



Adding Value to your Punched Parts



Special
Assemblies



Punching Value

How can Punching add Value ? (vs. Laser Cutting)

1. Punching holes and contours (2D)

a) Small holes, Special Shapes and
Blanking Tools
to speed up production
and reduce cost



b) Cluster Tools make multiple holes in one hit
and save on run time cost





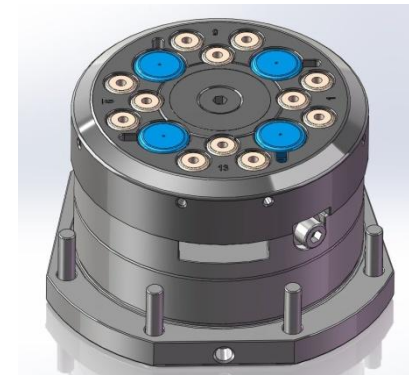
Punching Value

How can Punching add Value ? (vs. Laser Cutting)

1. Punching holes and contours (2D) (contd.)

c) Multitools (MT, MTH, UMT, IMT, MT4AU, MT6AU)

for quicker tool changes and/or
increased indexability



d) Powder Steel Slitting Tools and Micro-joints Applications
to reduce cost of part contour cutting





Punching Value

How can Punching add Value ? (vs. Laser Cutting)

2. Forming Applications (3D)

a) Forms inherent to the product
(e.g. louvers, extrusions, ...)



b) Add forming to 2D parts to eliminate secondary operations
and save on production cost
(e.g. faster assembly, small bends, ...)





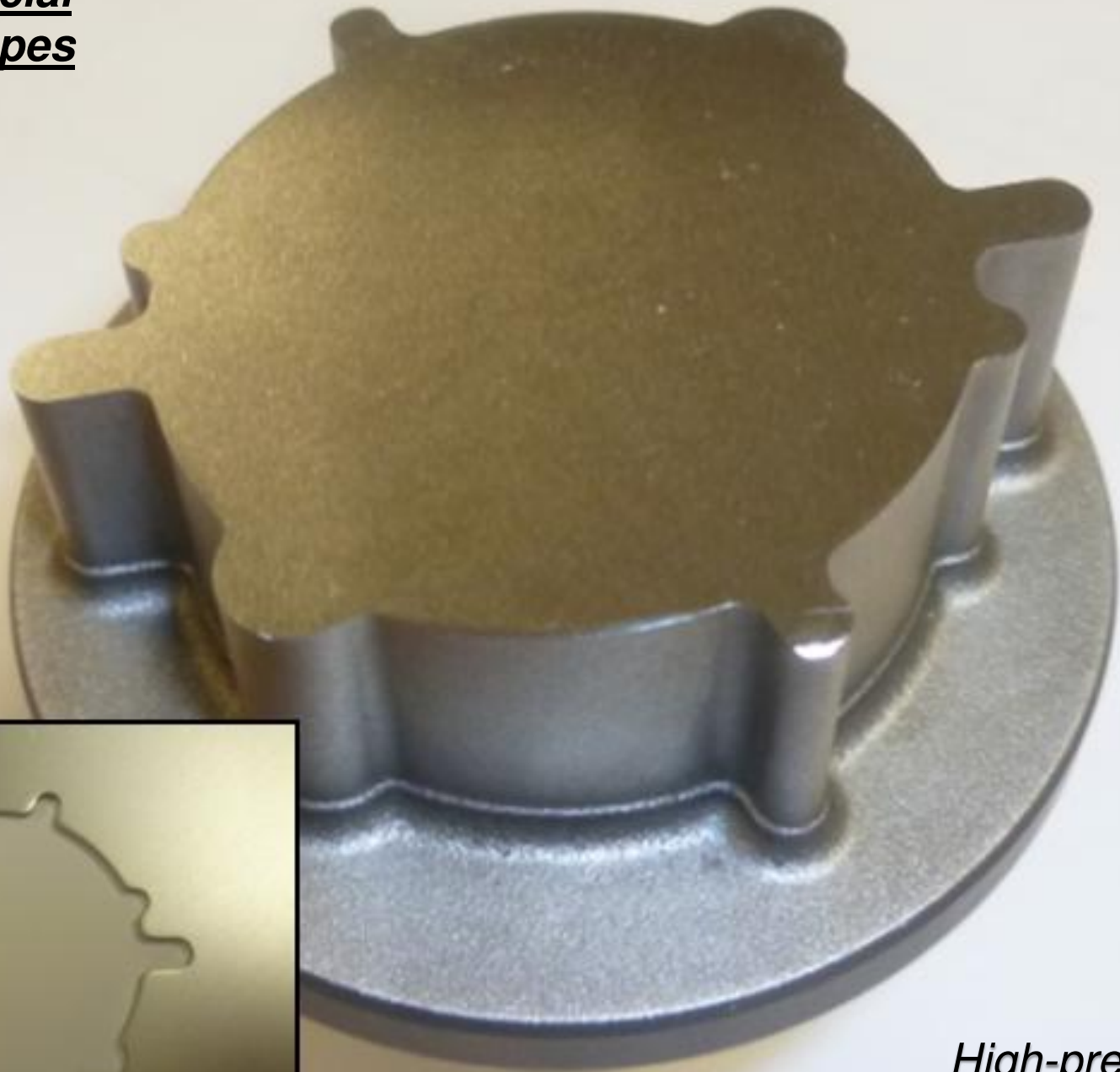
1. Special Shapes, Blanking Tools And Cluster Tooling



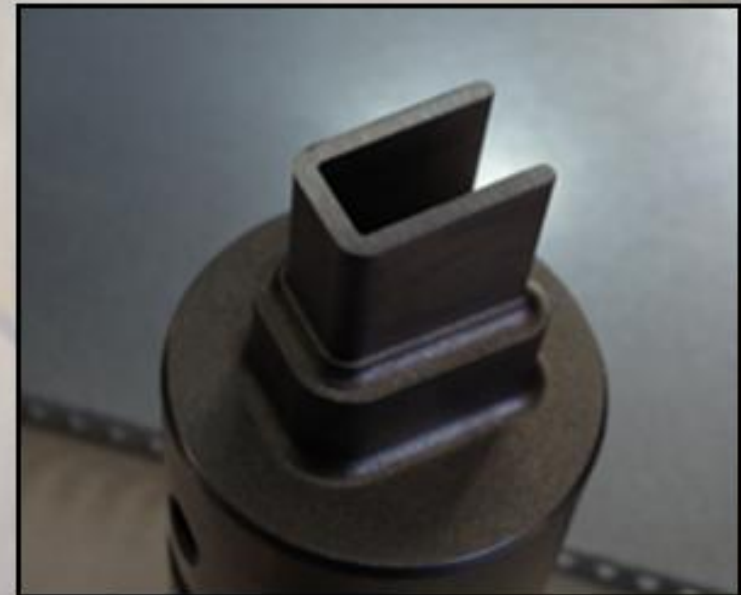
Special
Assemblies



*Fast and accurate punching
of Special Shapes*



*High-precision
and complex contours*



*Fast and accurate punching
of Special Shapes*



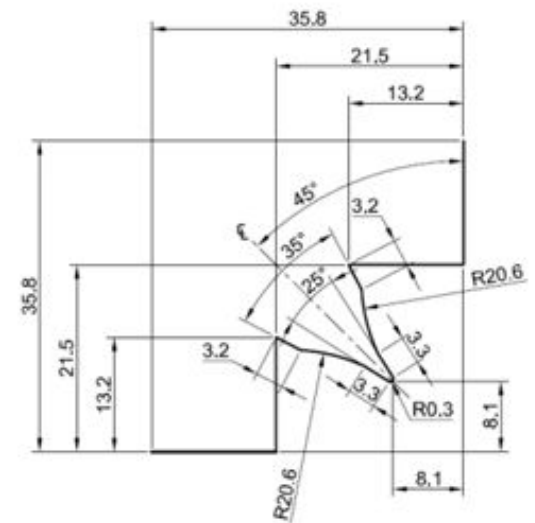
*Fast and accurate punching
of complex contours*

