

Superior Solutions for Sheet Metal Fabricators

HIGH PERFORMANCE TRUMPF STYLE TOOLING SYSTEMS

- MATE NEXT™
- MATE QUICKLOCK™
- MATE TRUMPF STYLE



INTL 2011

WORLDWIDE HEADQUARTERS:

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MACHINE MODEL CLASSIFICATION

	<u>Non Keyed</u>	<u>Keyed</u>	<u>Rotational</u>	<u>Minimatic</u>
	Class A	Class E	Class H	Class S
	CN 700	400	190R	100
	CN 900	150K	200R	120R
	CN 701	151K	500R	160
	CN 901	152K	600L	
		180K		
	Class B	180.2K	Class I	
	CN 901E	180KD	2000R	
	CN 902	180LK	2010R	
	CS 75	180.2LK	2020R	
	CS 75.2	202K	5000R	
		225K	6000L	
	Class C	235K	3000	
	CN 1200S	300K	3000L	
	CN 1200A	300LK		
	CS 15	300PK		
	CS 20	400K		
	CS 20A			
	MP 25	Class F		
	MP 25D	150W		
		152W		
	Class D	180W		
	20	180.2W		
	20A	180R		
	202M	180LW		
		180.2LW		
		ELX/SWIFT		
		185		
		240		
		240R		
		250		
		260R		
Alignment Rings				
Size 1	VANTD	VANTE	VANTE	VANTM
Size 2 and 3	VAPTD	VAPTE	VAPTE	-
Heavy Duty	-	VANTF	VANTF	-
Size 1-X	-	-	-	VAPTM
QuickLock™ Alignment Ring				
Size 1 and 2	-	MATE00480	MATE00480	-
NEXT™ Tool Holders				
Size 40	-	MATE00371	MATE00371	-
Size 76	-	MATE00372	MATE00372	-
Stripper Styles				
Size 1	SND1	SKD1	SRD1	SKDX
Size 2 and 3	SND2	SKD2	SRD2	-
Size 3	SND3	SKD3	-	-
Size 1-X	-	-	-	SKDX



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Mate has been there from the beginning with products, service, and solutions. For the past five decades, Mate has led the tooling industry in quality, price, delivery, and service. This dedication and expertise result in products that are long lasting, reliable and productive.

Mate's products and services are aimed at just one thing: helping customers manufacture sheet metal parts as productively and efficiently as possible. All Mate products are 100% unconditionally customer satisfaction guaranteed. Standard tooling or special requests – anywhere in the world, Mate is there. Call us today, we look forward to working with you.

Dean A. Sundquist
Chairman and CEO



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MATE TOOLING SYSTEMS FOR TRUMPF STYLE PUNCH PRESSES

Mate offers the most comprehensive range of tooling systems designed to accommodate any punching application in your Trumf style punch press. Use this simple chart to determine which tooling system is right for your typical punching application.

<div style="display: flex; justify-content: space-between;"> LESS MORE </div>	Mate NEXT™ Tooling System	Mate QuickLock™ Tooling System	Mate Trumf Style Tooling System
Overall Value – The combination of: the features, the purchase price, and the operating costs.	••••	•••	••
Cost Savings – The ongoing cost savings of operating the tooling system over an extended period of time.	••••	•••	••
Ease of Use – Design features that make it faster to install, simpler for the operator to set up, and more convenient to maintain.	••••	•••	••
Interchangeability – The ability of a tooling system to be compatible with popular systems from other major suppliers.	•••	•••	••••
Quick Set-up – Integral features which enable tools to be changed quickly and accurately, thus maximizing machine up time.	••••	•••	••
Grind Life – The sum of the number of holes punched between regrinds AND the total useable length of the punch tip.	••••	•••	•••
Features – Elements of a system that make it simple to use, easy to maintain, extend service life, and increase productivity.	••••	•••	••
Purchase Price – The initial purchase price of the system.	•••	••	••

Mate Trumf Style Tooling System

The Mate Trumf Style Tooling System is designed to enable fabricators to produce high quality piece parts, economically. Features include:

Standard System

- Alignment Ring: Shock-resistant tool steel for maximum accuracy and durability.
- Punches: Abrasion resistant High Speed Steel for increased tool life. 1/4-degree back taper for improved stripping performance.
- Urethane Strippers reduce punching noise and eliminate sheet marking.
- Metal Strippers: High-strength tool steel for superior strength and flatness.
- Dies: Wear-resistant tool steel with uniform corner clearance radii for improved die strength and enhanced piece part quality.

Maxima™ Coating:

Maxima Coating – Zirconium Titanium Nitride ZrTiN coating is available for extreme applications to eliminate galling.

Slug Free® Dies:

Mate Slug Free® die geometry is available to eliminate slug pulling in extreme applications. Clearing the slug during each cycle improves piece part quality and extends tool life.



See Pages 7 – 11



Mate QuickLock™ Tooling System for Trumpf Style Presses

The Mate QuickLock™ tooling system for Trumpf style presses combines the economy of conventional Trumpf style tooling with the convenience of alignment via a keyed alignment ring. The keyed alignment ring engages the alignment key in the punch for quick tool alignment without an alignment fixture. This results in quicker tool set-ups and increased machine productivity.



Convenience

Features include:

- High Speed Steel punches, with 1/4 degree back taper and near polished flanks for extended interval between regrinds.
- Punches include an alignment key for use with the Mate QuickLock alignment ring.
- Alignment ring with a keyway that engages the key on both Mate QuickLock size 1 and size 2 punches for quick and accurate tool alignment.
- Urethane strippers, in an extended size range, for quieter operation and improved piece part quality. Available as push-on or screw-on, depending on punch point size.
- Highly wear-resistant punches and dies for maximum productivity.

See Pages 26 – 31

Mate NEXT™ Insert Tooling System for Trumpf Style Presses

The Mate NEXT™ Insert Tooling System for Trumpf style presses, is a high performance tooling system designed to maximize tool life, minimize tool set-up times, improve accuracy, reduce punching costs, and maximize productivity.



High Performance

- Two sizes of insert punch holders with precision orientation features for quick tool change without alignment fixtures.
 - Size 40: 0.031(0.80) to 1.575(40.00)
 - Size 76: 1.575(40.00) to 3.000(76.20)
- Interchangeable, highly abrasion-resistant, punch inserts for exceptional interval between regrinds. Size 40 punch inserts use exclusive M4PM™ tool steel for longest tool life.
- Precision ground shims which return the punch insert to the original length after 0.118(3.00) has been removed during grinding.
- Push-on urethane stripper for Size 40 punch holders provide positive on-the-die stripping without marking. Ideal for decorative material.

See Pages 20 – 25

Dimensions in inches (millimeters)

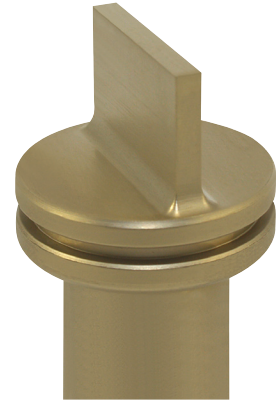


MAXIMA™ COATING / MATE SLUG FREE® DIES

Maxima™ Coating

Maxima is a premium tool steel coating that has been specially formulated for punch press tooling applications. Maxima is a multilayer Zirconium Titanium Nitride (ZrTiN) 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 applied to the precision ground surface of Mate's premium tool steel punches. 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 abrasive tooling applications. Less friction means less heat build up, less galling, and longer tool life.

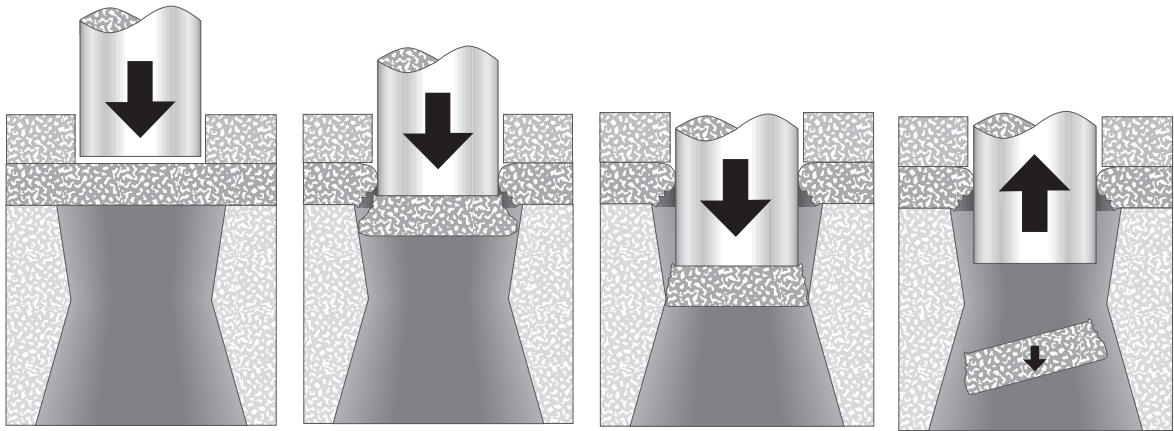


Mate Slug Free® Dies

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.

For more information visit mate.com/slugfree



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® Dies:

- Eliminate slug pulling
- Reduce tool breakage
- Improve tool life
- Increase quality

TRUMPF STYLE TOOLING

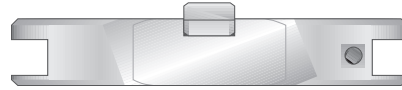
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Trumpf Style Tooling

The sum of all of the features and benefits of each Mate product guarantee superior performance in every punching application. Here are just some of the features that make this a true statement.

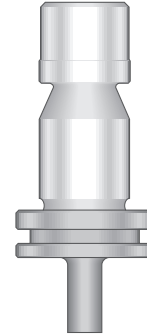
Alignment Rings

- Precision machined and ground for accurate tool alignment.
- High impact-resistant steel to maintain superior flatness and durability.



Punches

- Premium high speed tool steel for longer tool life.
- 1/4° back taper and near polished flanks to reduce friction and eliminate galling.
- Minute corner radii on punch point to reduce chipping.
- Single point turned radii at base of punch point to reduce stress.
- Solid surface contact with alignment ring for superior alignment.
- Superior tolerances and surface finishes.
- 0.118 (3.00) grind life in 0.250 (6.35) material.



Urethane Strippers

- Quiet.
- Cushions impact.
- Eliminates sheet rattle.
- Safe: will not shatter.
- Non-Marring even on polished aluminum.
- Improved flatter sheets, no puckering.
- Positive stripping keeps sheets from moving.



Strippers

- Keyed to allow 45° angle settings.
- High strength tool steel, will not deform or break.

Dies

- High chrome air hardened tool steel.
- 0.059 (1.50) grind life.
- Double-cut die opening to improve die strength.
- Uniform clearance radii in die corners.
- Precision slot orientation—die opening orientation and slot cut in single operation to improve accuracy.
- Improved die strength: Domed relief in size 1 and Stress Free® relief in size 2.
- Superior roundness and flatness.



Die Adapters

- Permits Size 1 dies to be used in machines with Size 2 die bases.
- Precision machined in shock resistant tool steel for greater accuracy, superior machine fit, and longer life.

SECTION 1

Dimensions in inches (millimeters)





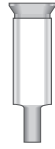
TRUMPF STYLE TOOLING

ROUND SIZE 0, 1, 2, 3

Size 0-A



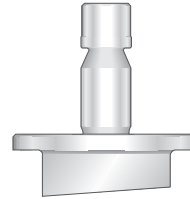
Size 0-B



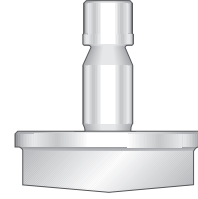
Size 1



Size 2



Size 3



M4PM™ Premium High Speed Steel, See Page 35

ROUND PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Rooftop Shear	Maxima™ Coating
Size 0-A	0.030(0.76) to 0.236(5.99)	PADA0A	•			•
Size 0-B	0.237(6.02) to 0.413(10.49)	PADB0A	•			•
Size 1-A	0.030(0.76) to 0.591(15.01)	PADC0A	•			•
Size 1-B	0.592(15.04) to 1.181(30.00)	PADD0A	•			•
Size 2-A	1.182(30.02) to 1.575(40.01)	PADE0A		•		•
Size 2-B	1.575(40.03) to 2.000(50.80)	PADFOA		•		•
Size 2-C	2.001(50.83) to 2.362(60.00)	PADG0A		•		•
Size 2-D	2.363(60.00) to 3.0063(76.36)	PADH0A		•		•
Size 3	3.006(76.36) to 4.134(105.00)	PADJ0A			•	•

ROUND MACHINE STRIPPERS

Size	Keyed	Non-Keyed	Rotational
Size 0	SKD00A	SND00A	SRD00A
Size 1	SKD10A	SND10A	SRD10A
Size 2	SKD20A	SND20A	SRD20A
Size 3	SKD30A	SND30A	N/A

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 0-A	0.250 (6.35)	TPOA00US
Size 0-B	0.430 (10.92)	TPOB00US
Size 1	0.590 (14.98)	TP0106US
Size 1	0.890 (22.60)	TP0109US
Size 1	1.065 (27.05)	TP0112US



Keyed



Non-Keyed



Rotational



ROUND DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD100
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD200
Size 3	4.134(105.00) +0.079(2.00) Opening	DOD300



Size 1



Size 2



Size 3



See Page 53 for critical tool dimensions

See Pages 12 – 13 for

- Punch Chucks
- Alignment Rings
- Die Adapters

TRUMPF STYLE TOOLING RECTANGLE SIZE 0, 1, 2, 3

Size 0-A



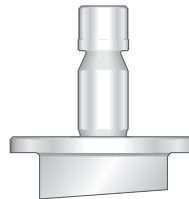
Size 0-B



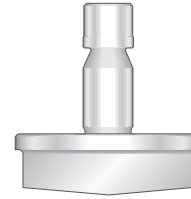
Size 1



Size 2



Size 3



M4PM™ Premium High Speed Steel, See Page 35

RECTANGLE PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Rooftop Shear	Maxima™ Coating
Size 0-A	0.030(0.76) to 0.236(5.99)	PADA1A	•			•
Size 0-B	0.237(6.02) to 0.413(10.49)	PADB1A	•			•
Size 1-A	0.030(0.76) to 0.591(15.01)	PADC1A	•			•
Size 1-B	0.592(15.04) to 1.181(30.00)	PADD1A	•			•
Size 2-A	1.182(30.02) to 1.575(40.01)	PADE1A		•		•
Size 2-B	1.576(40.03) to 2.000(50.80)	PADF1A		•		•
Size 2-C	2.001(50.83) to 2.362(60.00)	PADG1A		•		•
Size 2-D	2.363(60.00) to 3.0063(76.36)	PADH1A		•		•
Size 3	3.006(76.36) to 4.134(105.00)	PADJ1A			•	•

RECTANGLE MACHINE STRIPPERS

Size	Keyed	Non-Keyed	Rotational
Size 0	SKD01A	SND01A	SRD01A
Size 1	SKD11A	SND11A	SRD11A
Size 2	SKD21A	SND21A	SRD21A
Size 3	SKD31A	SND31A	N/A

