order.



Mate Square ShearButton™

Use:
Square ShearButton reduces the need for slitting and micro-joints for part retention in thicker materials. Simply snap punched components out of thicker sheet metal with a clean, smooth edge.

Typical Application:
- Nesting parts in a large sheet
- Square ShearButton may be used with a variety of material types, including stainless steel, aluminum, cold roll steel and more.
- Very large or heavy parts with minimal micro-joints. The Square Shearbutton tabs are much stronger than the traditional micro-joint, so fewer are needed.
- Rounded part corners where a corner micro-joint is not possible

Comments:
- Available in form up and form down.
- Depths and heights may be adjusted to suit the user's application.

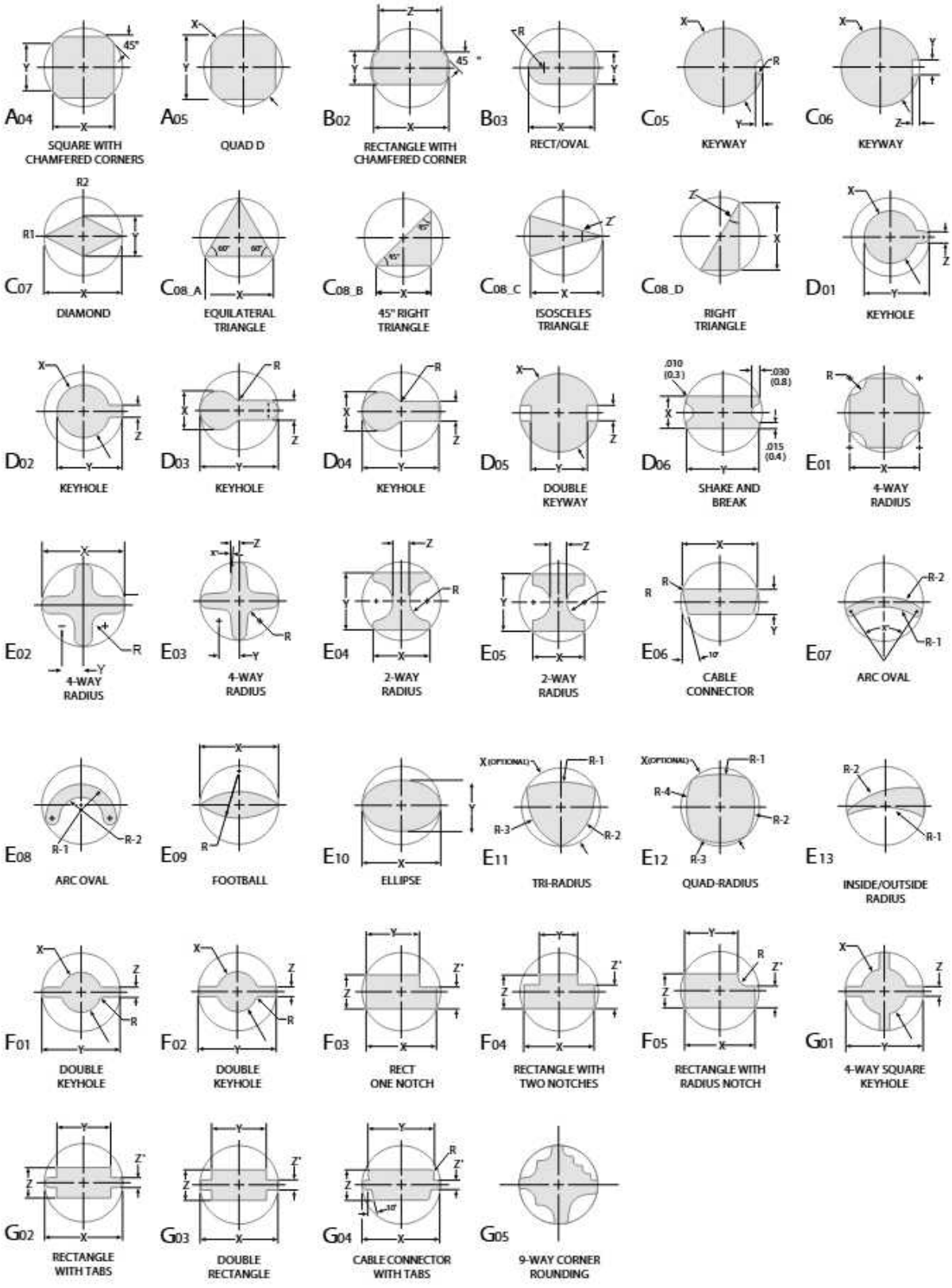
Mate Hybrid ThreadForm™

Use:
In many industries, there's a need to join two pieces of material using a threaded machine screw. If the thread pitch is greater than the material thickness, then a conventional threadform tool is a great solution. Unlike a conventional threadform tool, the Hybrid Threadform tool thins the material in the center of the form, and creates the threadform helix in just one operation.

Typical Application:
- Eliminates secondary operations
- Eliminates tapping operations
- Reduces debris in the machine caused by tapping
- Reduces component cost by eliminating any special fasteners

SPECIAL AND STANDARD SHAPES FOR THICK TURRET TOOLING

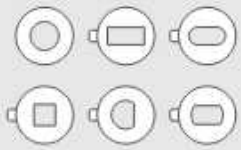
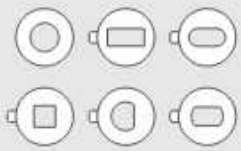
SPECIAL SHAPES (NUMBERING INDICATES SHAPE CODE):



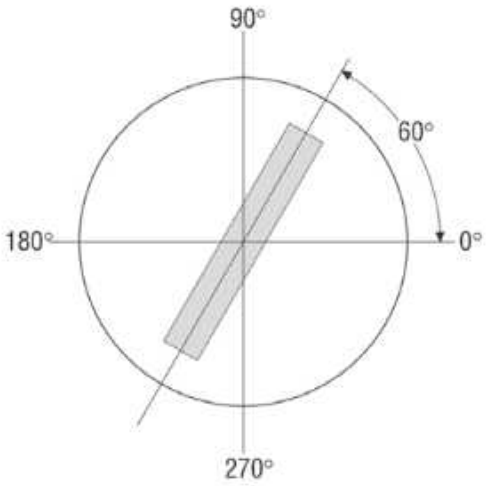
STANDARD SHAPES (NUMBERING INDICATES SHAPE CODE):

rectangle	square	quad "D"	round	hexagon	octagon	oval	single"D"	double "D"	triangle	diamond
1	3	A05	0	N	P	2	4	5	C08	C07

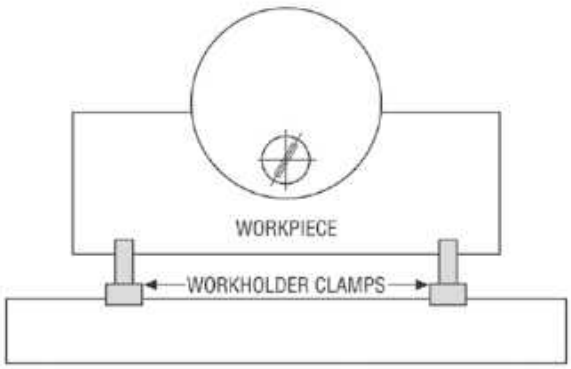
ULTRA SYSTEM & THICK TURRET STANDARD ANGLE SETTINGS