*Punch shape is same as
part contour line*





*Punch shape is same
as part contour line*



*Special Shapes to create large round
holes without index stations*



*Making large round
holes with 2 tools
(3 hits with each tool)*

Combined
Special Shapes



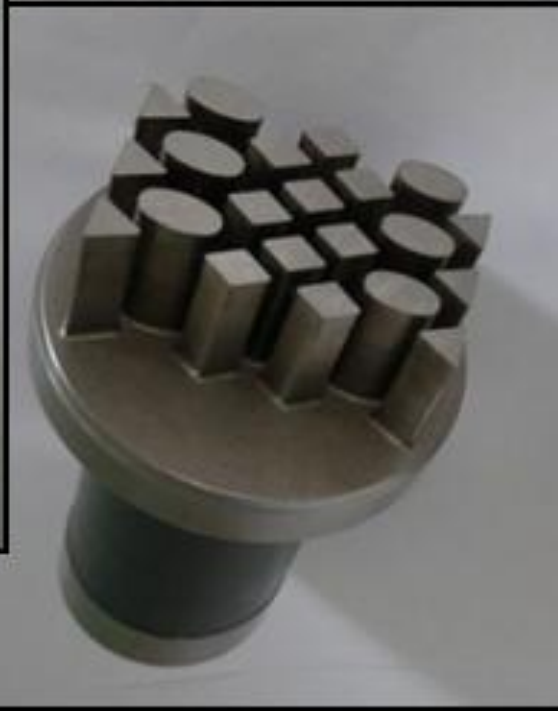
*Combination of
2 Special Assemblies*

Cluster tooling

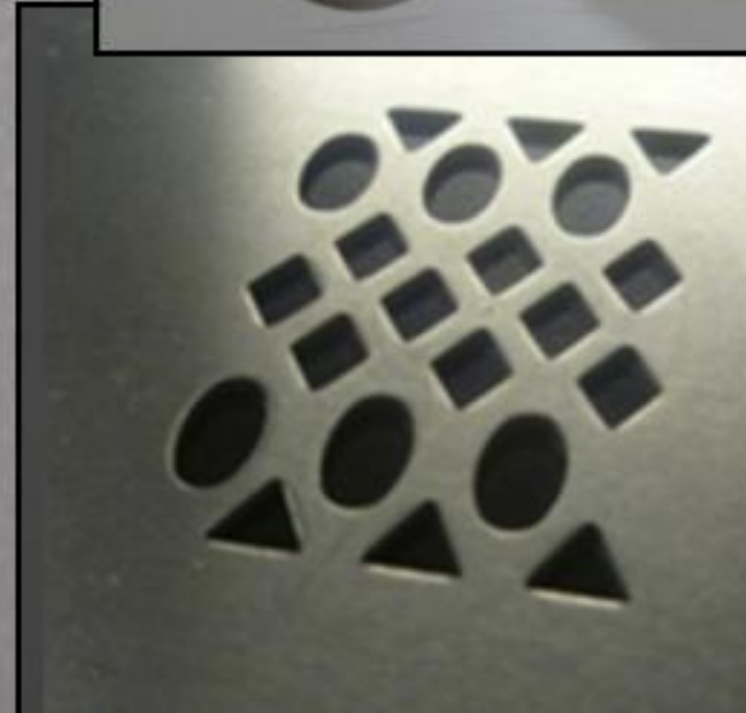


Special Cluster Applications

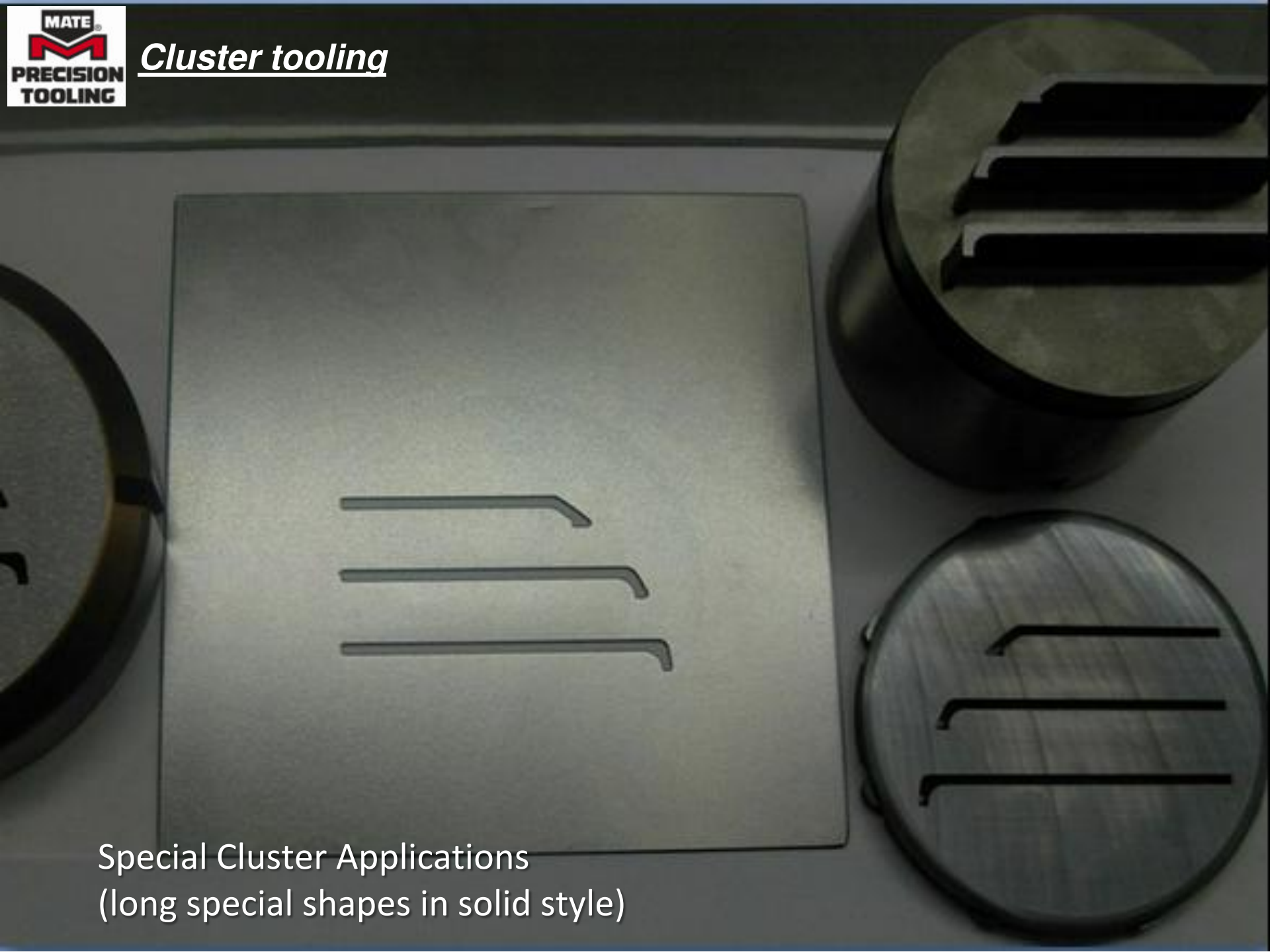
Cluster tooling



Special Cluster Applications
(solid style for closer punch points)