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 0-A	0.250 (6.35)	TPOA00US
Size 0-B	0.430 (10.92)	TPOB00US
Size 1	0.590 (14.98)	TP0106US
Size 1	0.890 (22.60)	TP0109US
Size 1	1.065 (27.05)	TP0112US



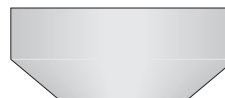
Keyed



Non-Keyed



Rotational



ROUND DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD110
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD210
Size 3	4.134(105.00) +0.079(2.00) Opening	DOD310



Size 1



Size 2



Size 3

Visit mate.com/trumpfstandard



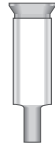
Dimensions in inches (millimeters)

TRUMPF STYLE TOOLING STANDARD SHAPE* SIZE 0, 1, 2, 3

Size 0-A



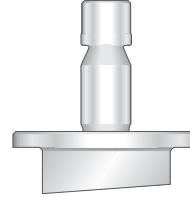
Size 0-B



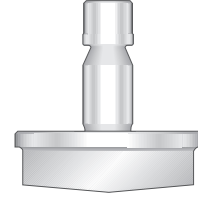
Size 1



Size 2



Size 3



M4PM™ Premium High Speed Steel, See Page 35

SHAPED PUNCHES

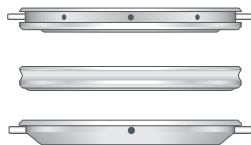
Size	Range	Part Number	Without Shear	Whisper Shear	Rooftop Shear	Maxima™ Coating
Size 0-A	0.030(0.76) to 0.236(5.99)	PADA_A	•			•
Size 0-B	0.237(6.02) to 0.413(10.49)	PADB_A	•			•
Size 1-A	0.030(0.76) to 0.591(15.01)	PADC_A	•			•
Size 1-B	0.592(15.04) to 1.181(30.00)	PADD_A	•			•
Size 2-A	1.182(30.02) to 1.575(40.01)	PADE_A		•		•
Size 2-B	1.576(40.03) to 2.000(50.80)	PADF_A		•		•
Size 2-C	2.001(50.83) to 2.362(60.00)	PADG_A		•		•
Size 2-D	2.363(60.01) to 3.0063(76.36)	PADH_A		•		•
Size 3	3.006(76.36) to 4.134(105.00)	PADJ_A			•	•

SHAPED MACHINE STRIPPERS

Size	Keyed	Non-Keyed	Rotational
Size 0	SKD0_A	SND0_A	SRD0_A
Size 1	SKD1_A	SND1_A	SRD1_A
Size 2	SKD2_A	SND2_A	SRD2_A
Size 3	SKD3_A	SND3_A	N/A

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 0-A	0.250 (6.35)	TPOA00US
Size 0-B	0.430 (10.92)	TPOB00US
Size 1	0.590 (14.98)	TP0106US
Size 1	0.890 (22.60)	TP0109US
Size 1	1.065 (27.05)	TP0112US



Keyed

Non-Keyed

Rotational



SHAPED DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD1_0
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD2_0
Size 3	4.134(105.00) +0.079(2.00) Opening	DOD3_0



Size 1

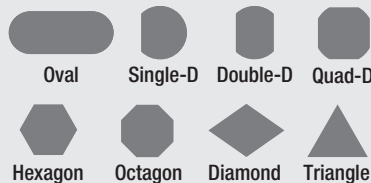


Size 2



Size 3

*STANDARD SHAPES



TRUMPF STYLE TOOLING

SQUARE SIZE 0, 1, 2, 3

11

Trumpf Style Tooling

Size 0-A



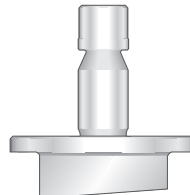
Size 0-B



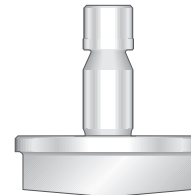
Size 1



Size 2



Size 3



M4PM™ Premium High Speed Steel, See Page 35

SQUARE PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Rooftop Shear	Maxima™ Coating
Size 0-A	0.030(0.76) to 0.236(5.99)	PADA3A	•			•
Size 0-B	0.237(6.02) to 0.413(10.49)	PADB3A	•			•
Size 1-A	0.030(0.76) to 0.591(15.01)	PADC3A	•			•
Size 1-B	0.592(15.04) to 1.181(30.00)	PADD3A	•			•
Size 2-A	1.182(30.02) to 1.575(40.01)	PADE3A		•		•
Size 2-B	1.576(40.03) to 2.000(50.80)	PADF3A		•		•
Size 2-C	2.001(50.83) to 2.362(60.00)	PADG3A		•		•
Size 2-D	2.363(60.00) to 3.0063(76.36)	PADH3A		•		•
Size 3	3.006(76.36) to 4.134(105.00)	PADJ3A			•	•

SQUARE MACHINE STRIPPERS

Size	Keyed	Non-Keyed	Rotational
Size 0	SKD03A	SND03A	SRD03A
Size 1	SKD13A	SND13A	SRD13A
Size 2	SKD23A	SND23A	SRD23A
Size 3	SKD33A	SND33A	N/A

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 0-A	0.250 (6.35)	TPOA00US
Size 0-B	0.430 (10.92)	TPOB00US
Size 1	0.590 (14.98)	TP0106US
Size 1	0.890 (22.60)	TP0109US
Size 1	1.065 (27.05)	TP0112US



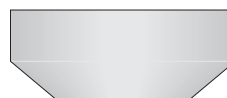
Keyed



Non-Keyed



Rotational



SQUARE DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD130
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD230
Size 3	4.134(105.00) +0.079(2.00) Opening	DOD330



Size 1



Size 2



Size 3

See Page 53 for critical tool dimensions








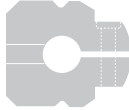



See Pages 12 – 13 for

- Punch Chucks
- Alignment Rings
- Die Adapters



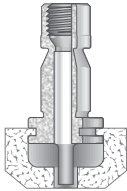
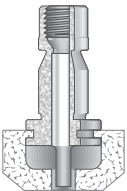
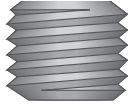



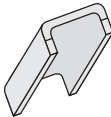
Dimensions in inches (millimeters)

ALIGNMENT RINGS

<p>Size 1 Automatic Tool Change VANTE (RECESSED)</p> 	<p>Sizes 2 and 3 Automatic Tool Change VAPTE</p> 	<p>Replacement Dowel 8 x 16mm DPI17304* For all Sizes</p> 
<p>Size 1 Manual Tool Change VANTD (RECESSED)</p> 	<p>Sizes 2 and 3 Manual Tool Change VAPTD</p> 	<p>Alignment Key For all Sizes VKETE000</p> 
<p>Size 1 Minimatic VAN TM (RECESSED)</p> 	<p>Size 1-X Minimatic VAP TM</p> 	<p>Alignment Key For Minimatic VKETM000</p> 
<p>Size 1 and 2 Heavy Duty VANTF</p> 		<p>Alignment Key For Heavy Duty VKETF000</p> 



ACCESSORIES

<p>Size 0-A Punch Chuck VINTS010</p> 	<p>Sizes 0-B Punch Chuck VINTS020</p> 	<p>Punch Chuck Set Screw VINSSS</p> 
<p>Size 2 Die Adapter Accepts Size 1 Dies MAT20000</p> 	<p>Size 3 Die Adapter Accepts Size 2 Dies MAT30000</p> 	<p>Size 3 Die Adapter Accepts Size 1 Dies MAT40000</p> 
<p>Size 1 Die Shim Pack 2x 0.004(0.1) Thickness 1x 0.012(0.30) Thickness 1x 0.024(0.60) Thickness MST1020</p> 	<p>Size 2 Die Shim Pack 2x 0.004(0.1) Thickness 1x 0.012(0.30) Thickness 1x 0.024(0.60) Thickness MST2020</p> 	<p>Size 1 Die Shims 0.004(0.1) Thickness MST1004 (6 minimum) 0.012(0.30) Thickness MST1012 (6 minimum) 0.020(0.50) Thickness MST1020 (6 minimum)</p> <p>Size 2 Die Shims 0.004(0.1) Thickness MST2004 (6 minimum) 0.012(0.30) Thickness MST2012 (6 minimum) 0.020(0.50) Thickness MST2020 (6 minimum)</p>
<p>Size 3 Keyed Stripper Adapter SKT3H00000</p> 	<p>Size 3 Non-Keyed Stripper Adapter SNT3H00000</p> 	<p>Die Slot Plug MKPT000</p> 

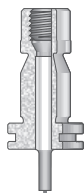
Dimensions in inches (millimeters)



MINIMATIC TOOLING SYSTEM

MINIMATIC HSS PUNCHES - PUNCH CHUCKS

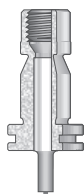
SIZE 0-A PART NUMBER



Punch Chuck Setscrew **VINSSS**
Size 0-A Punch Chuck **VINTS010**

Size range: **PADA0A**
0.030(0.77) to **PADA1A**
0.236(6.00) **PADA2A**
Maximum Diagonal **PADA3A**

SIZE 0-B



Punch Chuck Setscrew **VINSSS**
Size 0-B Punch Chuck **VINTS020**

Size range: **PADB0A**
0.030(0.77) to **PADB1A**
0.413(10.50) **PADB2A**
Maximum Diagonal **PADB3A**

SIZE 1-A



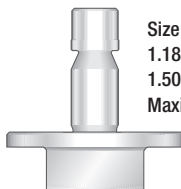
Size range: **PADC0A**
0.030(0.77) to **PADC1A**
0.590(15.00) **PADC2A**
Maximum Diagonal **PADC3A**

SIZE 1-B



Size range: **PADD0A**
0.591(15.01) to **PADD1A**
1.181(30.00) **PADD2A**
Maximum Diagonal **PADD3A**

SIZE 1-X



Size range: **PADX0A**
1.182(30.01) to **PADX1A**
1.500(38.10) **PADX2A**
Maximum Diagonal **PADX3A**

TRUMPF MACHINES THAT USE MINIMATIC STYLE TOOLS



AUTOMATIC TOOL CHANGE

TRUMATIC
100
100M
120
160



KEYED

TRUMATIC
100
100M
120
160

MINIMATIC STRIPPERS

SIZE 1 PART NUMBER

1.181 + .060(30.00 + 1.52) maximum



SKDX0A
 SKDX1A
 SKDX2A
 SKDX3A

SIZE 1-X

1.500 + .060(38.10 + 1.52) maximum



SKDX0A
 SKDX1A
 SKDX2A
 SKDX3A

MINIMATIC DIES

SIZE 1 PART NUMBER

1.181 + .079(30.00 + 2.00)
Maximum Actual Die Opening



DOD100
 DOD110
 DOD120
 DOD130

SIZE 1-X

1.500 + 0.028 (38.10 + 0.71)
Maximum Actual Die Opening



DODX00
 DODX10
 DODX20
 DODX30

MINIMATIC ALIGNMENT RINGS

SIZE 1 PART NUMBER

(0-3) d, .030 - 1.181
(0.77 - 30.00)



VANTM

SIZE 1-X

(0-3) d, 1.182 - 1.500
(30.01 - 38.10)



VAPTM



HEAVY DUTY TOOLING

15

Heavy Duty Tooling

HEAVY DUTY HSS PUNCHES

HEAVY DUTY DIES

SIZE 1 PART NUMBER



(0-3) .250 - 1.181*
(6.35 - 30.00)
(3) .842(21.39)

- PHDD0A
- PHDD1A
- PHDD2A
- PHDD3A

*Punch width/diameter less than .250(6.35) NOT available in heavy duty style tooling

SIZE 1 PART NUMBER

.984 + .059(24.99 + 1.49)
Maximum Actual Die Opening

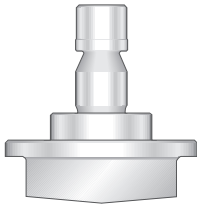


- D4D100
- D4D110
- D4D120
- D4D130

"Without Shear" and "Rooftop" are valid shear options for Size 1 punches less than or equal to 1.81(30.00).

"Without Shear" and "Whisper" are valid shear options for Size 1 punch inserts greater than 1.81(30.00).

SIZE 2 PART NUMBER



(0) 1.182 - 1.625
(30.01 - 41.27)
(1) 1.182 - 2.125
(30.01 - 53.97)
(2) 1.182 - 2.000
(30.01 - 50.80)
(3) 1.182 - 1.768
(30.01 - 44.90)
(3) 1.256(31.91)

- PHDE0A
- PHDE1A
- PHDE2A
- PHDE3A

*Punch width/diameter less than .250(6.35) NOT available in heavy duty style tooling

SIZE 2 PART NUMBER

2.047 + .079(52.00 + 2.00)
Maximum Actual Die Opening



- D4D200
- D4D210
- D4D220
- D4D230

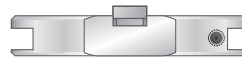
"Without Shear" and "Whisper" are valid shear options for Size 2 punch inserts.

MACHINE STRIPPERS

HEAVY DUTY ALIGNMENT RING

	KEYED	NON-KEYED	ROTATIONAL
SIZE 1	SKD1_A	SND1_A	SRD1_A
SIZE 2	SKD2_A	SND2_A	SRD2_A

SIZE 1 AND 2 PART NUMBER



VANTF

TRUMPF MACHINE GROUPS BY ALIGNMENT RING STYLE

TRUMATIC	180W	235	300W
150K	180WD	240	400K
150W	185	260	400W
180K	200R	300K	500R
180LK	202K	300LW	600L
180LW	202W	300PK	2000R
180PK	225	300PW	5000

AUTOMATIC TOOL CHANGE



KEY FOR HEAVY DUTY ALIGNMENT RING - ALL SIZES



(Not interchangeable with OEM)

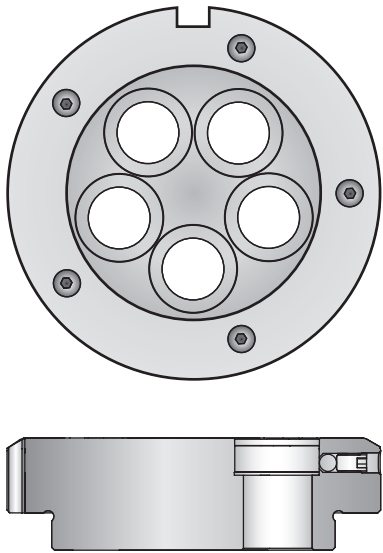
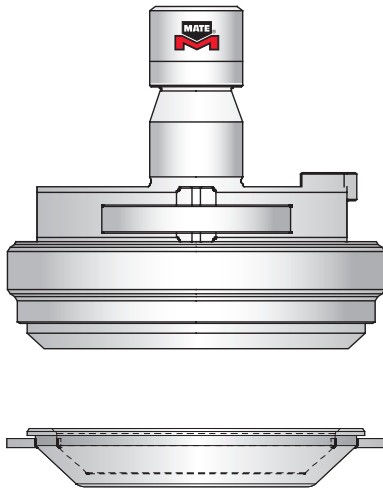
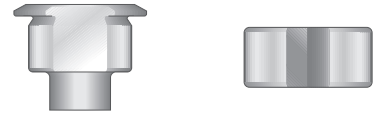
VKETF000

Dimensions in inches (millimeters)



5-STATION MULTI TOOL SYSTEM

Punch Holder	MATE00559
Stripper	MATE00560
Die Holder	MATE00561



ROUND

Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PADV0A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	DADV00

RECTANGLE

Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PADV1A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	DADV10

SHAPED*

Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PADV_A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	DADV_0

SQUARE

Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PADV3A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	DADV30

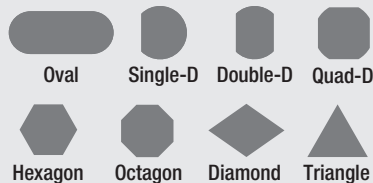
Punches

- Premium particle metallurgy tool steel for exceptional interval between regrinds and maximum machine up time.
- 1/4 degree back taper and near polished punch flanks to reduce friction and extend tool life.
- Maxima™ coating available for extreme applications.