	1/2" A STATION 1 1/4" B STATION	2" C STATION	3 1/2" D STATION	4 1/2" E & F STATION
PUNCHES				
DIES				

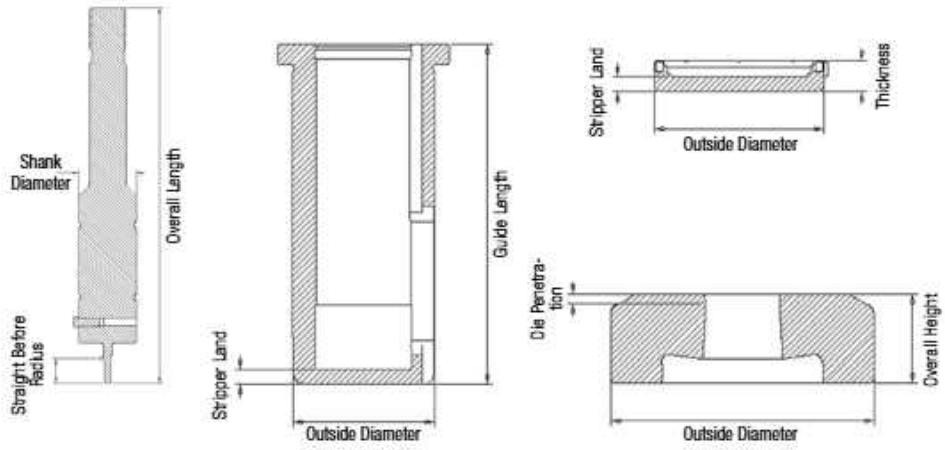
TOP DIE VIEW
CARTESIAN COORDINATE SYSTEM



TOP DIE OF TURRET



Station	1/2" A	1-1/4" B	2" C	3-1/2" D	4-1/2" E	6" F
Maximum Punch Diagonal	0.500(12.70)	1.250(31.75)	2.000(50.80)	3.500(88.90)	4.500(114.30)	6.000(152.40)
Ultra Punch						
Part Number	PAUA	PAUB	PAAC	PAAD	PAAE	PAAF
Overall Length	4.245(107.82)	3.957(100.51)	3.786(96.16)	3.313(84.15)	3.353(85.17)	3.745(95.12)
Shank Diameter	0.630(15.99)	1.250(31.75)	2.007(50.98)	3.520(89.41)	4.520(114.81)	6.043(153.49)
Straight Before Radius*	0.740(18.80)	0.740(18.80)	1.005(25.53)	1.005(25.53)	1.043(26.49)	1.045(26.54)
Ultra Stripper						
Part Number	S6KA	S6KB	S6KC	S6KD	S6KE	
Outside Diameter	0.751(19.07)	1.500(38.10)	2.249(57.12)	3.825(97.16)	4.759(120.88)	
Thickness	0.272(6.91)	0.272(6.91)	0.394(10.01)	0.394(10.01)	0.394(10.01)	
Stripper Land	0.157(3.99)	0.157(3.99)	0.315(8.00)	0.315(8.00)	0.315(8.00)	
Metric (Original) Style Punch						
Part Number	PAAA	PAAB	PAAC	PAAD	PAAE	PAAF
Overall Length	8.169(207.49)	8.169(207.49)	3.786(96.16)	3.313(84.15)	3.353(85.17)	3.745(95.12)
Shank Diameter	0.630(16.00)	1.250(31.75)	2.007(50.98)	3.520(89.41)	4.520(114.81)	6.043(153.49)
Straight Before Radius*	0.664(16.87)	0.740(18.80)	1.005(25.53)	1.005(25.53)	1.043(26.49)	1.045(26.54)
Original Style Stripper						
Part Number	S6AA	S6AB	S6AC	S6AD	S6AE	S6AF
Guide/Stripper Outside Diameter	1.020(25.91)	1.883(47.83)	2.007(50.98)	3.520(89.41)	4.520(114.81)	6.450(163.83)
Guide Length/Stripper Thickness	4.448(112.98)	4.528(115.01)	0.394(10.01)	0.394(10.01)	0.394(10.01)	.394(10.01)
Stripper Land	0.197(5.00)	0.197(5.00)	0.394(10.01)	0.394(10.01)	0.394(10.01)	.394(10.01)
Slug Free Die						
Part Number	D0AA	D0AB	D0AC	D0AD	D0AE	D0AF
Outside Diameter	1.000(25.40)	1.875(47.63)	3.500(88.90)	4.938(125.43)	6.249(158.72)	8.265(209.93)
Overall Height	1.187(30.15)	1.187(30.15)	1.187(30.15)	1.187(30.15)	1.187(30.15)	1.383(35.13)
Die Penetration	0.118(3.00)	0.118(3.00)	0.118(3.00)	0.118(3.00)	0.118(3.00)	.118(3.00