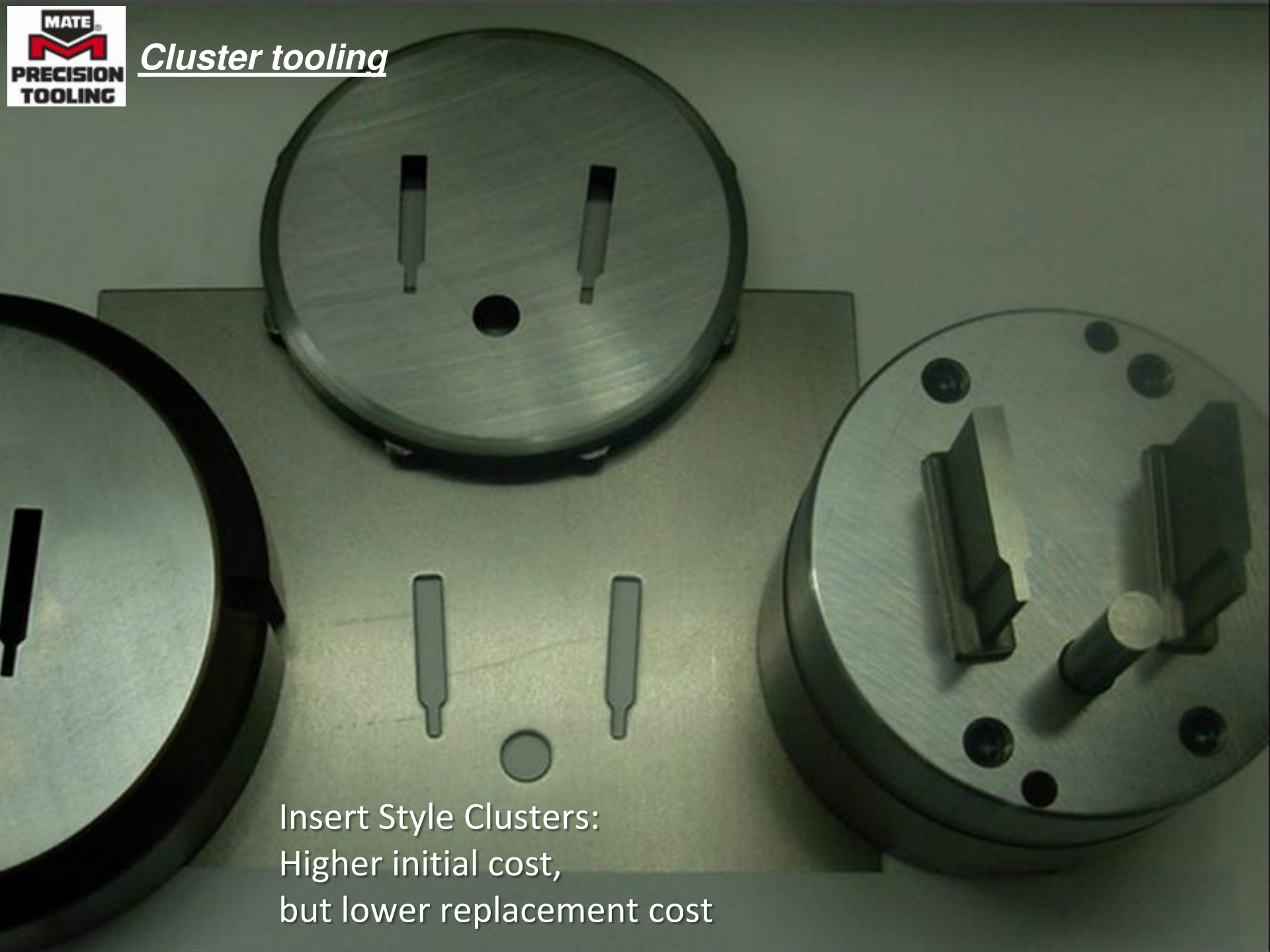


Cluster tooling



Special Cluster Applications
(long special shapes in solid style)

Cluster tooling



Insert Style Clusters:
Higher initial cost,
but lower replacement cost

Cluster tooling



A cluster tool will guarantee exact center-to-center positions, at all times, also for future product runs

Cluster tooling



A cluster tool will guarantee exact center-to-center positions, at all times, also for future product runs