Dies

- High Speed Steel for extended life between regrinds.
- Uniform corner clearance radii for increased die strength and improved piece part quality.

*STANDARD SHAPES

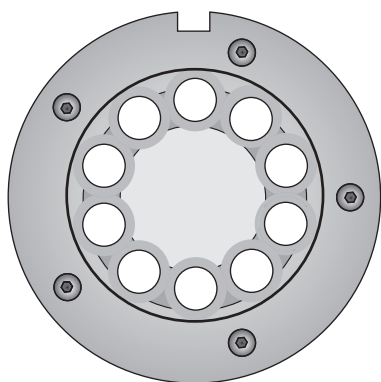
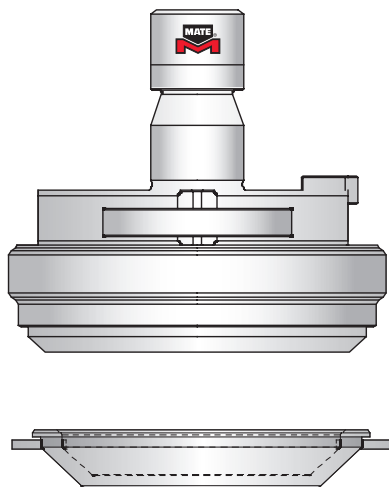
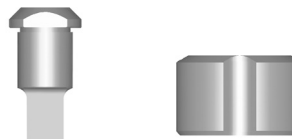


Note: 5 and 10 Station Multi Tools are not compatible with 260A machines.



10-STATION MULTI TOOL SYSTEM

Punch Holder MATE00555
 Stripper MATE00556
 Die Holder MATE00550



ROUND

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PADTOA •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	DADT00

RECTANGLE

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PADT1A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	DADT10

SHAPED*

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PADT_A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	DADT_0

SQUARE

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PADT3A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	DADT30

Punches

- M4PM™ particle metallurgy High Speed Steel with excellent edge-wear resistance for exceptional interval between regrinds. See page 35 for details.
- 1/4 degree back taper and near polished punch flanks to reduce friction and extend tool life.
- Maxima™ coating available for extreme applications.

Dies

- High Speed Steel for maximum life between regrinds.
- Uniform corner clearance radii for increased die strength and improved piece part quality.

10-Station Multi Tool

SECTION 2

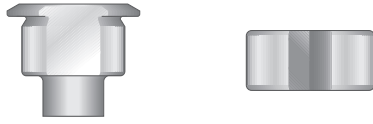
Note: 5 and 10 Station Multi Tools are not compatible with 260A machines.



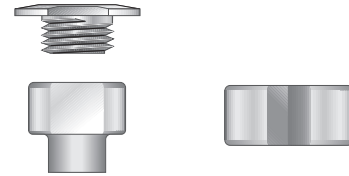
Dimensions in inches (millimeters)




4-STATION MULTI TOOL TOOLING

1-PIECE PUNCH STYLE

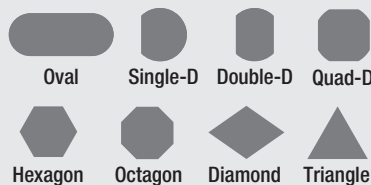


2-PIECE PUNCH STYLE

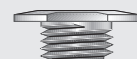


ROUND			ROUND		
Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD50A •	Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD40A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	D0D400	Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	D0D400
RECTANGLE			RECTANGLE		
Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD51A •	Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD41A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	D0D410	Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	D0D410
SHAPED*			SHAPED*		
Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD5_A •	Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD4_A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	D0D4_0	Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	
SQUARE			SQUARE		
Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD53A •	Punch	0.030(0.76) to 0.630(16.00) Maxima™ Coating	PAD43A •
Die	0.630(16.00) +0.024(0.60) Maximum Die Opening		Die	0.630(16.00) +0.024(0.60) Maximum Die Opening	D0D430
SHIM PACKAGE			SHIM PACKAGE		
Die	Shim Assortment 8x 0.004(0.10) 8x 0.012(0.03) 8x 0.024(0.60)	MTST4 	Punch	Shim Assortment 6x 0.004(0.10) 6x 0.012(0.03) 6x 0.024(0.60) 6x 0.040(1.00)	VTST 
			Die	Shim Assortment 8x 0.004(0.10) 8x 0.012(0.03) 8x 0.024(0.60)	MTST4 

***STANDARD SHAPES**

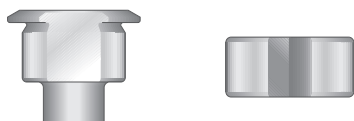


Punch Cap
PAT4CAP

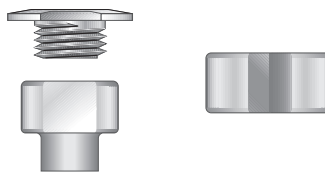


6-STATION MULTI TOOL TOOLING

1-PIECE PUNCH STYLE



2-PIECE PUNCH STYLE



ROUND

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD70A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D600

ROUND

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD60A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D600

RECTANGLE

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD71A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D610

RECTANGLE

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD61A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D610

SHAPED*

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD7_A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D6_0

SHAPED*

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD6_A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D6_0

SQUARE

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD73A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D630



SQUARE

Punch	0.030(0.76) to 0.413(10.49) Maxima™ Coating	PAD63A •
Die	0.413(10.50) +0.024(0.60) Maximum Die Opening	D0D630

SHIM PACKAGE

Die	Shim Assortment 8x 0.004(0.10) 8x 0.012(0.03) 8x 0.024(0.60)	MTST6 
-----	---	--

SHIM PACKAGE

Punch	Shim Assortment 6x 0.004(0.10) 6x 0.012(0.03) 6x 0.024(0.60) 6x 0.040(1.00)	VTST 
Die	Shim Assortment 8x 0.004(0.10) 8x 0.012(0.03) 8x 0.024(0.60)	MTST6 

Punch Cap
PAT6CAP



Dimensions in inches (millimeters)

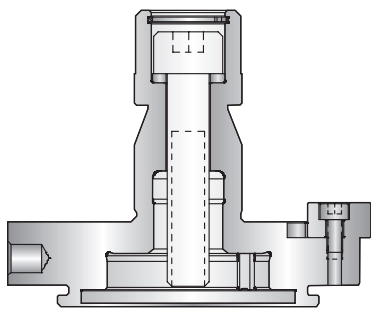
MATE NEXT™ INSERT TOOLING SYSTEM

The new NEXT™ Insert Tooling System for Trumpf style presses, is designed to dramatically increase tool life and reduce punching costs.

The NEXT™ Insert Tooling System includes:

- Interchangeable, abrasion-resistant, punch inserts
- Two sizes of insert punch holders with precision orientation features
- Precision ground punch shim returns the NEXT™ punch assembly to the original length after 0.118(3.00) has been removed during routine grinding.

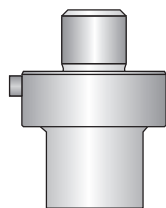
SIZE 40



Insert Punch Holder
Available in two sizes.
Size 40 0.030-1.575(0.76-40.01)
Size 76 1.576-3.0063(40.03-76.36)



Precision Ground Shim



NEXT™ Punch Inserts
M4PM™ from 0.031(0.80) to 1.181(30.00)
M2 HSS from 1.182(30.01) to 3.000(76.20)



Push-on Urethane Stripper



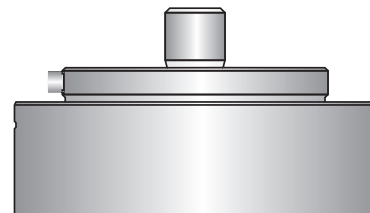
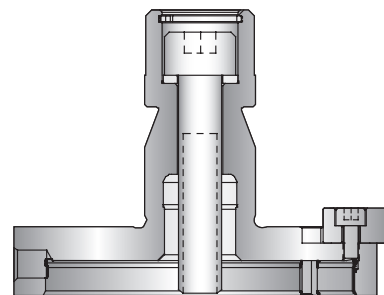
The NEXT™ Insert Tooling System is fully compatible with existing strippers and dies.



High strength steel strippers for reliable operation.

Highly wear resistant steel dies for exceptional tool life.

SIZE 76



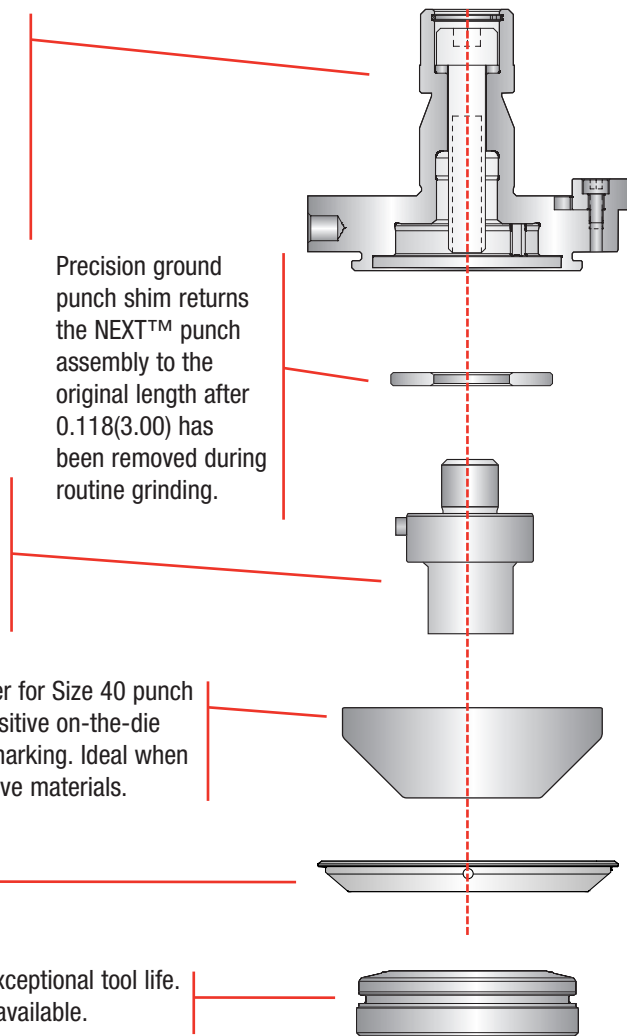
Visit mate.com/NEXT

MATE NEXT™ INSERT TOOLING SYSTEM

The NEXT™ Insert Tooling System holders, with integral precision alignment features and captive draw bolt, accept interchangeable punch inserts for faster and more accurate machine set-ups. Includes two angle settings for maximum versatility.*

Size 40 0.030(0.76) to 1.575(40.01)
Size 76 1.576(40.03) to 3.0063(76.36)

M4PM™ from 0.031(0.80) to 1.181(30.00)
M2 HSS from 1.182(30.01) to 3.000(76.20)
 High speed steel (HSS) NEXT™ punch inserts provide superior abrasion resistance to extend the interval between regrinds.



Precision ground punch shim returns the NEXT™ punch assembly to the original length after 0.118(3.00) has been removed during routine grinding.

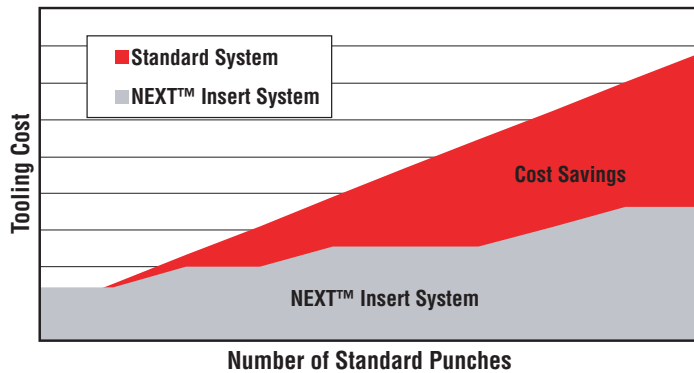
Push-on urethane stripper for Size 40 punch insert holders provide positive on-the-die stripping without sheet marking. Ideal when punching soft or decorative materials.

High strength steel stripper for reliable operation.

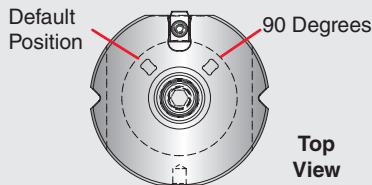
High wear resistant steel die for exceptional tool life. Optional Slug Free® die geometry available.

Mate NEXT™ Insert System Delivers Value!

The High Speed Steel punch inserts deliver exceptional edge wear resistance. The M4PM™ HSS Insert in sizes up to 0.031-1.181(0.80-30.00) delivers the longest possible interval between regrinds. In addition, by installing the shim after 0.118(3.00) has been removed from the punch during regrinding, the punch assembly is returned to its original length instead of being replaced. The result is that a single punch insert would last the same as multiple standard punches. The chart at right demonstrates the real value delivered by the NEXT™ Insert Tooling System from Mate.