*** The Straight Before Radius (SBR) dimension may be reduced for small diameters and narrow widths. Consult your application specialists.**

PUNCH AND DIE MAINTENANCE

PUNCH MAINTENANCE

You can greatly extend overall punch life by sharpening whenever the edge dulls to a 0.005(0.13) radius. At this point, just a small amount of sharpening will "touch up" the cutting edge. Frequent touch up works better than waiting for the punch to become very dull. The tool lasts longer and cuts cleaner with less punching force.

Maximum amount of sharpening depends on thickness of material being punched, size of punch (length and width), and punch press station.

1. To sharpen, clamp the punch squarely in a Vee Block on the magnetic chuck of a surface grinder. Only 0.001 to 0.002 (0.03 to 0.05) should be removed in one "pass". Repeat until tool is sharp, normally 0.005-0.010(0.13-0.25) total.
2. Use a standard vitrified bond, aluminum oxide wheel: hardness range "D" to "J"; grain size 46 to 60. A "ROSE" wheel made especially for grinding high speed steel is a good choice but not mandatory.
3. Dress the wheel using a rigid single or multi-point diamond: downfeed 0.0002-0.0008 (0.005-0.020); crossfeed quickly 20-30 in/min (508-762 mm/min).
4. Apply coolant with as much force and as close to the tool and wheel as is practical. Use a good general purpose grinding coolant used to the manufacturer's specifications.
5. Feeds and feed rates: A, Downfeed (wheelhead), 0.001 - 0.003 (0.03-0.08); B, Crossfeed (infeed), 0.005-0.010 (0.13-0.25); for nitrided punches, 0.002-0.007(0.05-0.18); C, Traverse (sideways), 100-150 in/min (2,540-3,810 mm/min).
6. After the sharpening, lightly stone the sharp cutting edges to remove any grinding burrs and to leave a 0.001-0.002 (0.03-0.05) radius. This reduces risk of chipping.
7. Demagnetize the punch and spray on a light oil to prevent corrosion.

DIE MAINTENANCE

As with punches, keep dies clean and watch for wear. Use the same sharpening procedures — hold die on surface grinder's magnetic chuck; use same wheel and feed rates. Check die thickness after each sharpening and add shims as necessary.

CONSIDERATIONS IN GRINDING

A grinding wheel's abrasive particles, in effect, are break-away "teeth". These teeth can be made from a variety of very hard, abrasion resistant materials, such as diamond, borozon and, most commonly, aluminum oxide.

The abrasive particles are embedded in a softer matrix material and meant to fracture loose from the matrix as cutting pressure becomes greater. Cutting pressure can increase from raising the feed rate or from dulling of abrasive particles. Pressure causes surface particles to fracture or break free from the wheel matrix and expose new sharp edges, resulting in the wheel's sharpness.

For our purposes, in selecting a vitrified bond aluminum oxide wheel, we need only be concerned with two variables: hardness and coarseness of the wheel. Hardness refers to the bond strength of the matrix. Coarseness refers to the size and concentration of the abrasive particles (grit).

Generally speaking, harder materials require softer wheels — softer materials require harder wheels. Grinding a harder and/or more abrasive resistant material, such as hardened tool steel, dulls abrasive particles quickly. The wheel then needs increased feed forces. A softer wheel allows spent particles to break loose from the matrix more easily. The newly exposed sharp edges will cut rather than rub and tear at the workpiece. Less pressure is required and the wheel runs cooler.

Coarse wheels with large, widely spaced abrasive particles perform less cutting per revolution and allow greater "chip" clearance. The wheel stays cleaner. Friction is reduced.