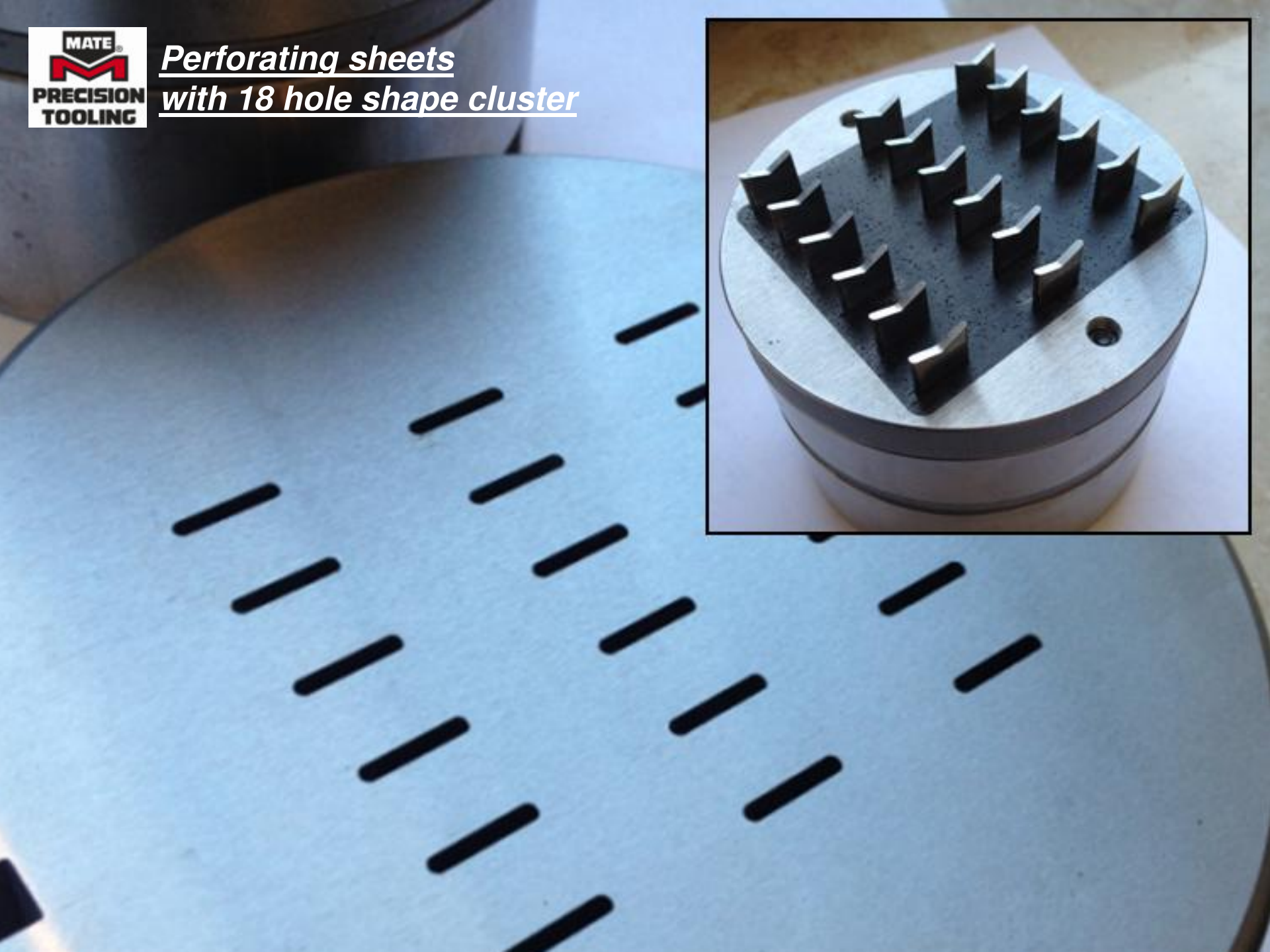
Cluster tooling



X-Part # XAUDDOC M97

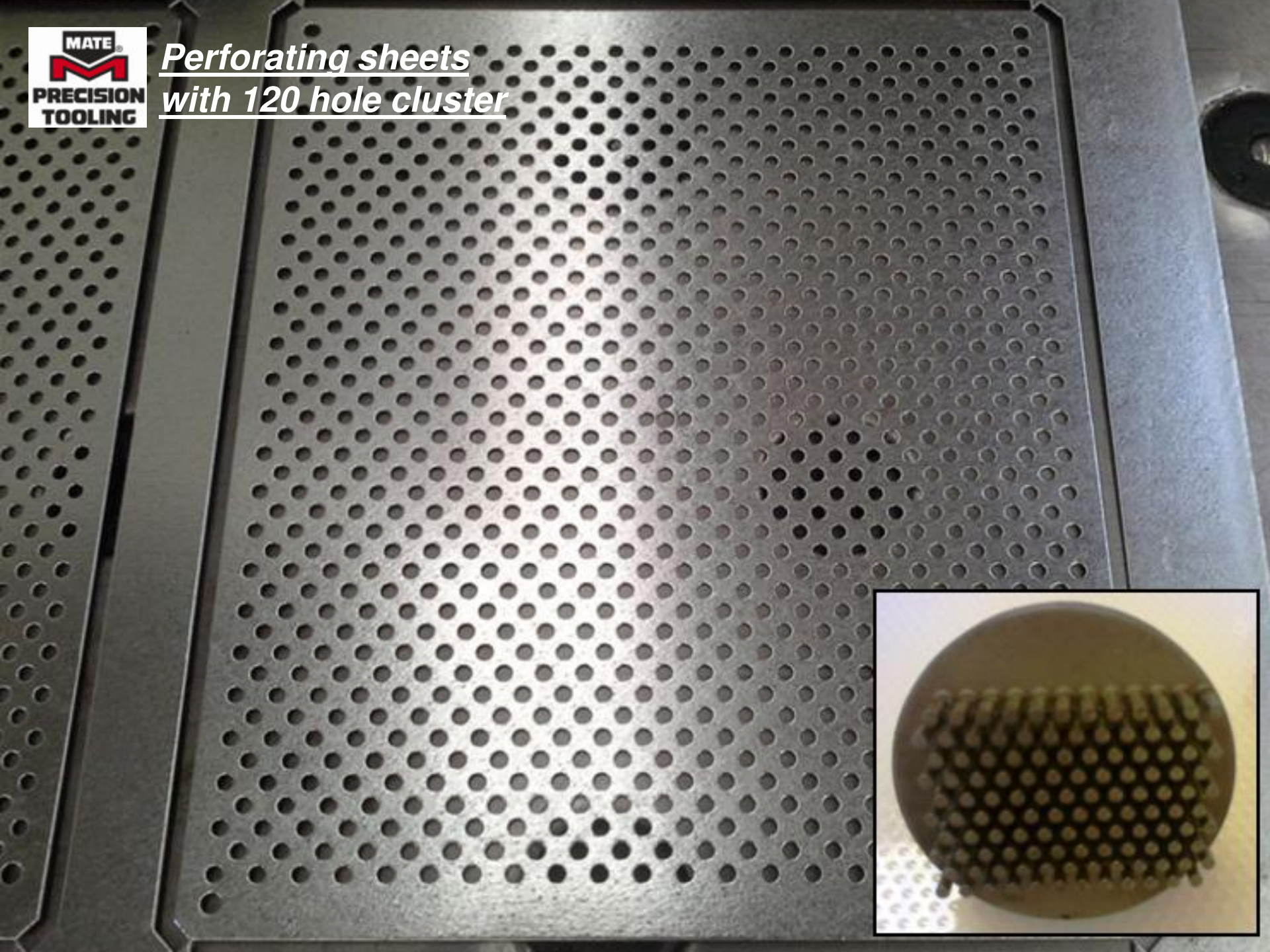
Etch # 12118042

Perforating sheets
with 18 hole shape cluster





Perforating sheets
with 120 hole cluster



Cluster tooling



Cluster tooling

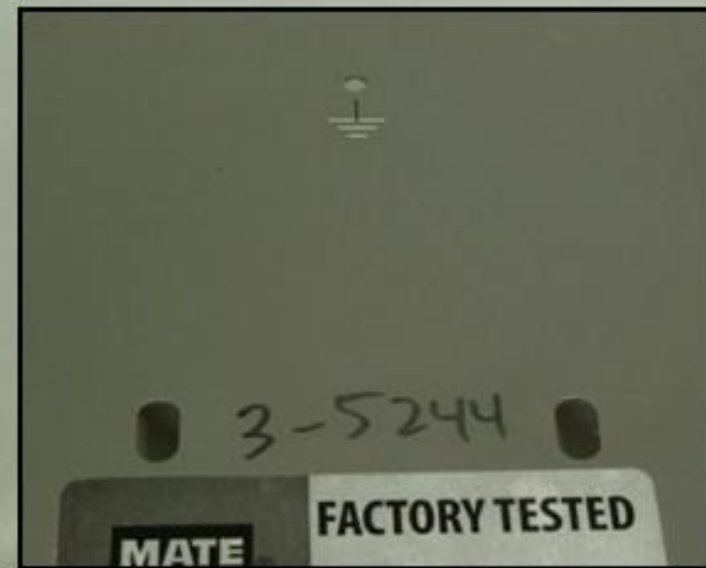


Special Cluster Applications

Fully Guided Cluster



Cluster tooling



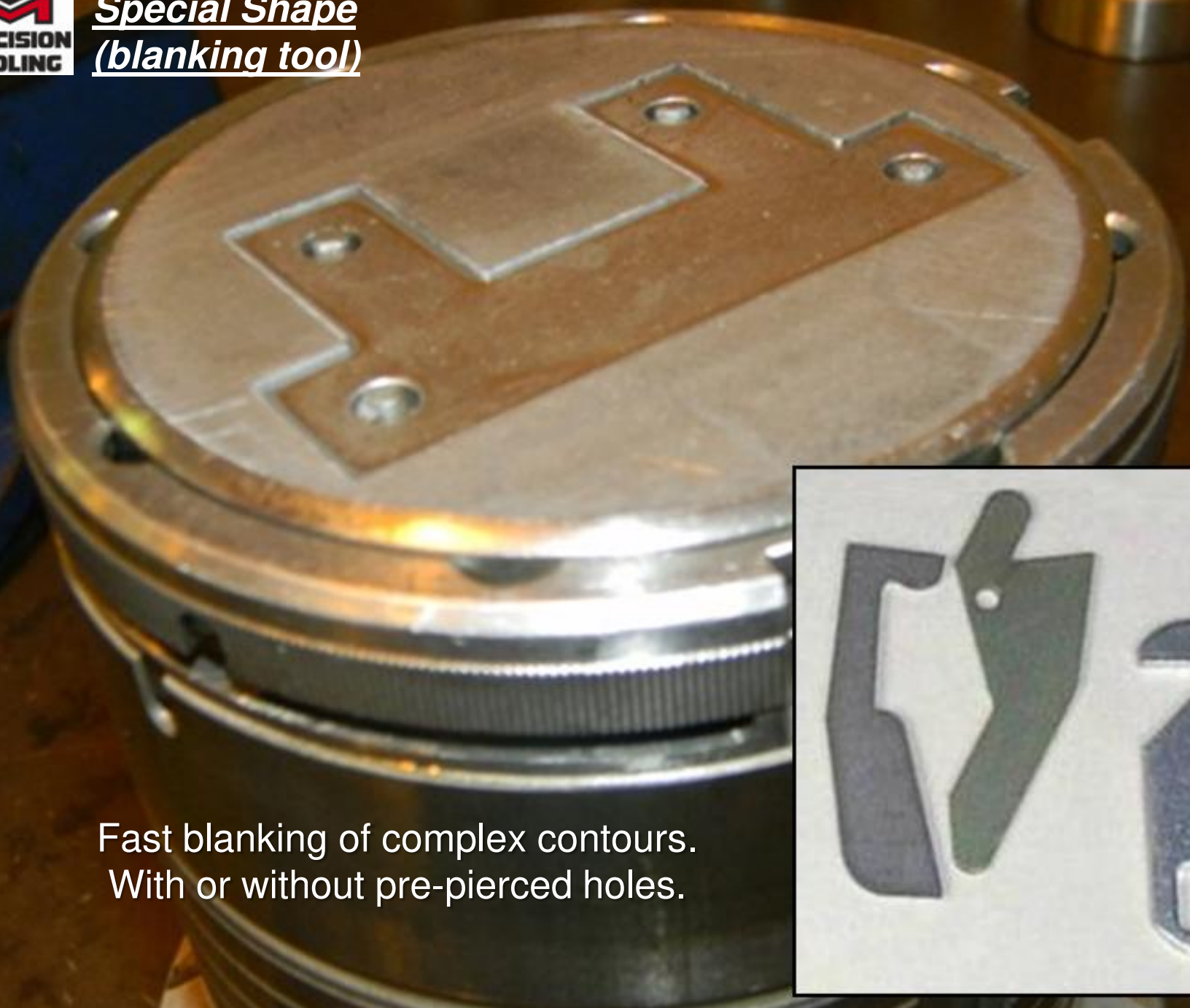
*Combination of punching
and V-line, in one (insert style) cluster tool*