SECTION 3



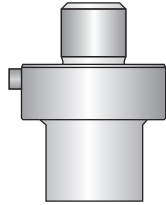
Dimensions in inches (millimeters)

Torque Settings (Pre-set torque wrench recommended)
 6mm NEXT™ Holder Draw Bolt – 288 in-lbs (22 N-m)

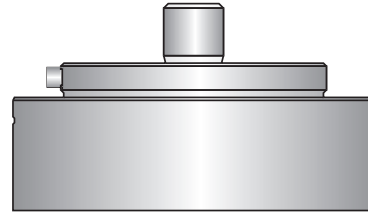


MATE NEXT™ TOOLING SYSTEM ROUND SIZE 40 AND SIZE 76

SIZE 40



SIZE 76



ROUND PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 40*	0.030 (0.76) to 1.181 (30.00)	PBTDOA	•		•
Size 40	1.182 (30.02) to 1.575 (40.01)	PBTEOA		•	•
Size 76	1.576 (40.03) to 2.205 (56.01)	PBTFOA		•	•
Size 76	2.206 (56.03) to 2.599 (66.01)	PBTGOA		•	•
Size 76	2.600 (66.04) to 3.0063 (76.36)	PBTHOA		•	•

ROUND MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKD10A	SRD10A
Size 2	SKD20A	SRD20A



Keyed



Rotational

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 40	0.984 (25.00)	MATE00374
Size 40	1.181 (30.00)	MATE00375
Size 40	1.378 (35.00)	MATE00376
Size 40	1.575 (40.00)	MATE00377



ROUND DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD100
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD200



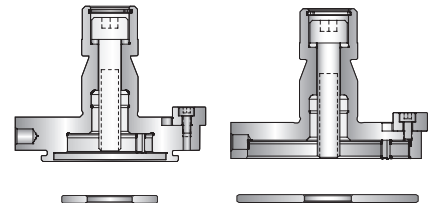
Size 1



Size 2

PUNCH HOLDER AND SHIM

Size 40	Punch Holder with Shim	MATE00371
Size 40	Shim	MATE00364
Size 76	Punch Holder with Shim	MATE00372
Size 76	Shim	MATE00365
	Draw Bolt	SHC12191
	Snap Ring	SRI00001

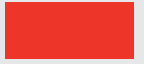


See Page 53 for critical tool dimensions

*M4PM™ Premium High Speed Steel, See Page 35

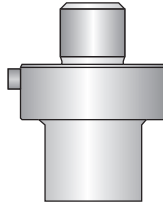
MATE NEXT™ TOOLING SYSTEM RECTANGLE SIZE 40 AND SIZE 76

23

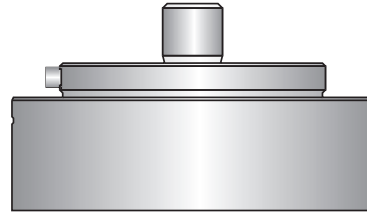


Mate NEXT™ Tooling

SIZE 40



SIZE 76



RECTANGLE PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 40*	0.030 (0.76) to 1.181 (30.00)	PBTD1A	•		•
Size 40	1.182 (30.02) to 1.575 (40.01)	PBTE1A		•	•
Size 76	1.576 (40.03) to 2.205 (56.01)	PBTF1A		•	•
Size 76	2.206 (56.03) to 2.599 (66.01)	PBTG1A		•	•
Size 76	2.600 (66.04) to 3.0063 (76.36)	PBTH1A		•	•

RECTANGLE MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKD11A	SRD11A
Size 2	SKD21A	SRD21A

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 40	0.984 (25.00)	MATE00374
Size 40	1.181 (30.00)	MATE00375
Size 40	1.378 (35.00)	MATE00376
Size 40	1.575 (40.00)	MATE00377



Keyed



Rotational



RECTANGLE DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	D0D110
Size 2	3.000(76.20) +0.079(2.00) Opening	D0D210



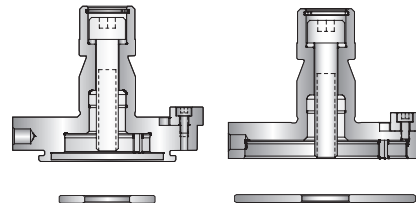
Size 1



Size 2

PUNCH HOLDER AND SHIM

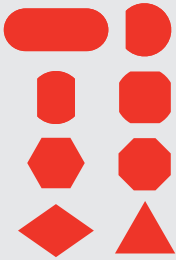
Size 40	Punch Holder with Shim	MATE00371
Size 40	Shim	MATE00364
Size 76	Punch Holder with Shim	MATE00372
Size 76	Shim	MATE00365
	Draw Bolt	SHC12191
	Snap Ring	SRI00001



*M4PM™ Premium High Speed Steel, See Page 35

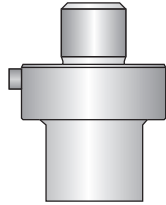
Dimensions in inches (millimeters)



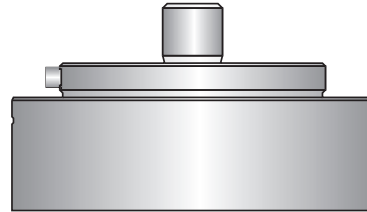


MATE NEXT™ TOOLING SYSTEM STANDARD SHAPE* SIZE 40 AND SIZE 76

SIZE 40



SIZE 76



SHAPED PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 40*	0.030 (0.76) to 1.181 (30.00)	PBTD_A	•		•
Size 40	1.182 (30.02) to 1.575 (40.01)	PBTE_A		•	•
Size 76	1.576 (40.03) to 2.205 (56.01)	PBTF_A		•	•
Size 76	2.206 (56.03) to 2.599 (66.01)	PBTG_A		•	•
Size 76	2.600 (66.04) to 3.0063 (76.36)	PBTH_A		•	•

SHAPED MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKD1_A	SRD1_A
Size 2	SKD2_A	SRD2_A



Keyed



Rotational

PUSH-ON URETHANE STRIPPERS

Size	Inside Diameter	Part Number
Size 40	0.984 (25.00)	MATE00374
Size 40	1.181 (30.00)	MATE00375
Size 40	1.378 (35.00)	MATE00376
Size 40	1.575 (40.00)	MATE00377



SHAPED DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD1_0
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD2_0



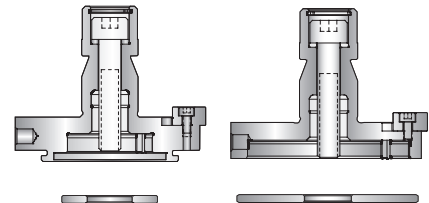
Size 1



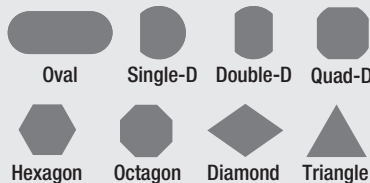
Size 2

PUNCH HOLDER AND SHIM

Size 40	Punch Holder with Shim	MATE00371
Size 40	Shim	MATE00364
Size 76	Punch Holder with Shim	MATE00372
Size 76	Shim	MATE00365
	Draw Bolt	SHC12191
	Snap Ring	SRI00001



*STANDARD SHAPES



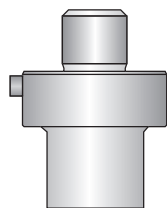
*M4PM™ Premium High Speed Steel, See Page 35



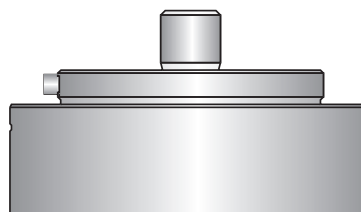
MATE NEXT™ TOOLING SYSTEM

SQUARE SIZE 40 AND SIZE 76

SIZE 40



SIZE 76



Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 40*	0.030 (0.76) to 1.181 (30.00)	PBTD3A	•		•
Size 40	1.182 (30.02) to 1.575 (40.01)	PBTE3A		•	•
Size 76	1.576 (40.03) to 2.205 (56.01)	PBTF3A		•	•
Size 76	2.206 (56.03) to 2.598 (66.01)	PBTG3A		•	•
Size 76	2.600 (66.04) to 3.0063 (76.36)	PBTH3A		•	•

Size	Keyed	Rotational
Size 1	SKD13A	SRD13A
Size 2	SKD23A	SRD23A

Size	Inside Diameter	Part Number
Size 40	0.984 (25.00)	MATE00374
Size 40	1.181 (30.00)	MATE00375
Size 40	1.378 (35.00)	MATE00376
Size 40	1.575 (40.00)	MATE00377



Keyed



Rotational



SQUARE DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	D0D130
Size 2	3.000(76.20) +0.079(2.00) Opening	D0D230



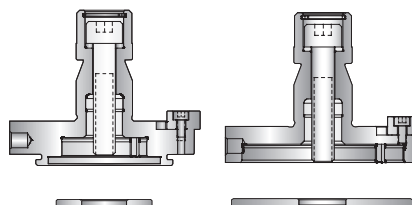
Size 1



Size 2

PUNCH HOLDER AND SHIM

Size 40	Punch Holder with Shim	MATE00371
Size 40	Shim	MATE00364
Size 76	Punch Holder with Shim	MATE00372
Size 76	Shim	MATE00365
	Draw Bolt	SHC12191
	Snap Ring	SRI00001



*M4PM™ Premium High Speed Steel, See Page 35

See Page 58 for extended length and shear options

Dimensions in inches (millimeters)

25

Mate NEXT™ Tooling

SECTION 3



MATE QUICKLOCK™ TOOLING SYSTEM

Introducing Mate QuickLock™ Tooling System

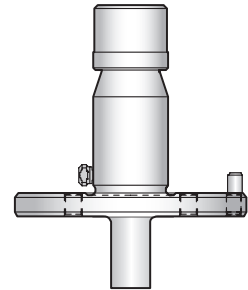
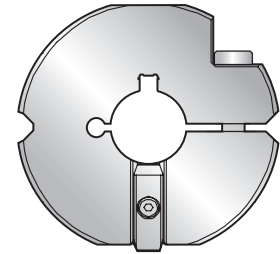
Mate QuickLock™ is a new tooling system for Trumpf style presses that combines the economy of conventional Trumpf style tooling with the convenience of alignment via a keyed alignment ring. The hardened and ground key (located in the shank or shoulder, depending on punch point size) engages the keyway in the alignment ring for fast and accurate alignment without a dedicated alignment fixture.

Mate QuickLock™ Tooling System Features:

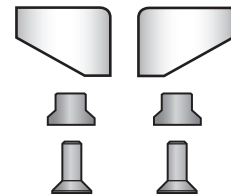
- High speed steel punches for extended interval between sharpening.
- Punches include an alignment key for use with the Mate QuickLock™ alignment ring.
- Alignment ring with a keyway that engages the key on both Mate QuickLock™ size 1 and size 2 punches for quick and accurate tool alignment of both.
- Urethane strippers, in an extended size range, for quieter operation and improved piece part quality.
- Highly wear-resistant punches and dies for maximum productivity.

Mate QuickLock™ Universal Alignment Ring

- Precision machined keyway to accept the hardened punch key for accurate alignment, relative to the die aperture, without the need for a fixture.
- Precision ground upper and lower surfaces for positive contact with the punch shoulder for reduced tool stress and maximum service life.
- Elimination of the possibility of punch rotation, with a solid contact between the punch key and the alignment ring keyway.
- Shock resistant tool steel to eliminate cracking, for longer service life.
- Compatible with conventional Trumpf style size 2 punches.
- Universal for both Mate QuickLock™ size 1 and size 2 punches.



Mate QuickLock™ Push-On Urethane Stripper



Mate QuickLock™ Screw-On Urethane Stripper. Supplied in pairs. Fixed to the punch shoulder with a retainer and flat head screw.



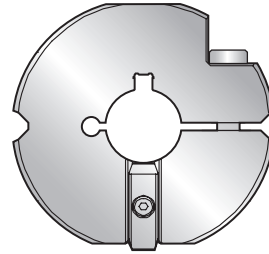
MATE QUICKLOCK™ TOOLING SYSTEM

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Mate QuickLock™ Tooling

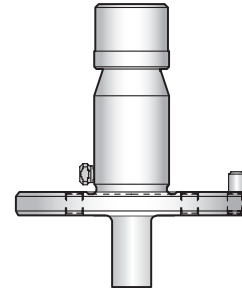
Mate QuickLock™ Punches

- High speed steel, for extended intervals between sharpening.
- Hardened and ground key for quick and accurate punch alignment.
 - For punches with a diagonal dimension up to 2.000(50.80) the alignment pin is located on the shank.
 - For punches with a diagonal dimension greater than 2.000(50.80) the alignment pin is located on the shoulder.
- 1/4-degree back taper and near polished punch flanks to reduce friction, eliminate galling, and extend punch grind life.
- Maxima™ coating or Nitride treatment available for extreme punching applications.
- Optional extended length punch available, with 3.057(77.60) overall length.

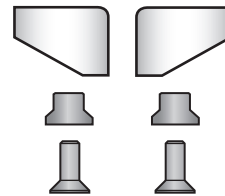


Mate QuickLock™ Urethane Strippers

- Positive, on-the-die stripping to eliminate sheet rattle and reduce punching noise.
- Two types available (dependent on punch point size).
 - **Push-On Urethane Stripper**
 - Locks securely onto punch and alignment ring for reliable operation.
 - Available for all extended length punches with a diagonal dimension up to 2.000(50.80).
 - **Screw-On Urethane Stripper**
 - Available in two sizes: for shaped punches with width up to 0.394(10.00) and length up to 2.362(60.00), or length up to 3.000(76.20).
 - Supplied in pairs, and fixed to the punch shoulder with a flat head screw.
 - Punch must have rooftop shear, and length over 2.000(5.08)



Mate QuickLock™ Push-On Urethane Stripper



Mate QuickLock™ Screw-On Urethane Stripper. Supplied in pairs. Fixed to the punch shoulder with a retainer and flat head screw.

Mate Dies

- Highly wear-resistant tool steel with optimized heat treatment for perfect balance of wear and toughness for maximum interval between regrinds. Up to 0.059(1.50) grind life.
- Double-cut die opening for improved accuracy.
- Uniform clearance radii in die corners for improved component edge quality.
- Improved die strength with domed relief to evenly distribute punching forces.
- Superior roundness and flatness for improved piece part quality.



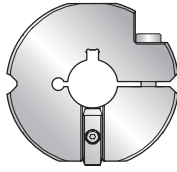
Visit mate.com/quicklock

Dimensions in inches (millimeters)

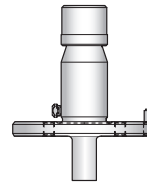




MATE QUICKLOCK™ TOOLING SYSTEM ROUND SIZE 1 AND SIZE 2



Mate QuickLock™ Universal Alignment Ring
The integral keyway allows for fast and accurate alignment of the Mate QuickLock™ punch for faster machine set-up without a dedicated alignment fixture. Also compatible with conventional size 2 punches.



Mate QuickLock™ Punch with Alignment Pin.
The hardened and ground key (located in the shank or shoulder, depending on punch point size) engages the keyway in the alignment ring for fast and accurate alignment without a dedicated alignment fixture.

QUICKLOCK™ UNIVERSAL ALIGNMENT RING

Size 1 and 2 Universal Alignment Ring MATE00480

ROUND QUICKLOCK™ PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 1	0.030 (0.76) to 1.181 (30.00)	PDTDOA	•		•
Size 2	1.182 (30.02) to 1.575 (40.01)	PDTEOA		•	•
Size 2	1.576 (40.03) to 2.000 (50.80)	PDTFOA		•	•
Size 2	2.001 (50.83) to 2.362 (60.00)	PDTGOA		•	•
Size 2	2.363 (60.00) to 3.0063 (76.36)	PDTHOA		•	•

ROUND MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKD10A	SRD10A
Size 2	SKD20A	SRD20A

QUICKLOCK™ PUSH-ON URETHANE STRIPPERS*

Inside Diameter	Part Number
0.590 (15.00)	MATE00532
0.787 (20.00)	MATE00533
1.181 (30.00)	MATE00534
1.378 (35.00)	MATE00548
1.574 (40.00)	MATE00535
2.047 (52.00)	MATE00536



Keyed



Rotational



ROUND DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD100
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD200



Size 1



Size 2

*Standard length QuickLock™ punches use standard push-on urethane strippers. Extended length QuickLock punches use QuickLock™ urethane strippers.

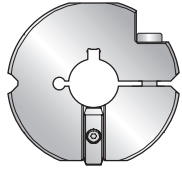


See Page 53 for critical tool dimensions

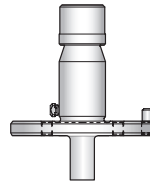
Dimensions in inches (millimeters)

MATE QUICKLOCK™ TOOLING SYSTEM

RECTANGLE SIZE 1 AND 2



Mate QuickLock™ Universal Alignment Ring
The integral keyway allows for fast and accurate alignment of the Mate QuickLock™ punch for faster machine set-up without a dedicated alignment fixture. Also compatible with conventional size 2 punches.