Balancing hardness and coarseness results in a wheel that stays sharp and clean to optimize cutting action. It meets the grinding objective of removing material from the workpiece while expending a minimal amount of wheel energy. Wheel energy losses largely translate to workpiece heating. Workpiece heating, in turn, will result in softened and/or highly stressed tools which will not perform well. Hardened tool steels are particularly vulnerable.

It is generally desirable to use a softer "G" or "H" hardness wheel with a grit concentration/size of about forty-six.

A-2 and S-7 STEEL

Grinding Wheel Hardness: **G-J**
Grit: **46-60**

M-2 and M4PM STEEL

Grinding Wheel Hardness: **D-G**
Grit: **46-60**

GENERAL				
Radius Corners	No Charge			
Non-Standard Straight Before Radius (SBR) Dimension	add	to punch		
Special Angle Settings	add	to punch, stripper, and die		
Optional Shear (Limited Options)	No Charge			
SMALL DIAMETER ROUND TOOLS				
Diameter 0.031(0.79) to 0.061(1.55)	add	to punch, stripper, and die		
Diameter 0.062(1.56) to 0.092(2.34)	add	to punch, stripper, and die		
NARROW WIDTH SHAPED TOOLS				
Widths under 0.079(2.00)	add	to punch, stripper, and die		
STATION JUMPER				
1-1/4" B Station - if diagonal dimension is <0.500(12.70)	No Charge			
2" C Station - if diagonal dimension is <1.250(31.70)	add	to punch		
3-1/2" D Station - if diagonal dimension is <2.000(50.80)	add	to punch		
4-1/2" E Station - if diagonal dimension is <3.500(88.90)	add	to punch		
6" F Station - if diagonal dimension is <4.500(114.30)	add	to punch		
SUPERMAX™ COATING				
1/2" A Station	add	to punch		
1-1/4" B Station	add	to punch		
2" C Station	add	to punch		
3-1/2" D Station	add	to punch		
4-1/2" E Station	add	to punch		
6" F Station	add	to punch		
Slitting Punch Insert	add	to punch		
MAXIMA™ COATING / NITRIDE TREATMENT				
1/2" A Station	add	to punch		
1-1/4" B Station	add	to punch		
2" C Station	add	to punch		
3-1/2" D Station	add	to punch		
4-1/2" E Station	add	to punch		
6" F Station	add	to punch		
Slitting Punch Insert	add	to punch		
SLUG FREE LIGHT™ DIE GEOMETRY				
1/2" A Station	add	round die	+	shaped die
1-1/4" B Station	add	round die	+	shaped die
2" C Station	add	round die	+	shaped die
3-1/2" D Station	add	round die	+	shaped die
4-1/2" E Station	add	round die	+	shaped die
M4PM™ TOOL STEEL				
Ultra — 1/2" A Station	add	to punch		
Ultra — 1-1/4" B Station	add	to punch		
MXC™ — 1/2" A Station	add	to punch		
MXC™ — 1-1/4" B Station	add	to punch		