Special Shape
(blanking tool)



*High-precision
and complex contours*

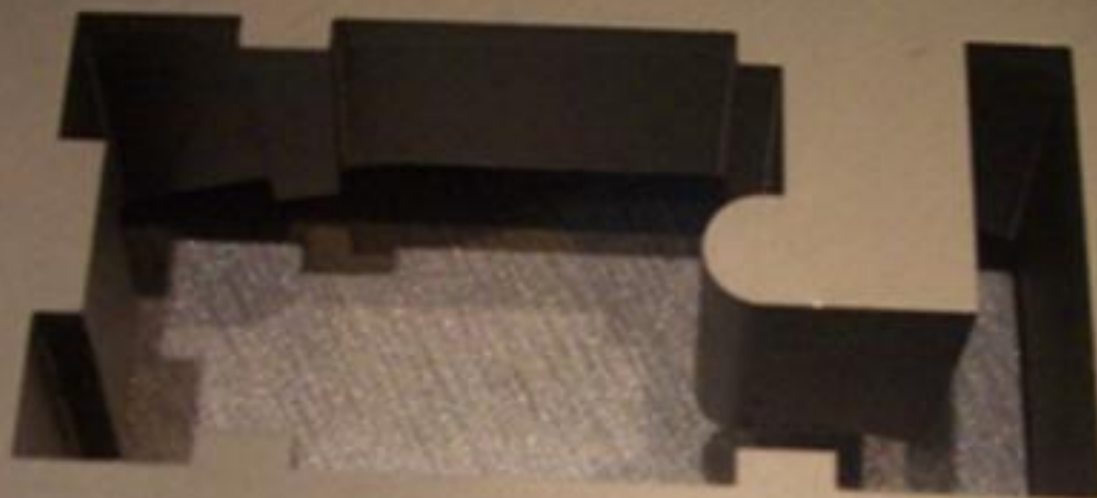
Special Shape
(blanking tool)



Fast blanking of complex contours.
With or without pre-pierced holes.



Special Shape
(blanking tool)



*Fast blanking of
complex contours*

Part Chute Tool

*Chute Tool to drop small parts into the slug bin.
Ideal for small parts unloading.*

Relieved Punch



Relieved punch to blank out formed parts without flattening risk

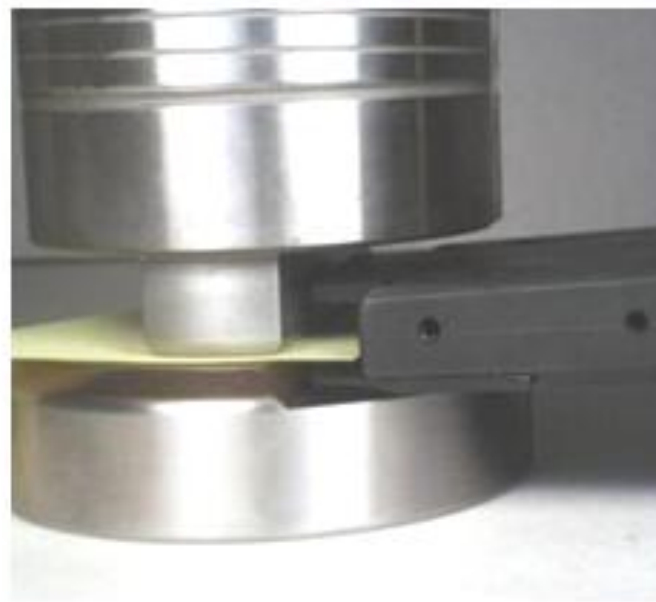
2. Contour Slitting and Microjoints



Special
Assemblies



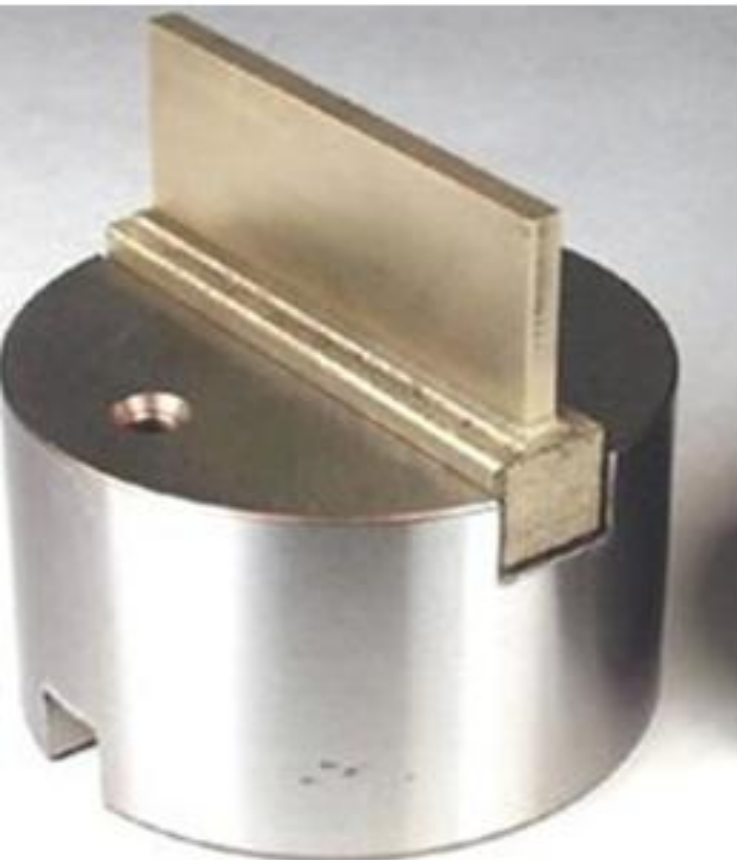
Long lasting Slitting Solutions



Fully Guided Clamp Clearing

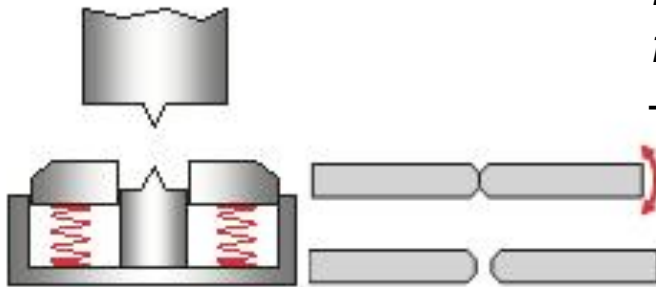
*Slitting Solution for
punching close to
clamps and forms*