Mate QuickLock™ Punch with Alignment Pin.
The hardened and ground key (located in the shank or shoulder, depending on punch point size) engages the keyway in the alignment ring for fast and accurate alignment without a dedicated alignment fixture.

QUICKLOCK™ UNIVERSAL ALIGNMENT RING

Size 1 and 2 Universal Alignment Ring MATE00480

RECTANGLE PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 1	0.030 (0.76) to 1.181 (30.00)	PDTD1A	•		•
Size 2	1.182 (30.02) to 1.575 (40.01)	PDTE1A		•	•
Size 2	1.576 (40.03) to 2.000 (50.80)	PDTF1A		•	•
Size 2	2.001 (50.83) to 2.362 (60.00)	PDTG1A		•	•
Size 2	2.363 (60.00) to 3.0063 (76.36)	PDTH1A		•	•

RECTANGLE MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKT1_A	SRT1_A
Size 2	SKT2_A	SRT2_A

QUICKLOCK™ PUSH-ON URETHANE STRIPPERS*

Inside Diameter	Part Number
0.590 (15.00)	MATE00532
0.787 (20.00)	MATE00533
1.181 (30.00)	MATE00534
1.378 (35.00)	MATE00548
1.574 (40.00)	MATE00535
2.047 (52.00)	MATE00536



Keyed



Rotational



RECTANGLE DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD110
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD210

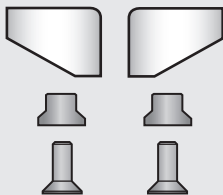


Size 1



Size 2

*Standard length QuickLock™ punches use standard push-on urethane strippers. Extended length QuickLock punches use QuickLock™ urethane strippers.



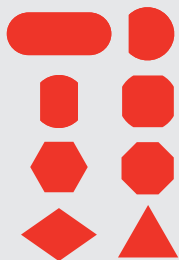
MATE QUICKLOCK™ Screw-On Urethane Stripper

For use with shaped Mate QuickLock™ Punches with optional rooftop shear and width up to 0.394(10.00). Two sizes available.

G-Station with punch length 2.001 (50.80) – 2.362 (60.00)	MATE00538
H-Station with punch length up to 3.000 (76.20)	MATE00539
Retainer – pair	MATE00578
Screw – pair	MATE00579

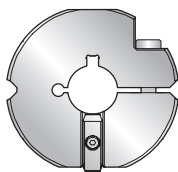


30

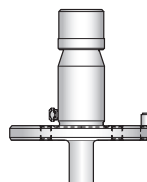


Mate QuickLock™ Tooling

MATE QUICKLOCK™ TOOLING SYSTEM STANDARD SHAPE* SIZE 1 AND SIZE 2



Mate QuickLock™ Universal Alignment Ring
The integral keyway allows for fast and accurate alignment of the Mate QuickLock™ punch for faster machine set-up without a dedicated alignment fixture. Also compatible with conventional size 2 punches.



Mate QuickLock™ Punch with Alignment Pin.
The hardened and ground key (located in the shank or shoulder, depending on punch point size) engages the keyway in the alignment ring for fast and accurate alignment without a dedicated alignment fixture.

QUICKLOCK™ UNIVERSAL ALIGNMENT RING

Size 1 and 2 Universal Alignment Ring MATE00480

SHAPED PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 1	0.030 (0.76) to 1.181 (30.00)	PDTD_A	•		•
Size 2	1.182 (30.02) to 1.575 (40.01)	PDTE_A		•	•
Size 2	1.576 (40.03) to 2.000 (50.80)	PDTF_A		•	•
Size 2	2.001 (50.83) to 2.362 (60.00)	PDTG_A		•	•
Size 2	2.363 (60.00) to 3.0063 (76.36)	PDTH_A		•	•

SHAPED MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKD1_A	SRD1_A
Size 2	SKD2_A	SRD2_A

QUICKLOCK™ PUSH-ON URETHANE STRIPPERS*

Inside Diameter	Part Number
0.590 (15.00)	MATE00532
0.787 (20.00)	MATE00533
1.181 (30.00)	MATE00534
1.378 (35.00)	MATE00548
1.574 (40.00)	MATE00535
2.047 (52.00)	MATE00536



Keyed



Rotational



SHAPED DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	D0D1_0
Size 2	3.000(76.20) +0.079(2.00) Opening	D0D2_0



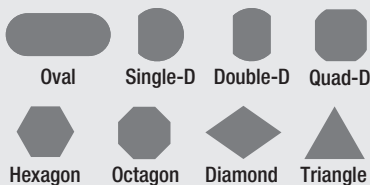
Size 1



Size 2

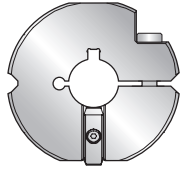
*Standard length QuickLock™ punches use standard push-on urethane strippers. Extended length QuickLock punches use QuickLock™ urethane strippers.

*STANDARD SHAPES

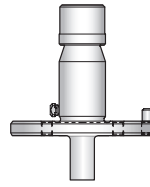


MATE QUICKLOCK™ TOOLING SYSTEM

SQUARE SIZE 1 AND SIZE 2



Mate QuickLock™ Universal Alignment Ring
The integral keyway allows for fast and accurate alignment of the Mate QuickLock™ punch for faster machine set-up without a dedicated alignment fixture. Also compatible with conventional size 2 punches.



Mate QuickLock™ Punch with Alignment Pin.
The hardened and ground key (located in the shank or shoulder, depending on punch point size) engages the keyway in the alignment ring for fast and accurate alignment without a dedicated alignment fixture.

QUICKLOCK™ UNIVERSAL ALIGNMENT RING

Size 1 and 2 Universal Alignment Ring MATE00480

SQUARE QUICKLOCK™ PUNCHES

Size	Range	Part Number	Without Shear	Whisper Shear	Maxima™ Coating
Size 1	0.030 (0.76) to 1.181 (30.00)	PDTD3A	•		•
Size 2	1.182 (30.02) to 1.575 (40.01)	PDTE3A		•	•
Size 2	1.576 (40.03) to 2.000 (50.80)	PDTF3A		•	•
Size 2	2.001 (50.83) to 2.362 (60.00)	PDTG3A		•	•
Size 2	2.363 (60.00) to 3.0063 (76.36)	PDTH3A		•	•

SQUARE MACHINE STRIPPERS

Size	Keyed	Rotational
Size 1	SKD13A	SRD13A
Size 2	SKD23A	SRD23A

QUICKLOCK™ PUSH-ON URETHANE STRIPPERS*

Inside Diameter	Part Number
0.590 (15.00)	MATE00532
0.787 (20.00)	MATE00533
1.181 (30.00)	MATE00534
1.378 (35.00)	MATE00548
1.574 (40.00)	MATE00535
2.047 (52.00)	MATE00536



Keyed



Rotational



SQUARE DIES

Size	Range	Part Number
Size 1	1.181(30.00) +0.079(2.00) Opening	DOD130
Size 2	3.000(76.20) +0.079(2.00) Opening	DOD230



Size 1



Size 2

*Standard length QuickLock™ punches use standard push-on urethane strippers. Extended length QuickLock punches use QuickLock™ urethane strippers.

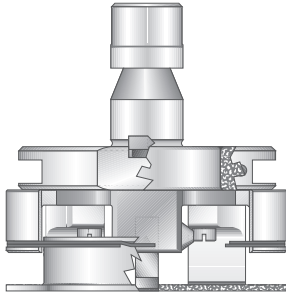
See Page 53 for critical tool dimensions



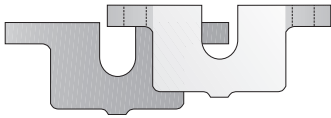
EUROSTYLE™ TOOLING SYSTEM

5.00 X 56.00mm Slitting Assembly

5.00 X 76.20mm Slitting Assembly



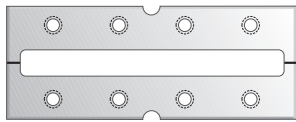
DESCRIPTION	PART NUMBER	PART NUMBER
PUNCH ASSEMBLY, RECTANGLE	XPD2170500M5600	XPD2170500M7620
PUNCH ASSEMBLY, OVAL	XPD2270500M5600	XPD2270500M7620
PUNCH ASSEMBLY WITH MAXIMA COATING, RECTANGLE	XPD21M0500M5600	XPD21M0500M7620
PUNCH ASSEMBLY WITH MAXIMA COATING, OVAL	XPD22M0500M5600	XPD22M0500M7620



DESCRIPTION	PART NUMBER	PART NUMBER
URETHANE SPRINGS	UTS1	UTS1
REPLACEMENT STRIPPERS (NOT SHOWN)		
OVAL 5.00 X 61.00	MATE00459	N/A
OVAL 5.00 X 76.20	N/A	MATE00460

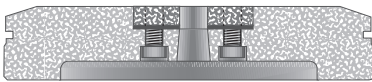


DESCRIPTION	PART NUMBER	PART NUMBER
REPLACEABLE PUNCH INSERT, RECTANGLE	PADS1A0500M5600	PADS1A0500M7620
REPLACEABLE PUNCH INSERT, OVAL	PADS2A0500M5600	PADS2A0500M7620
REPLACEABLE PUNCH INSERT WITH MAXIMA COATING, RECTANGLE	PADS1M0500M5600	PADS1M0500M7620
REPLACEABLE PUNCH INSERT WITH MAXIMA COATING, OVAL	PADS2M0500M5600	PADS2M0500M7620



DESCRIPTION	PART NUMBER	PART NUMBER
REPLACEABLE DIE INSERT, RECTANGLE	DODS1_0500M5600*	DODS1_0500M7620*
REPLACEABLE DIE INSERT, RECTANGLE WITH 1.50MM RADIUS CORNERS	DODS8_0500M5600*	DODS8_0500M7620*

*PLUS TOTAL CLEARANCE

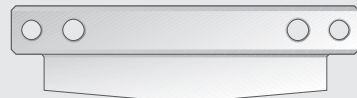


DESCRIPTION	PART NUMBER	PART NUMBER
REPLACEABLE DIE INSERT, RECTANGLE	XDD21_0500M5600*	XDD21_0500M7620*
REPLACEABLE DIE INSERT, RECTANGLE WITH 1.50MM RADIUS CORNERS	XDD28_0500M5600*	XDD28_0500M7620*

*PLUS TOTAL CLEARANCE

**NOT FOR TC500
AND NEWER MACHINES**

Punch insert can be removed from tool without disassembly to facilitate sharpening and punch replacement.



EUROSTYLE™ TOOLING SYSTEM

33

Mate Eurostyle™

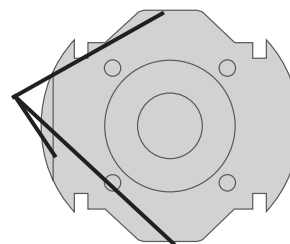
Precision and rigidity of the guided shearing assembly extend punch and die life *up to three times* more than non-guided assemblies...

A guided, spring-loaded stripper with on-the-die performance is built into the punching assembly. The stripper is guided by the inside surface of the retainer and by the sides of the punch insert. The punch point is guided by the stripper as it enters the material. This protects slitting punches against deflection at the point of impact so they last much longer. Spring pressure yields positive stripping action and clamps material against the die for clean, accurate punching, and flatter piece parts.

Three Alignment Flats...

- Three alignment flats on the punch holder allow immediate 0° or 90° alignment without disassembly.
- The guided stripper allows for on-die stripping which is essential for material control with minimal slippage. The greater accuracy eliminates secondary finishing, while the punching operation can be accomplished in fewer hits.

External alignment flats allow for simple 0 and 90 degree alignment ring setting without disassembly

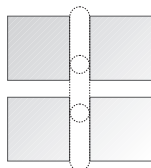


Slitting Options...



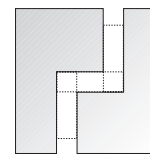
Standard with radius corners for smooth blending of successive cuts in slitting operations.

The oval punch is used for a smooth transition between punch hits. No "pips" or edge irregularities.



Shake-and-break (See D06 on Page 36) with square corners for precise gaps needed for holding corner tabs.

The rectangular punch is used for precision corner cutting.



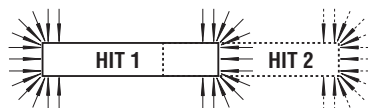
Smooth Slitting Tip...

To reduce edge irregularities left by square ended tools, it is common practice to order oval punches and rectangular dies with 0.060 (1.50) radius corners as sets.

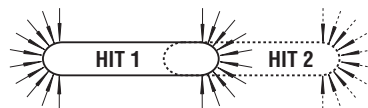
Slitting with a rectangular punch and die can result in small "pips" which are visually undesirable. This is the result of natural forces that take place when performing this operation.

The sharp corners of a rectangular punch and die force an abrupt change in the direction that the material flows prior to the fracture of the slug from the sheet. This abrupt change in the direction of flow can be decreased by placing a radius on the corners of the rectangle. As the radius increases in size, a more uniform flow of material is achieved.

When the size of the radius is increased to 1/2 the width of the rectangle, the shape becomes an oval. This oval shaped punch and die will result in an improved edge appearance when slitting.



Abrupt change in material flow occurs at the sharp corners of the rectangle



Material flows uniformly at the ends of the oval

SECTION 5

Dimensions in inches (millimeters)



LOGLIFE™ SLITTING TOOL SYSTEM FOR TRUMPF STYLE PRESSES



Mate's LongLife™ slitting tool system for Trumpf style punch presses is designed to deliver exceptional value combining premium tool steel punch and die inserts with robust punch and die holders. Fully OEM compatible, Mate LongLife provides you with the most cost-effective slitting tool solution.