THICK TURRET COMPATIBILITY CHART

	Tool Style	Mate Part Number	Ultra	Ultra XT	Ultra ABS	Mate QS	Ultra ABS 14mm Ext 1 Lug Assembly	RapidSet	Ultra MT, UMT and MT 3 or 8 Station	HP & HP2	HP WLS & HP2 WLS	HP ABS & HP2 ABS	Wilson Inch Style	Amada Standard	Amada ABS	Amada Z-Standard	Amada Z-ABS	Amada NEX Standard	Amada NEX ABS	Amada GTT	Amada Alpha	Wilson HP ABS 3 Station MT 38337*	Wilson MT3R 49392	Wilson MT3R 49393	Wilson MT3B	Wilson MT3B 49276	Wilson Wire Hook MTB 38302	Wilson MT3SR & MT3BR
1/2" A Station																												
Punch	Ultra QCT	MATE02404*	•	•					•																			
Punch	Metric QCT Keyed Rounds/Shapes	MATE02519*	•	•		•		•																				
Punch	Metric QCT Keyless Rounds	MATE02520*	•	•		•		•																				
Punch	MXC QCT Keyed Rounds/Shapes	MATE02546*								•										•								•
Punch	MXC QCT Keyless Rounds	MATE02545*								•										•								•
Punch	MXC QCT ABS Keyed Rounds/Shapes	MATE02544*									•	•								•								•
Punch	MXC QCT ABS Keyless Rounds	MATE02543*									•	•								•								•
Punch	AMX QCT Keyed Rounds/Shapes	MATE02551*	•	•14	•	•		•							•		•		•									
Punch	AMX QCT Keyless Rounds	MATE02553*	•	•14	•	•		•							•		•		•									
Punch	Ultra Punch	PAUA	•	•					•																			
Punch	Metric (Original) Punch	PAAA	•6	•6		•		•						•				•										
Punch	Ultra ABS Punch	PAYA			•				•																			
Punch	Inch Style	PAJA											•															
Punch	AMX	PMXA	•	•14	•	•		•							•		•		•									
Punch	MXC Std	PXCA								•										•								•
Punch	MXC ABS	PLCA									•	•								•								•
Stripper	Ultra	S6KA	•	•					•																			
Stripper	Original Style (Stripper Guide)	S6AA				•		•						•				•										
Stripper	Ultra ABS	S6YA			•				•																			
Stripper	AMX (Stripper Guide)	SMXA						•						•4	•	•4	•	•4	•									
Stripper	MXC	SXCA								•	•	•								•								•
Die	Slug Free Die	DOAA	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•								•
Die	Standard Die	DOKA	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•								•
Clip	For Metric (Original) Round Punch	AOVAASAC	•5	•5	•5																							
1-1/4" B Station																												
Punch	Ultra QCT	MATE02401*	•	•					•	•1																		
Punch	Metric QCT Keyed Rounds/Shapes	MATE02521*	•	•		•		•																				
Punch	Metric QCT Keyless Rounds	MATE02522*	•	•		•		•																				
Punch	MXC QCT Keyed Rounds/Shapes	MATE02525*	•13	•13	•13				•13	•										•								•
Punch	MXC QCT Keyless Rounds	MATE02524*	•13	•13	•13				•13	•										•								•
Punch	MXC QCT ABS Keyed Rounds/Shapes	MATE02526*	•13		•13						•	•								•		•		•				•
Punch	MXC QCT ABS Keyless Rounds	MATE02528*	•13		•13						•	•								•		•		•				•
Punch	AMX QCT Keyed Rounds/Shapes	MATE02552*	•	•14	•	•		•									•		•									
Punch	AMX QCT Keyless Rounds	MATE02553*	•	•14	•	•		•									•		•									
Punch	Ultra Punch	PAUB	•	•					•	•1																		
Punch	Metric (Original) Punch	PAAB	•6	•6		•		•						•				•										
Punch	Ultra ABS Punch	PAYB			•				•	•1																		
Punch	Inch Style	PAJB	•9	•9									•															
Punch	AMX	PMXB	•	•14	•	•		•									•		•									
Punch	MXC	PXCB	•13	•13	•13				•13	•										•								•
Punch	MXC ABS	PLCB	•13		•13						•	•								•		•		•				•
Stripper	Ultra	S6KB	•	•					•	•	•	•																
Stripper	Original Style (Stripper Guide)	S6AB				•		•						•				•										
Stripper	Ultra ABS	S6YB			•				•		•	•																
Stripper	AMX (Stripper Guide)	SMXB						•						•4	•	•4	•	•4	•									
Stripper	MXC	SXCB	•17	•17					•16	•	•	•								•				•				•
Die	Slug Free Die	DOAB	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•								•
Die	NON-Slug Free Die	DOKB	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•								•
Clip	For Metric (Original) Round Punch	AOVBASAC	•5	•5	•5																							
Clip	HP Round Punch Retaining Ring	AOVBWBAC	•10	•10	•10																							
Clip	HP Round Punch Wire Hook	AOVBWSAC	•10	•10	•10																							
Clip	For Wilson HP Canister	AOVBWGAC								•11	•11	•11																
Clip	For Wilson HP2 Canister	AOVBWKAC								•12	•12	•12																
Clip	For Wilson HP Double D Canister	AOVBWHAC								•11	•11	•11																