*Upper Slitting System with
Punch Insert in M4PM tool steel*



*VersaDie
Lower Slitting System
with Die Insert in MPM82 tool steel*

Microjoint Solutions

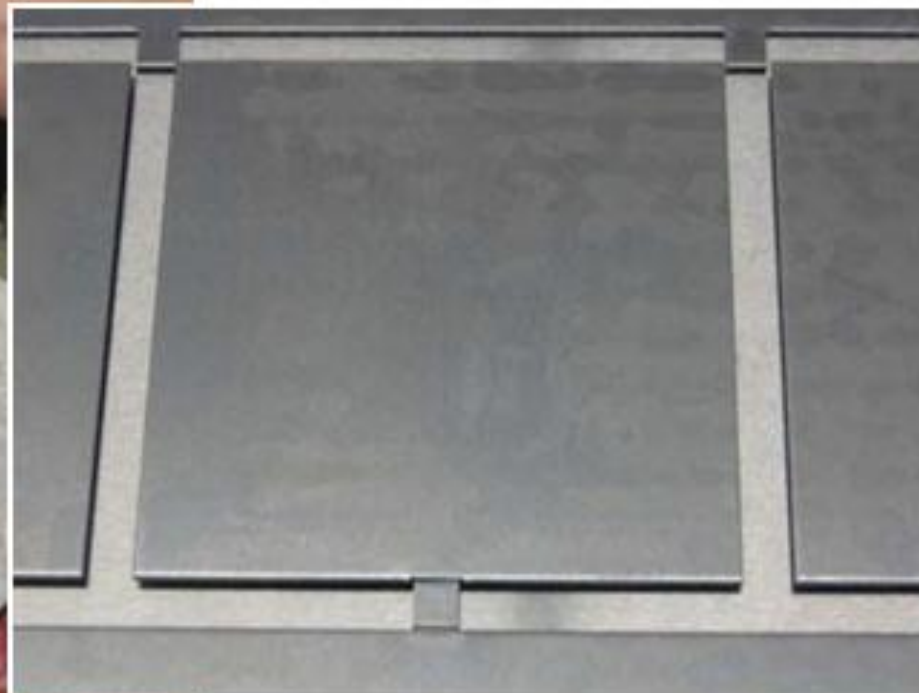
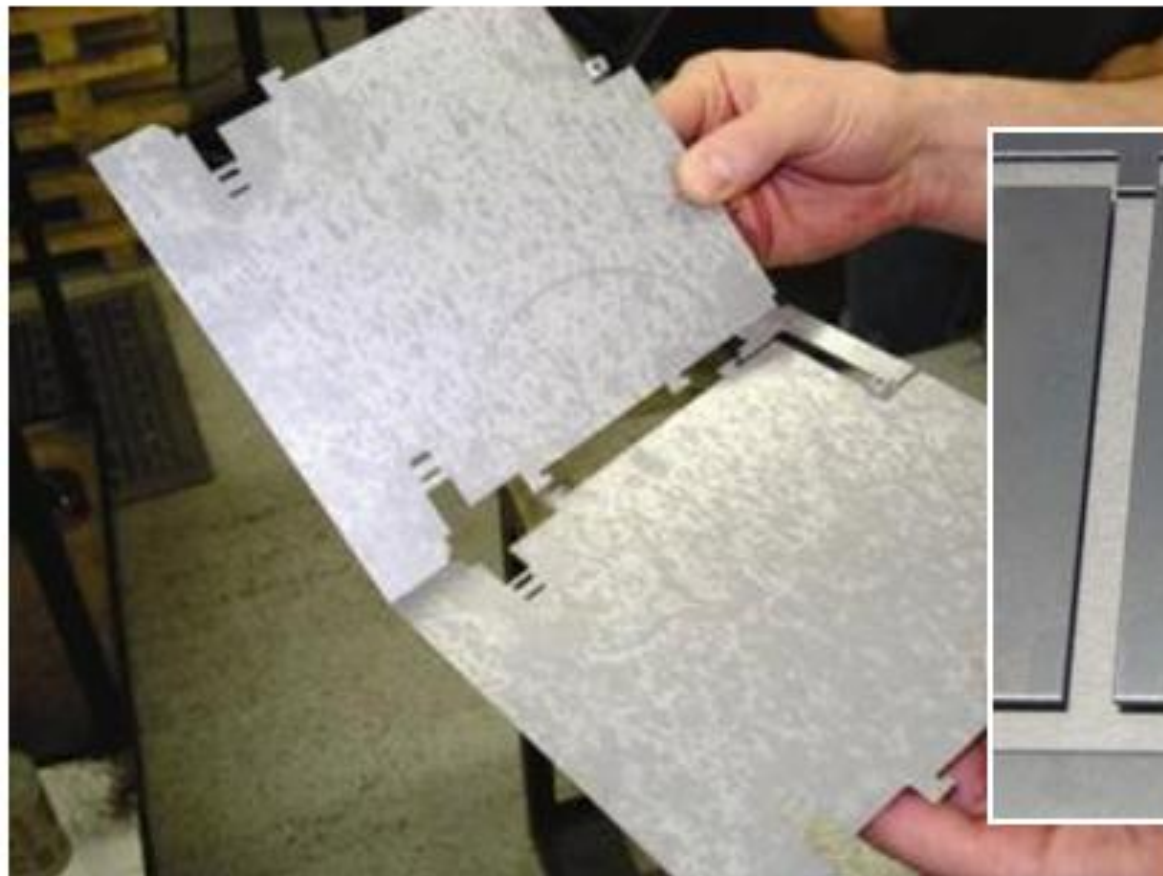