PUNCH INSERT

- LongLife™ Premium M4PM™ high speed steel provides maximum interval between regrinds and improves piece part quality
- Available in four standard shapes: rectangle, oval, dovetail and trapezoid
- Metric and inch sizes: Size 56 0.787(19,98) to 2.205(56,00)
Size 76 2.206(56,01) to 3.000(76,20)
- Widths up to 0.250(6,35)
- Optional Maxima™ coating available
- Compatible with Trumpf style

PUNCH HOLDER

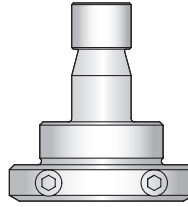
- LongLife™ tool system offers two styles of punch holders:
 - Integral alignment ring for fast, precise tool set up
 - Separate heavy duty alignment ring (additional) to allow manual angle setting flexibility
- Works with conventional machine strippers

DIE INSERT

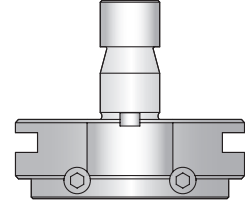
- Premium M4PM™ high speed steel for high wear resistance and exceptional die strength
- Metric and inch sizes:
 - Size 56 0.787(19,98) to 2.205(56,00) 1-piece or 2-piece insert
 - Size 76 0.787(19,98) to 3.000(76,20) 1-piece or 2-piece insert
- Widths up to 0.250(6,35)
- 11 standard discrete die clearances 0.004(0,10) to 0.024(0,60) in 0.002(0,05) increments
- Compatible with Trumpf style

DIE HOLDER ASSEMBLY

- Includes full shim set with two thicknesses
- Two sizes:
 - Size 56 for up to .250 x 2.000(6,35 x 56,00)
 - Size 76 for up to .250 x 3.000(6,35 x 76,20)



DESCRIPTION	PART NUMBER
SLITTING PUNCH HOLDER	PPD2H



DESCRIPTION	PART NUMBER
SLITTING PUNCH HOLDER WITH INTEGRATED ALIGNMENT RING	PPD2HAVANTF

5.00 X 56.00 mm

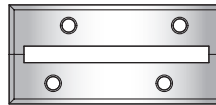


DESCRIPTION	PART NUMBER
RECTANGLE	PPDS1A0500M5600

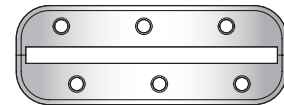
5.00 X 76.20 mm



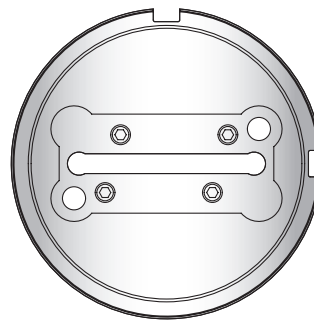
DESCRIPTION	PART NUMBER
RECTANGLE	PPDS1A0500M7620



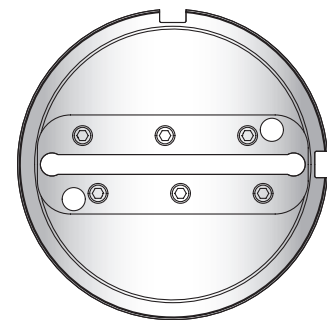
DESCRIPTION	PART NUMBER
RECTANGLE	DPDS1_0500M5600*



DESCRIPTION	PART NUMBER
RECTANGLE	DPDS1_0500M7620*



DESCRIPTION	PART NUMBER
DIE BASE ASSEMBLY	DPD2H056



DESCRIPTION	PART NUMBER
DIE BASE ASSEMBLY	DPD2H076

*Plus total clearance



MATE M4PM™ TOOL STEEL

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Mate M4PM™ Tool Steel

M4PM™ is a high speed, particle metallurgy tool steel designed for use in high performance tooling systems.

A combination of the chemical composition of M4, the particle metallurgy manufacturing process, and the triple temper heat treatment process, produces M4PM: the world's finest tool steel for use in punching tools.

M4PM is a very homogeneous, high quality tool steel which has many advantages when compared to alternative tool steels commonly available. These advantages include:

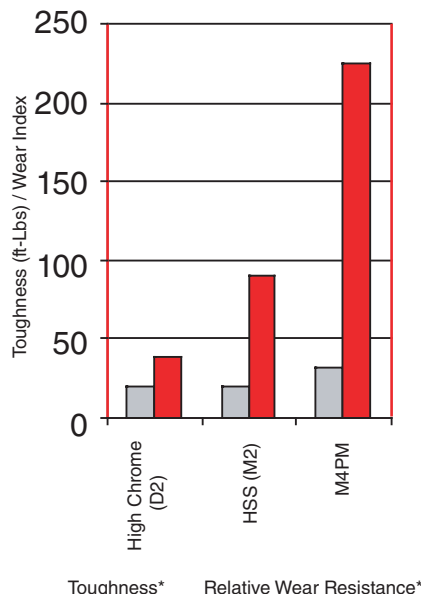
Superior Wear Resistance – 100% better wearing, M4PM offers superior resistance to adhesive- and abrasive-wear to maximize the interval between regrinds.

- More uniform distribution of smaller carbides—results in improved ductility (adhesive-wear) while still providing abrasive-wear resistant carbides over the entire surface of the material.
- 100% more Vanadium carbides—harder wearing 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 hardenability—increased alloy content results in higher effective hardness for better wear resistance.

Increased Toughness – the molecular structure of M4PM is 50% tougher than conventional tool steels in impact strength tests.

- Triple temper heat treatment process—ensures full conversion of the material matrix. Results in fully tempered martensite and reduced internal stress, together with better dimensional stability.
- More uniform distribution of smaller carbides—offsets the effects of increased alloy content. Results in a more “interlocked” material matrix for significantly reduced tool breakage and edge chipping. See micrograph.

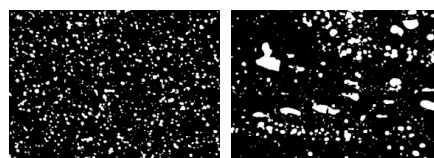
Better Value – customer trials have shown that tools manufactured in M4PM last 100% longer between regrinds than tools manufactured using conventional High Speed Steel. By increasing the interval between regrinds, the tooling lasts longer and punches many more holes before needing to be replaced.



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

M4PM Chemical Composition	
Carbon	1.42%
Chromium	4.00%
Vanadium	4.00%
Tungsten	5.50%
Molybdenum	5.25%

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

SECTION 6

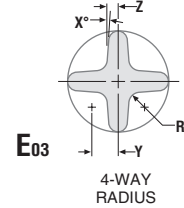
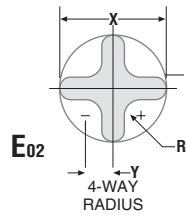
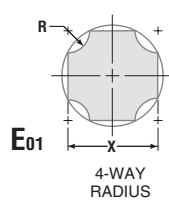
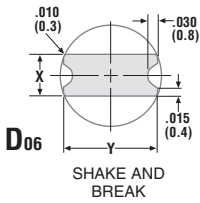
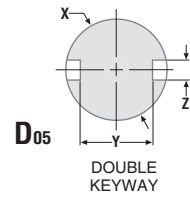
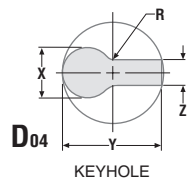
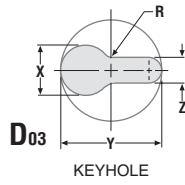
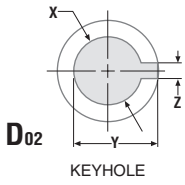
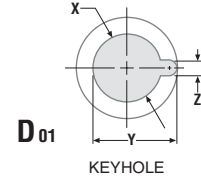
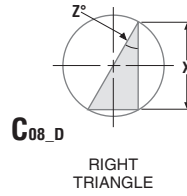
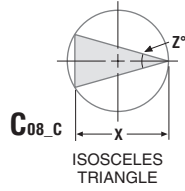
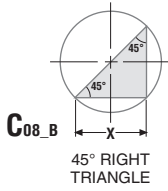
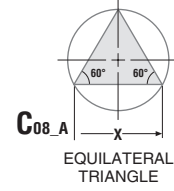
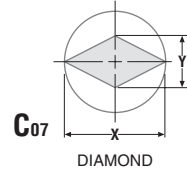
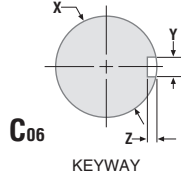
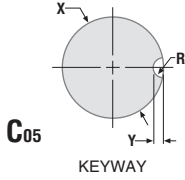
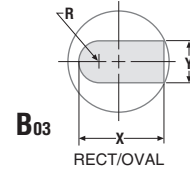
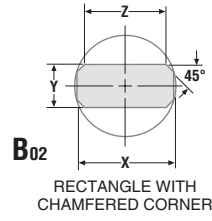
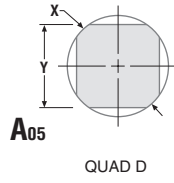
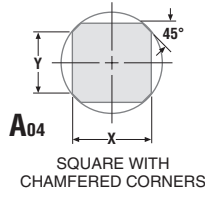
*Toughness: Charpy C-Notch impact strength test.

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

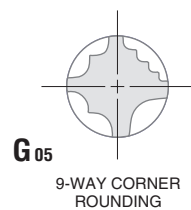
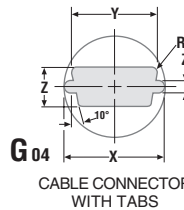
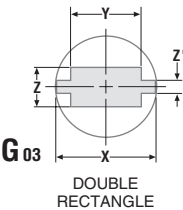
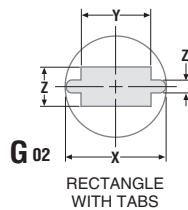
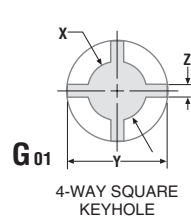
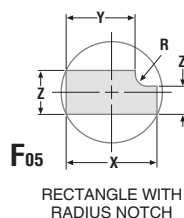
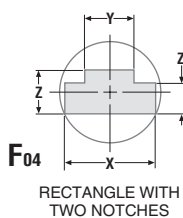
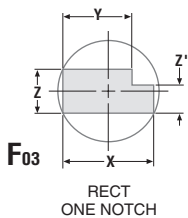
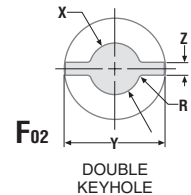
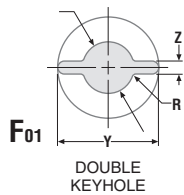
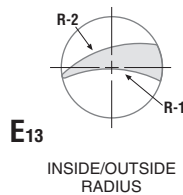
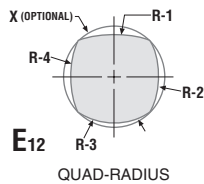
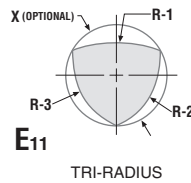
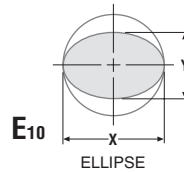
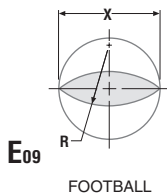
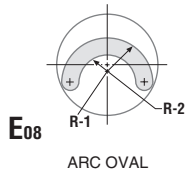
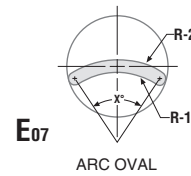
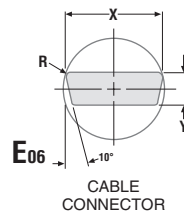
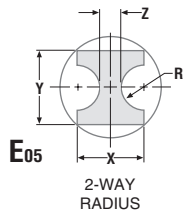
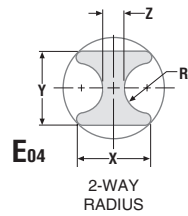


Dimensions in inches (millimeters)

SPECIAL SHAPES



SPECIAL SHAPES



SECTION 6

Visit mate.com/specialshapes



Dimensions in inches (millimeters)

ADD-ONS

General

Radius Corner	Add 10%	to punch and die
Non-Standard Straight Before Radius (SBR) Dimension	Add 25%	to punch
Extra Back Taper (1 degree per side)	Add 25%	to punch
Special Angle Settings	Add 25%	to die
Optional Shear (Limited Options)		no charge
Non-Standard Slug Ejector Request (Limited Options)	Add	per ejector
Shock Steel - for rectangles and squares when total clearance is greater than 0.024(0.60)	Add 25%	to die

Small Diameter Round Tools

Diameter 0.031 (0.79) to 0.061 (1.55)	Add 25%	to punch and die
Diameter 0.062 (1.56) to 0.092 (2.34)	Add 10%	to punch and die

Narrow Width Shaped Tools

Widths under 0.125 (3.18)	Add 25%	to punch, stripper, and die
---------------------------	---------	-----------------------------

Maxima™ Coating or Nitride Treatment

Trumpf Style Tooling	Additional cost to punch price
Size 0-A and Size 0-B	Additional cost to punch price
Size 1 and Size 1-X	Additional cost to punch price
Size 2	Additional cost to punch price
Size 3	Additional cost to punch price
Slitting Insert	Additional cost to punch price
Multi Tool: 4, 5, 6, and 10 station	Additional cost to punch price

Mate QuickLock™

Size 1	Additional cost to punch price
Size 2	Additional cost to punch price

Mate NEXT™

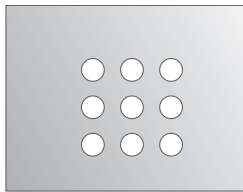
Size 40	Additional cost to punch price
Size 76	Additional cost to punch price

Non-Standard Design Features:

Call for Quote



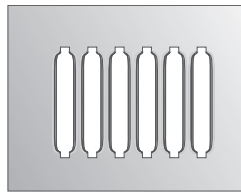
SPECIAL APPLICATIONS



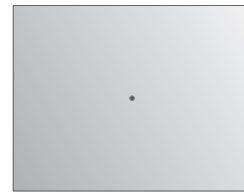
Cluster – Round



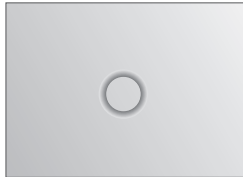
Cluster – Shape



Card Guide



Centerpoint



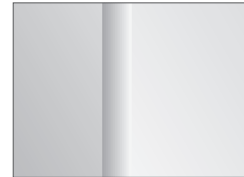
Countersink – Round



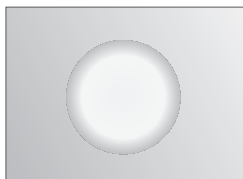
Countersink – Shape



Emboss – Beading



Emboss – Edgeform



**Emboss – Formed
(Round and Shaped)**



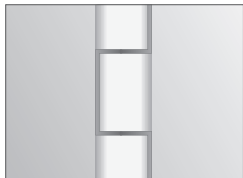
Emboss – Cold Forged



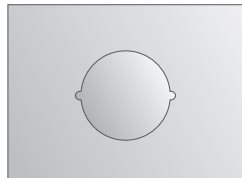
Extrusion – Tapping



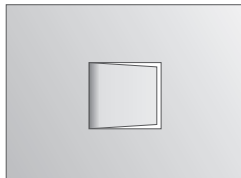
Extrusion – Flanged Hole



Hing Tool



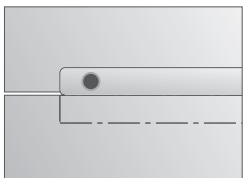
Knockout



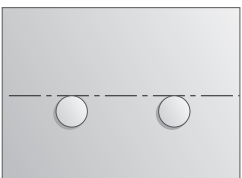
Lance And Form



Louwer



Scissortool™



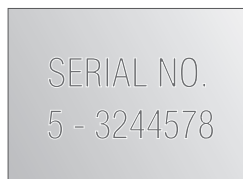
**Shearbutton
(Round and Shaped)**



Rollerball™



Sheetmarker™



Stamping – Alpha Numeric



Stamping – V-line



Threadform



See **MATE Forming Tool Order Guide** for forming tool ordering specifications...