THICK TURRET COMPATIBILITY CHART

	Tool Style	Mate Part Number	Ultra	Ultra XT	Ultra ABS	Mate 03	Ultra ABS Ultra Bolt On Re-tip Assembly	Ultra XT, UMT and IMT 3 or 8 Station	HP & HP2	HP WLS & HP2 WLS	HP ABS & HP2 ABS	Wilson Inch Style	Arnada Standard	Arnada ABS	Arnada 2 Standard	Arnada 2 ABS	Arnada HSX Standard	Arnada HSX ABS	Arnada UT1	Arnada Alpha	Wilson 4-Pak ABS 3 Station 35307*	Wilson VT304 45292	Wilson VT39 45295	Wilson VT4 Tool VT39	Wilson VT4 Tool VT3 45276	Wilson Twin Fox MTG 38032
2" C, 3-1/2" D, and 4-1/2" E Stations																										
Punch	Original Style (M12 bolt)	PAA	•	•	•	•	•8						•		•2					•2						
	Inch Style (1/2-13 bolt)	PAJ			•							•														
	AMX (M14 Threads)	PMX					•									•				•7						
	AMX Slitting Retainer D Station	MATE001988					•							•		•				•7						
	AMX Slitting Retainer E Station	MATE001990					•							•		•				•7						
	MXC	PXC	•15	•15	•15				•	•																
Stripper	Ultra	S6K	•																							
	Original Style (Stripper Guide)	S6A		•		•							•		•3					•3						
	Ultra ABS	S6Y			•																					
	AMX (Stripper Guide)	SMX												•		•				•						
	MXC	SXC		•		•			•	•	•								•	•						
Die	Slug Free Die	DOA	•	•	•	•	•		•	•	•	•	•	•	•	•			•	•						
	Standard Die	DOK	•	•	•	•	•		•	•	•	•	•	•	•	•			•	•						
Ultra M14 Bolt Conversion Package	C Station	MATE00651	•	•	•																					
	D Station	MATE00652	•	•	•																					
	E Station	MATE00653	•	•	•																					
MTG Multi Tool																										
Punch	3 Station	PMSQ																						•		
	Long 8 Station	PNSR																							•	
Stripper	3 Station	SMSQ																			•		•	•		
	Long 8 Station	SNSR																				•			•	•
Die	3 Station Slug Free	DESQ																			•		•	•		
	3 Station Non-Slug Free	DFSQ																			•		•	•		
	Long 8 Station Slug Free	DGSR																				•			•	•
	Long 8 Station Non-Slug Free	DJSR																				•			•	•

1. Ultra round or shape punches only work in shape guides using clip A0VBWHAC for HP canisters and clip A0VBWKAC for HP2 canisters
2. Requires the optional M12 bolt to be installed into the guide assembly
3. Requires use of optional Original style strippers
4. Pin must be removed from stripper guide
5. Clip attaches to competitive round punches without pin or key
6. Requires use of Ultra Metric canister
7. Requires the M14 bolt option
8. Must switch to the M12 bolt and centering washer
9. Requires Inch Style Canister
10. Clip attaches to Wilson HP punch after removing original hardware
11. Clip attaches to Wilson HP canister
12. Clip attaches to Wilson HP2 canister
13. Shapes only: Remove retaining ring assembly. Rounds will not work (IMT manufactured after 07/2014 and UMT — Rounds & Shapes work with ring attached)
14. Rounds only
15. Requires using punch adapter A0VCWSPA (C station), A0VDWSPA (D station), A0VEWSPA (E station)
16. 3 station only
17. Compatible if guide has horizontal groove on lower lead-in diameter

* QCT™ (Quick Change Tooling) punch drivers require compatible punch inserts for operation. See mate.com for more details

** Wilson Adjustable Length HP ABS punches 3 station 35307 for Strippit