EasySnap and

Square EasySnap

*Part separation and Microjoints
for thinner material*

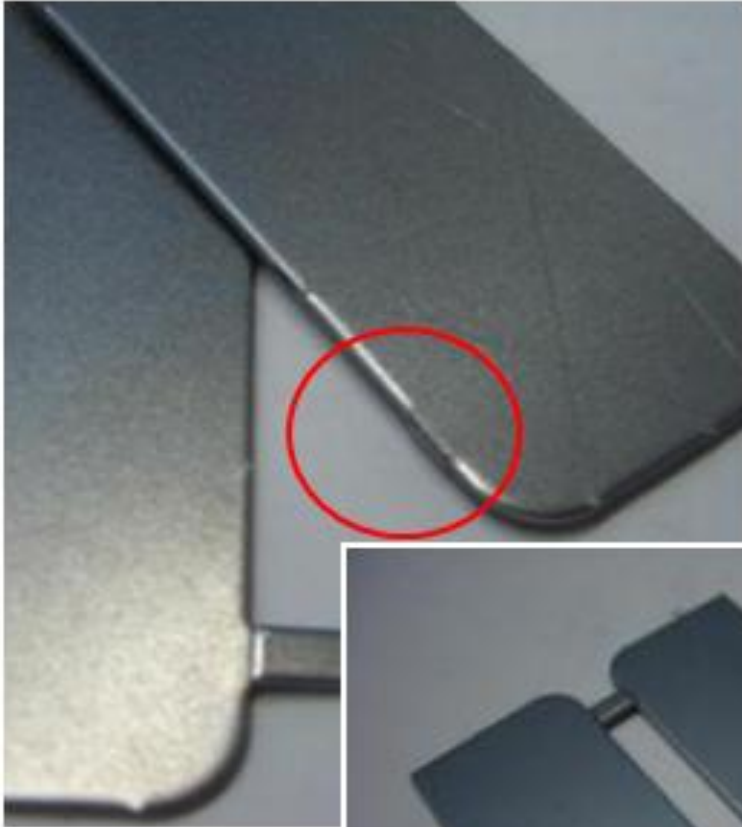
– leaving minimum burr or marks



Square Shearbutton

*Part separation and Microjoints
for thicker material*

– leaving minimum burr or marks

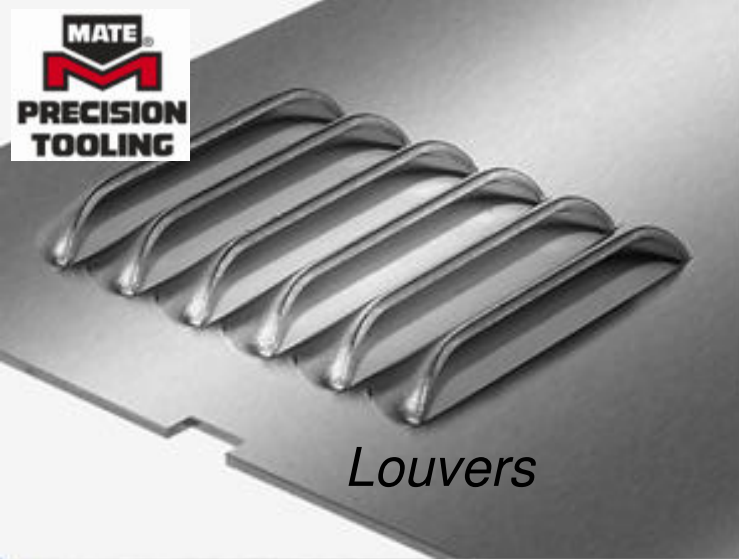


3. Special 'Standard' Forming Operations



Special
Assemblies

Common Forming Tools



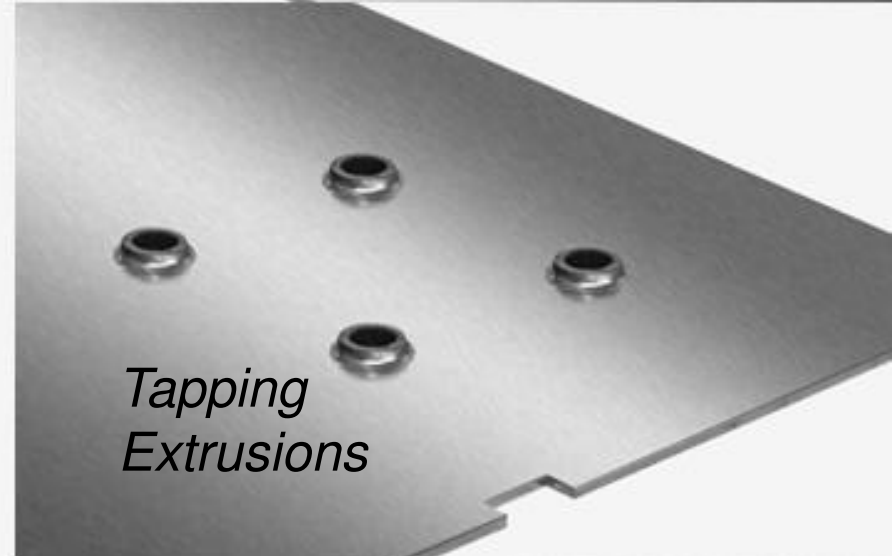
Louvers



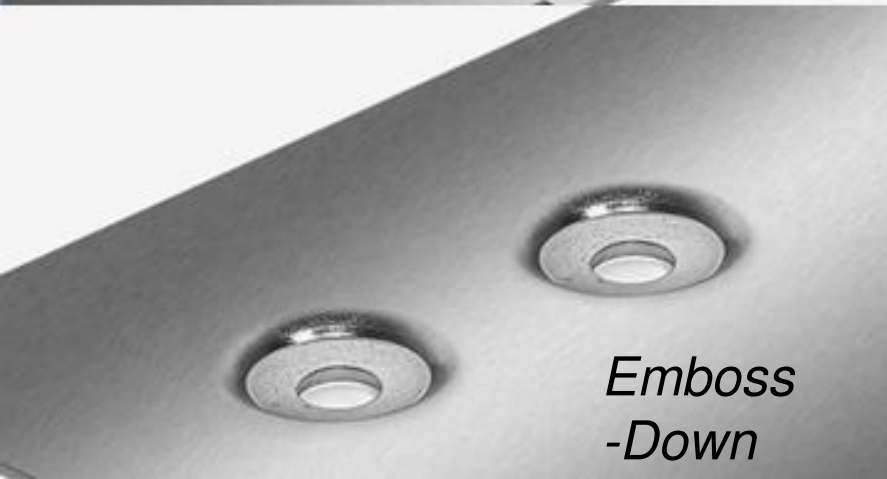
Knock-Outs



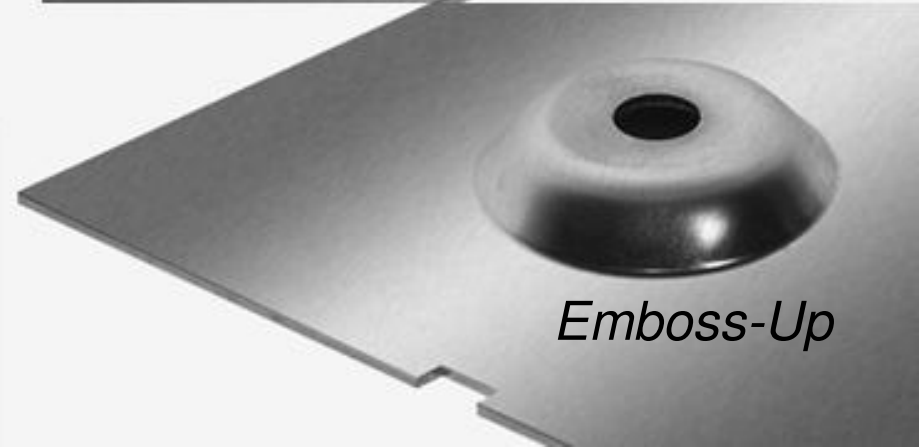
*Tube-guiding
Extrusions*



*Tapping
Extrusions*



*Emboss
-Down*



Emboss-Up