Ask for part number **LIT00002**



HIGH PERFORMANCE TOOLING

Cluster

Use:

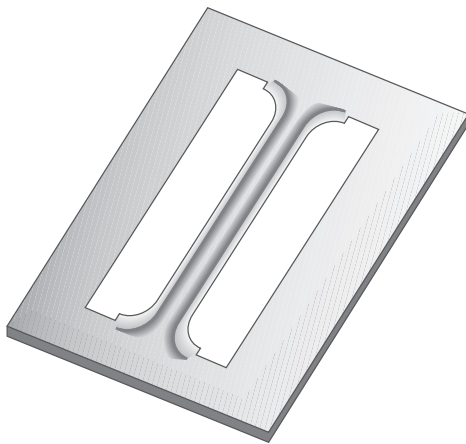
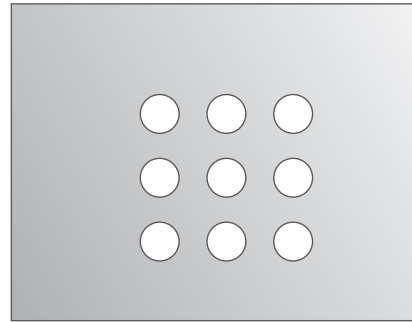
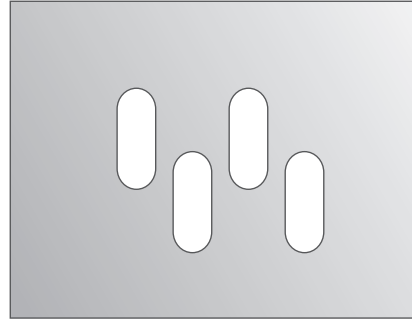
To produce multiple holes with minimal hits.

Typical Application:

- Material thickness from 0.020(0.50) to 0.157(4.00).
- Other restraints dependent upon station size, punch size and shape and press tonnage.

Comments:

- For greater hole uniformity and flatter sheets, spread the punches to avoid punching adjacent holes in the same hit.
- Do not re-punch through previously punched holes to complete a pattern. A single hit tool may be necessary.



Card Guide

Use:

As a retainer for printed circuit boards.

Typical Application:

- Material thickness from 0.040(1.00) to 0.078(2.00).
- Maximum recommended top-of-sheet to top-of-form height is 0.125(3.20).

Comments:

- Length of the card guide is dependent upon station size and machine tonnage.
- Also available as a continuous form to increase productivity and flexibility.



Visit mate.com/sa

Countersink—Dedicated

Use:

Allows screw and rivet head to sit flush or below the surface of the material.

Typical Application:

- Material thickness from 0.048(1.22) to 0.250(6.35), dependent upon press tonnage capacity.

Comments:

- The **shoulder** (dedicated) style is generally ordered for one material thickness and screw size.
- The shoulder style coins the surrounding area, producing a clean flat countersink with minimal burring.



Emboss—Beading

Use:

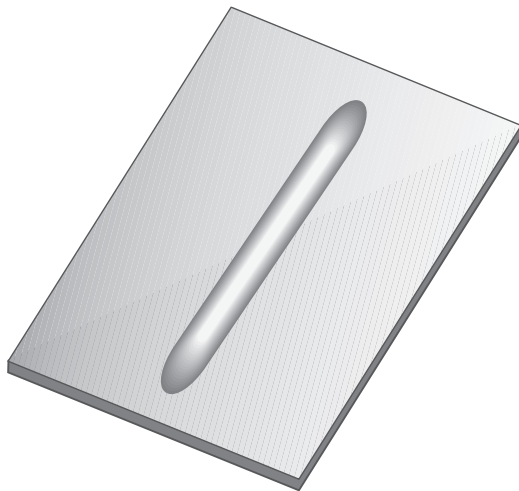
As a stiffener to add rigidity to sheet metal panels.

Typical Application:

- Material thickness from 0.027(0.70) to 0.250(6.35), dependent upon press tonnage capacity.

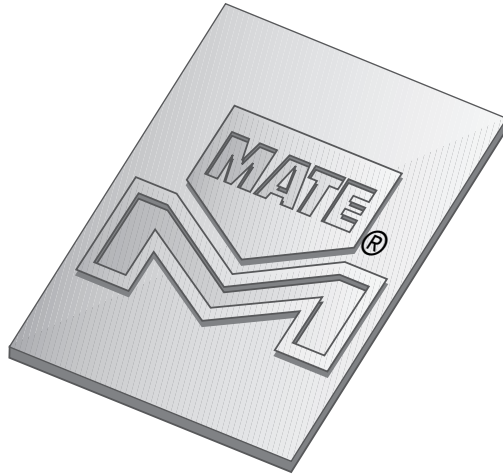
Comments:

- The increment between hits is determined by the cosmetic requirements for the finished part. Smaller increments result in improved appearance.
- The form height should be as low as possible to minimize sheet distortion.



HIGH PERFORMANCE TOOLING

Emboss—Cold Forged



Use:

To produce a logo or design on a part.

Typical Application:

- Material thickness from 0.018(0.46) to 0.118(3.00).
- Best results in material thickness from 0.040(1.00) to 0.078(2.00).
- Maximum size dependent on the tooling style, station size, and press tonnage capacity.

Comments:

- An exact drawing, CAD file, or artwork of logo is required to produce this type of assembly.

Emboss—Formed

Use:

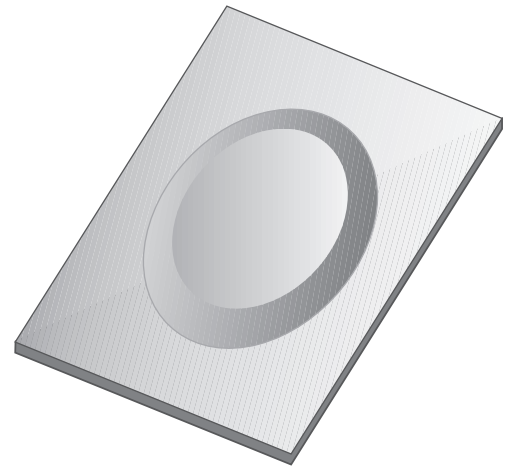
Provides a recess or a protrusion.

Typical Application:

- Material thickness from 0.027(0.70) to 0.250(6.35), dependent upon press tonnage capacity.

Comments:

- Best results are attained when the side wall angle is 45° or less.
- Optimum form height is 3 x the material thickness or less.



Dimensions in inches (millimeters)

Extrusion—Tapping

Use:

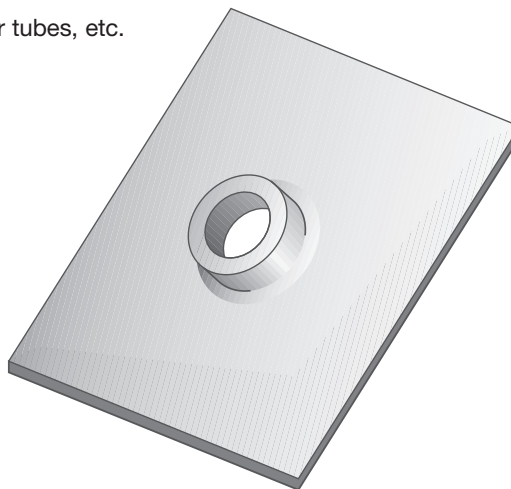
Threading for screws and increased bearing area for tubes, etc.

Typical Application:

- Material thickness from 0.031(0.80) to 0.106(2.70).
- Overall Height – 2x to 2.5x material thickness.
- Diameter – 0.374(9.50) (M10 Screw thread).

Comments:

- Additional inverted dies are required to accommodate alternate material thickness.



Hinge

Use:

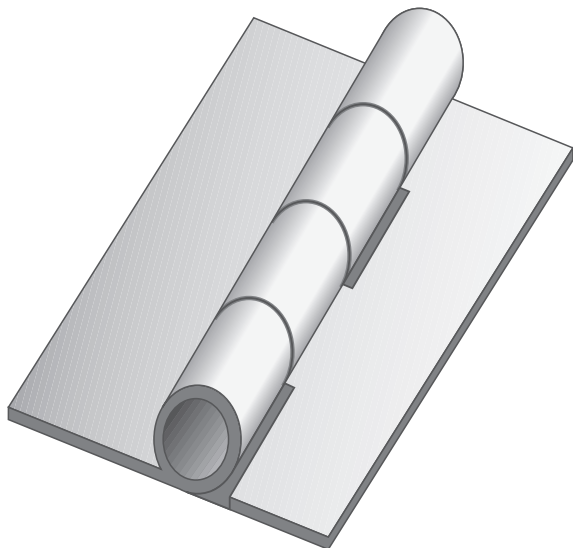
To create hinge knuckles as integral elements on sheet metal components.

Typical Application:

- The range of this application is dependent on a combination of the material thickness, pin diameter and feed gap of the press.

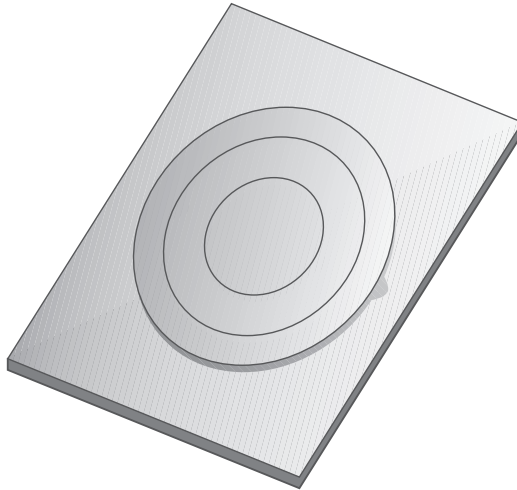
Comments:

- An integral hinge knuckle on a component will eliminate the costly process of purchasing and assembling separate hinges.



HIGH PERFORMANCE TOOLING

Knockout



Use:

Allows optional pathway for electrical cable.

Typical Application:

- Material thickness from 0.024(0.60) to 0.118(3.00).
- Maximum size dependent upon material type, thickness, and press tonnage capacity.

Comments:

- The tool can normally be used with other material thickness within a range of + or - 0.016(0.41) from design thickness.
- Maintain 0.236(6.00) difference between diameters used for knockout.

Lance And Form

Use:

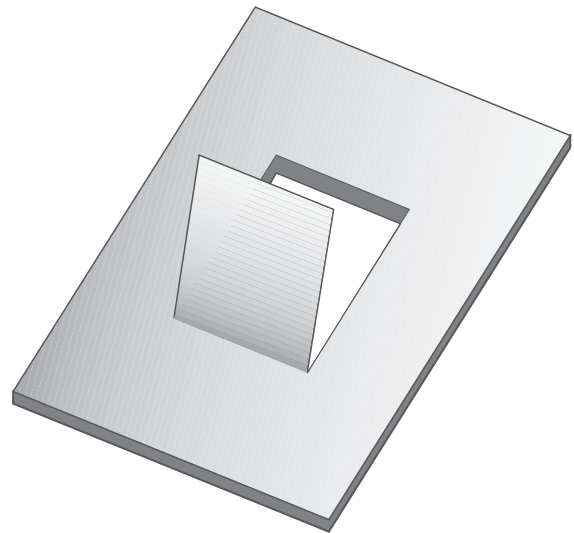
For air flow, decoration, as card guides, location markers, shear tabs, wire harnesses, or clip attachments.

Typical Application:

- Material thickness from 0.020(0.50) to 0.118 (3.00).
- Maximum recommended top-of-sheet to top-of-form height is 0.250(6.40).
- Other limitations include material type, station size, and press tonnage capacity.

Comments:

- The inclusion of a 5° draft angle is recommended to assure reliable operation of open ground forms.



See MATE Forming Tool
Order Guide for forming tool
ordering specifications...

Ask for part number
LIT00002

Dimensions in inches (millimeters)

HIGH PERFORMANCE TOOLING

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Special Applications

Louver

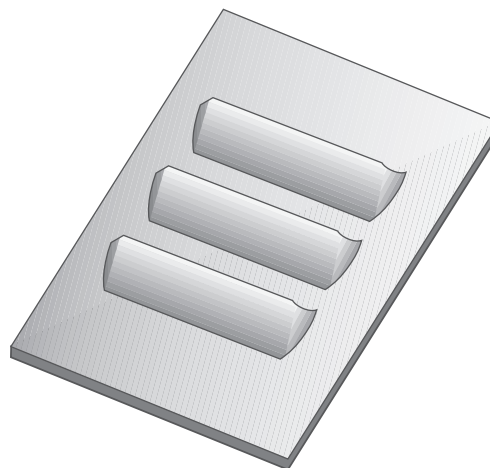
Use:
To provide air flow or ventilation.

Typical Application:

- Material thickness from 0.028(0.70) to 0.106(2.70)
- Maximum recommended top-to-top height is 0.255(6.50)

Comments:

- One tool cuts the sheet and produces the form in the same operation.
- The tool is designed for a specific material thickness.



Insert Sizes Available

Fractional	Decimal	Metric
3/32	0.094	2.40
1/8	0.125	3.12
3/16	0.188	4.50
1/4	0.250	6.34

Stamp—Alpha Numeric

Use:
To provide indelible marking of alpha-numeric characters on the top or bottom of the sheet.

Typical Application:

- Material thickness 0.032(0.80) up to machine capacity.
- Characters available in 4 popular sizes. See table.

Comments:

- Individual characters can be easily changed.



SECTION 6



See MATE Forming Tool
Order Guide for forming tool
ordering specifications...

Ask for part number
LIT00002



HIGH PERFORMANCE TOOLING

Threadform

Use:

To provide a form to accept a sheet metal screw.

Typical Application:

- Material thickness 0.020(0.50) to 0.048(1.20).
- Size is dependent upon screw size selected.
- Thicker material requires a countersink operation or thinning prior to threadforming.



V-Line Stamping

Use:

To produce logos, messages, or symbols.

Typical Application:

- Material thickness from 0.032(0.80) up to machine capacity.
- Maximum size is dependent on station size, size of symbols and characters, and press tonnage capacity.

Comments:

- V-Line Stamping -- renders the image with a sharp line stamped into the surface.
- An exact drawing, CAD file, or artwork of logo is required in order to produce this type of assembly.



Dimensions in inches (millimeters)

HIGH PERFORMANCE TOOLING

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Rollerball™

Use:

The Rollerball is an exciting new concept designed by Mate Precision Tooling 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:

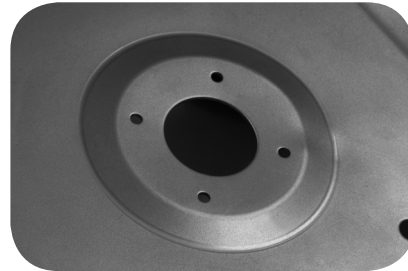
- Maximum workable material thickness is 0.105(2.70) mild steel.

Comments:

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

Patent Pending

Visit mate.com/rollerball



Special Applications

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:

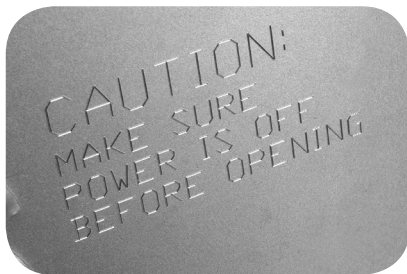
- The Sheetmarker Tool can be used on all material types and thicknesses.

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

Patent Numbers: US 7,168,364 B2.
Europe 1 099 509. Singapore: 88336

Visit mate.com/sheetmarker



SECTION 6



HIGH PERFORMANCE TOOLING

Mate SnapLock™

Use:

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

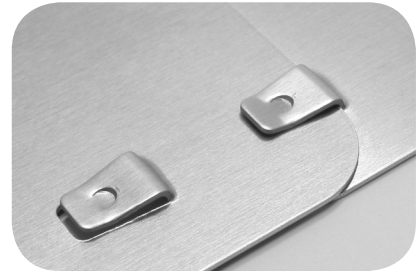
Typical Application:

- 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.

Visit mate.com/snaplock



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.

Visit mate.com/hexlock



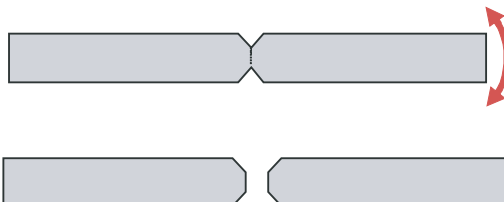
Dimensions in inches (millimeters)

Mate EasySnap™

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

Typical Application:

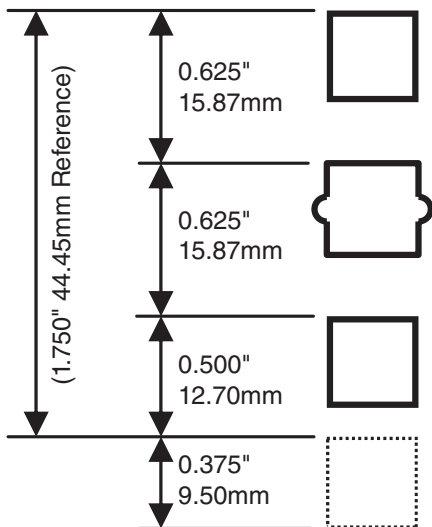
- Material thickness from 0.020(0.50) up to 0.078(2.00) for mild steel and aluminium, and 0.020(0.50) up to 0.059(1.50) for stainless steel.
- Maximum length of form is 36.00(914.40)



Comments:

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

Mate 19" Racking Cluster



Use:

For high speed punching of the mounting hole pattern commonly found in electronic and telecommunications cabinets. The hole spacing conforms to DIN41494, IEC 297 and BS 5954.

Typical Application:

- Material thickness from 0.020(0.50) up to 0.157(4.00)

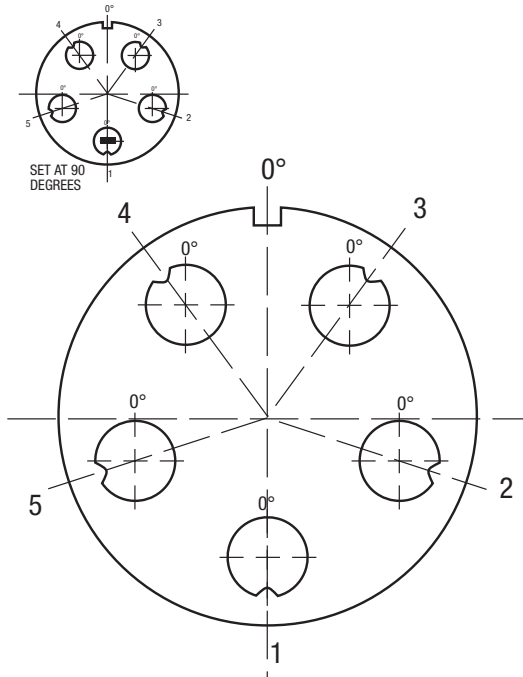
Comments:

- Special shape "U" pitch marker on the central punch point allows the end user to count pitches, not holes!
- Solid (non-insert) style cluster tools and insert style cluster assembly options available.

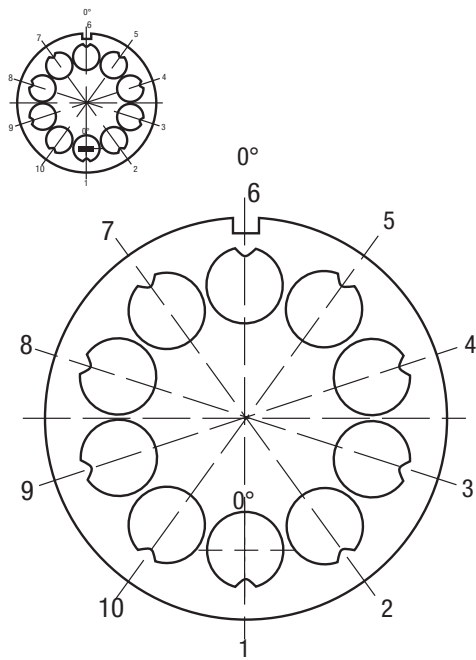


MULTI TOOL ANGLE SETTING

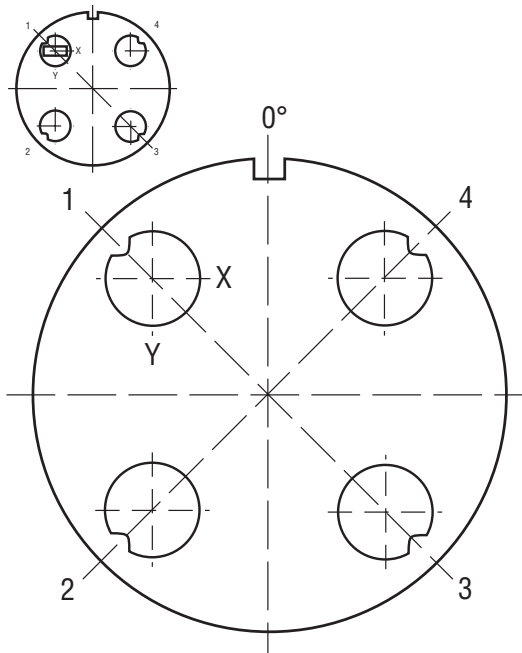
5-Station



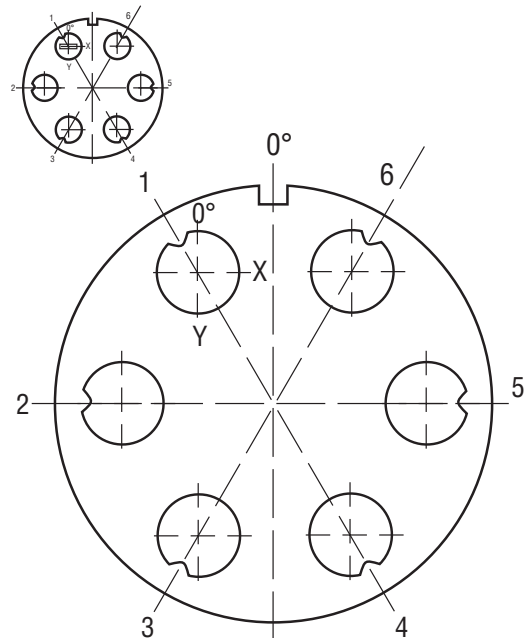
10-Station



4-Station



6-Station



Custom angle settings

Custom angle settings can be achieved. Contact your customer service representative or dealer to discuss your specific needs.

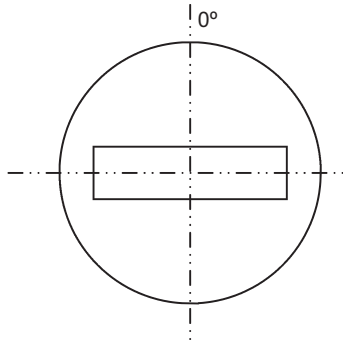


Dimensions in inches (millimeters)

STANDARD SHAPE ANGLE SETTING

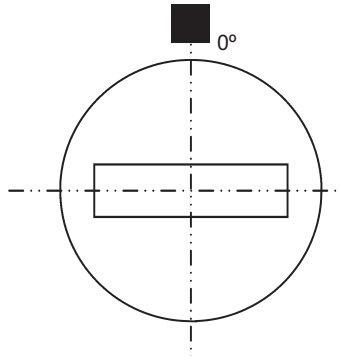
This page shows the location of the primary or (zero degree) orientation feature for punches, strippers, and dies. The orientation feature of a punch is a pin which engages with the alignment ring (Quicklock™) or punch holder (NEXT™). The orientation of a die is via a keyway, and strippers are oriented by a pair of pins.

Standard Punch



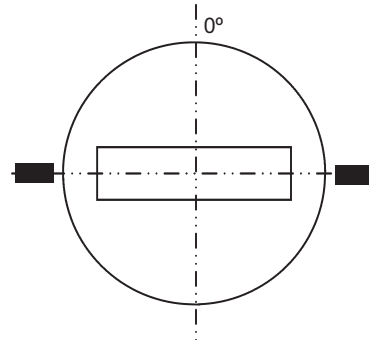
The standard punch is aligned with the alignment ring, and thus does not require an orientation feature.

Size 1 or 2 Die



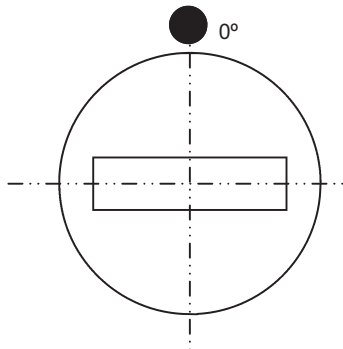
Additional keyways are provided, dependant on shape symmetry. Examples: Rectangle has two keyways and the single-D has four keyways. The default angle setting is 90 degrees, as shown.

Size 1 or 2 Stripper



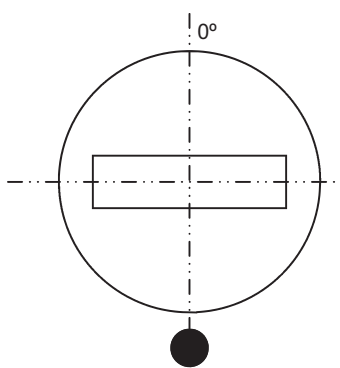
Additional pin locations are provided dependant on shape symmetry. The default angle setting is 90 degrees, as shown.

QuickLock™ Punch



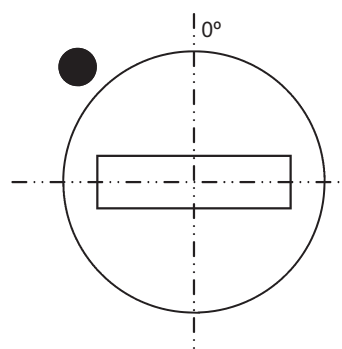
Where punch point diagonal is $<2.000(50.80)$ the pin is positioned on the shank of the punch. The default angle setting is 90 degrees, as shown.

QuickLock™ Punch



Where punch point diagonal is $>2.000(50.80)$ this pin is positioned on the shoulder of the punch. The default angle setting is 90 degrees, as shown.

NEXT™ Punch



The orientation pin is positioned on the shoulder of the punch. The default angle setting is 90 degrees, as shown.

CRITICAL TOOL DIMENSIONS

Critical Tool Dimensions

	Overall Punch Length Inch	Overall Punch Length Millimeters	Flat (without shear)			Whisper		Rooftop	
			2.910 74.00	3.030 77.00	3.050 77.50	3.030 77.00	3.050 77.50	3.030 77.00	3.050 77.50
Trumpf Style	Size 0-A	PADA_A*	●	○	-	-	-	-	-
	Size 0-B	PADB_A*	●	○	-	-	-	-	-
	Size 1-A	PADC_A	●	○	-	○	-	○	-
	Size 1-B	PADD_A	●	○	-	○	-	○	-
	Size 1-X	PADX_A	●	-	-	-	-	-	-
	Size 2-A	PADE_A	○	○	-	●	-	○	-
	Size 2-B	PADF_A	○	○	-	●	-	○	-
	Size 2-C	PADG_A	○	○	-	●	-	○	-
	Size 2-D	PADH_A	○	○	-	●	-	○	-
Size 3	PADJ_A	-	-	-	-	-	●	-	
QuickLock™	Size 1	PCTD_A	●	○	○	○	○	○	○
	Size 2	PCTE_A	○	○	○	●	○	○	○
	Size 2	PCTF_A	○	○	○	●	○	○	○
	Size 2	PCTG_A	○	○	○	●	○	○	○
	Size 2	PCTH_A	○	○	○	●	○	○	○
NEXT™	Size 40	PBTD_A**	●	○	-	○	-	○	-
	Size 40	PBTE_A**	●	○	-	○	-	○	-
	Size 76	PBTF_A**	○	○	-	●	-	○	-
	Size 76	PBTG_A**	○	○	-	●	-	○	-
	Size 76	PBTH_A**	○	○	-	●	-	○	-

● Standard ○ No Charge Option - Option not available.

* Overall length when assembled into punch chuck

** Overall length when assembled into NEXT™ punch holder

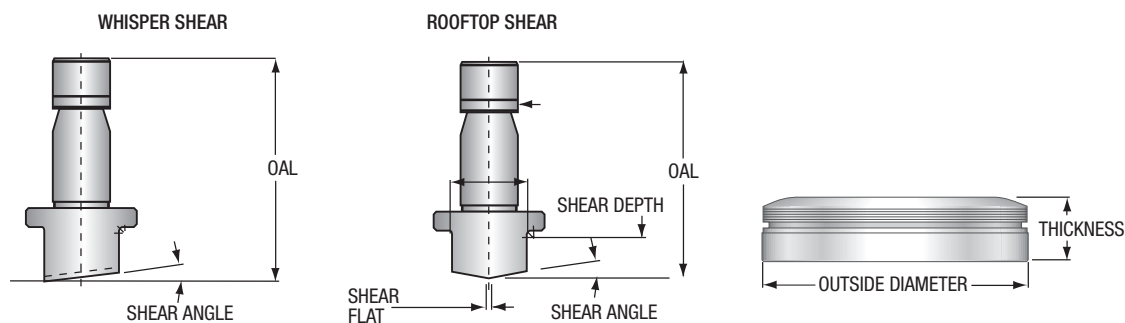


Dimensions in inches (millimeters)

CRITICAL TOOL DIMENSIONS

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Critical Tool Dimensions



Tool Style	Station	Maximum Punch Point Diagonal	Whisper Shear		Rooftop Shear		Die Dimensions	
			Depth/Angle	Depth/Angle	Shear Flat	Outside Diameter	Thickness	
Trumpf Style	Size 1	0.591(15.01)	5 degrees	10 degrees	0.050(1.27)	2.362(60.00)	0.709(18.00)	
	Size 1	1.181(30.00)	5 degrees	5 degrees	0.050(1.27)	2.362(60.00)	0.709(18.00)	
	Size 2	3.0063(76.36)	0.110(2.79)	0.110(2.79)	0.100(2.54)	3.937(100.00)	0.789(20.00)	
	Size 3	4.134(105.00)	0.110(2.79)	0.110(2.79)	0.100(2.54)	5.905(150.00)		
QuickLock™	Size 1	0.643(16.33)	5 degrees	10 degrees	0.050(1.27)	2.362(60.00)	0.709(18.00)	
	Size 1	1.181(30.00)	5 degrees	5 degrees	0.050(1.27)	2.362(60.00)	0.709(18.00)	
	Size 2	3.000(76.20)	0.110(2.79)	0.110(2.79)	0.100(2.54)	3.937(100.00)	0.789(20.00)	
NEXT™	Size 40	0.643(16.33)	5 degrees	10 degrees	0.050(1.27)	See size 1		
	Size 40	1.181(30.00)	5 degrees	5 degrees	0.050(1.27)	See size 2		
	Size 40	1.575(40.01)	0.110(2.79)	0.110(2.79)	0.100(2.54)	See size 2		
	Size 76	3.0063(76.36)	0.110(2.79)	0.110(2.79)	0.100(2.54)	See size 2		

SECTION 7





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