Multiple Louvers



Multiple Louvers in 1 tool

Continuous Louver

4mm hit centers, from left to right

Flexible length Louvers

3mm hit centers, from left to right

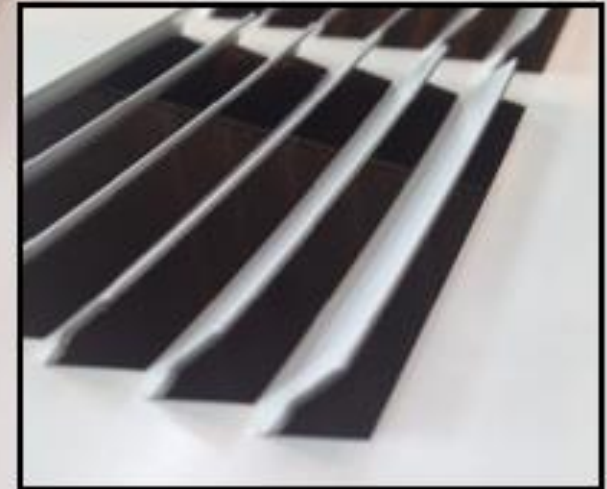
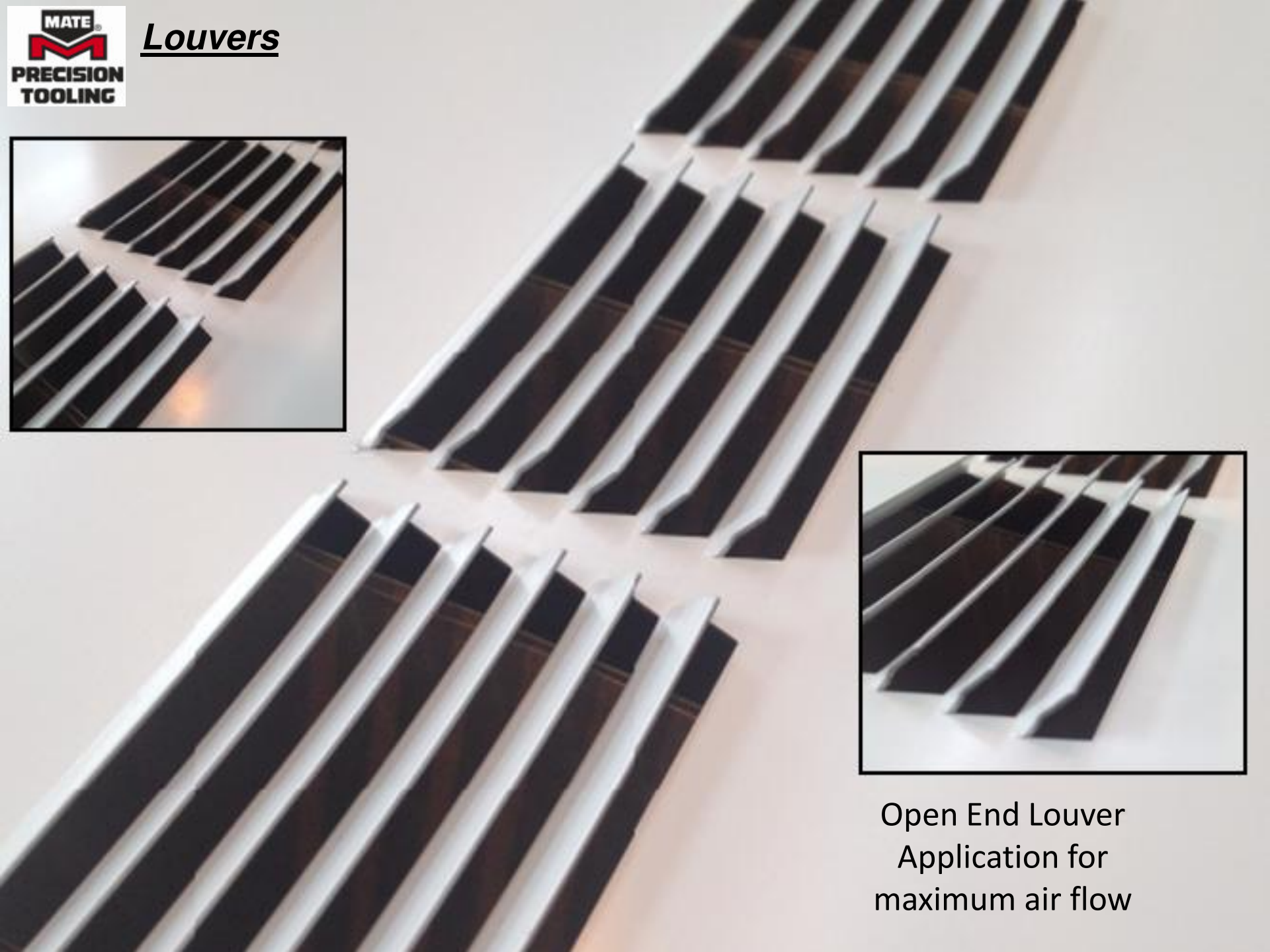


*1.5mm hit centers, from middle to left,
then middle to right*



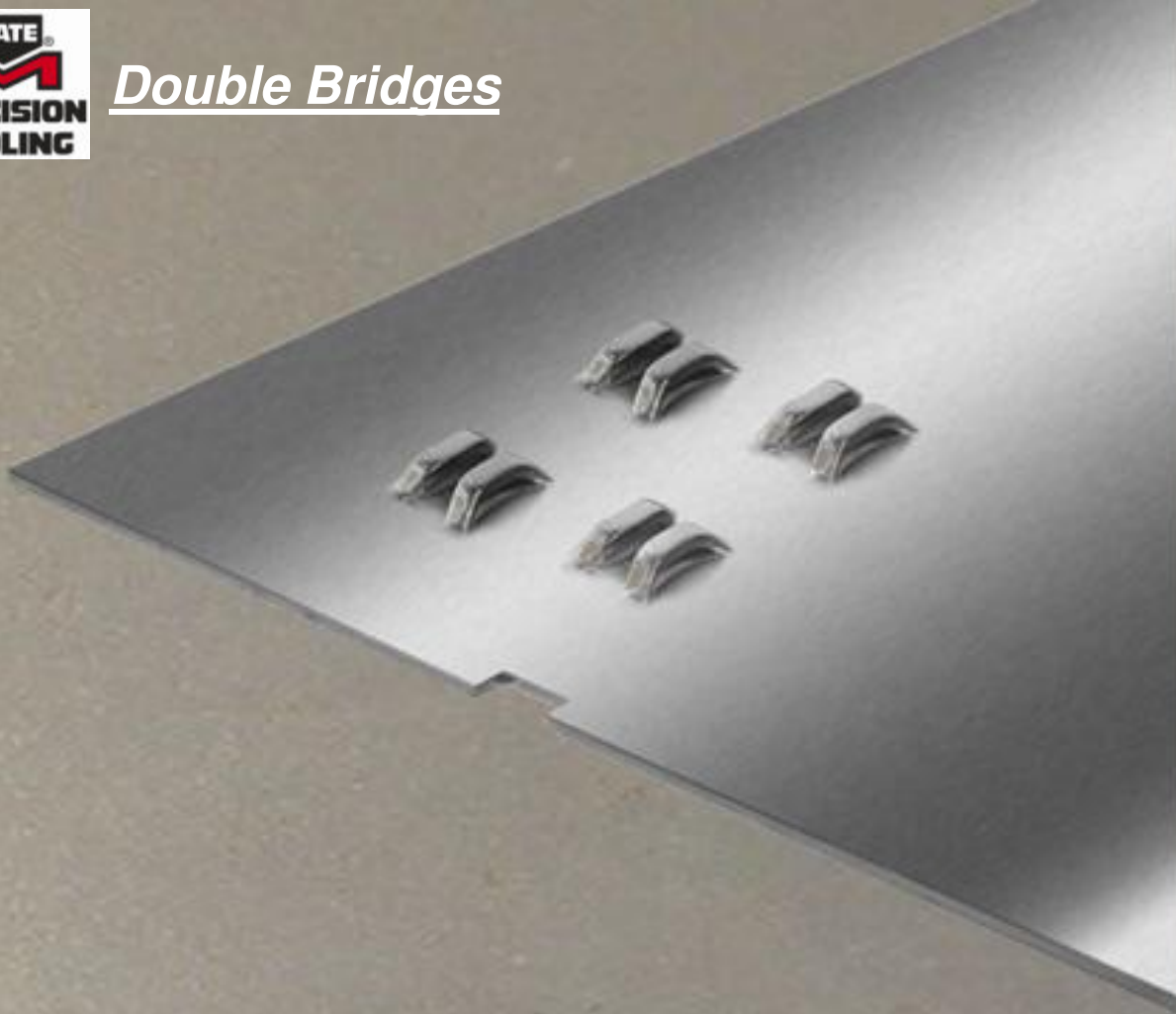
*Special Louver Application
(in Up-Forming station or Active Die)*

Louvers



Open End Louver
Application for
maximum air flow

Double Bridges



Multiple Bridges



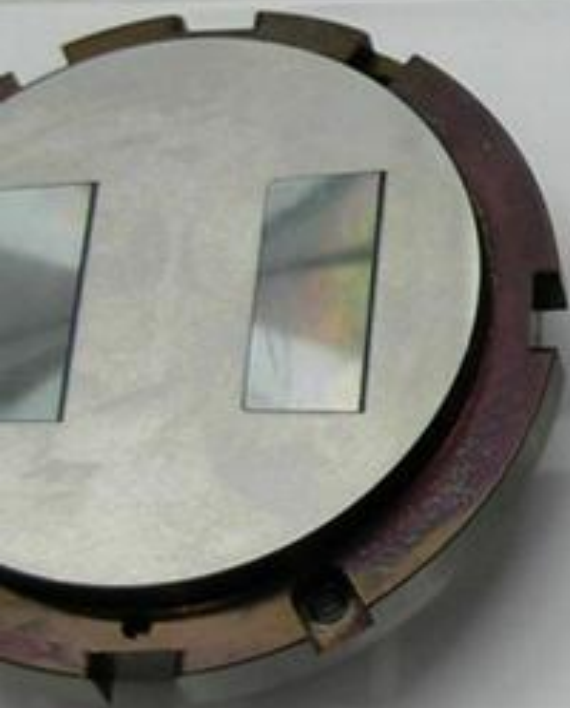
Multiple bridges
as card guide solution

Cross Shape Bridge



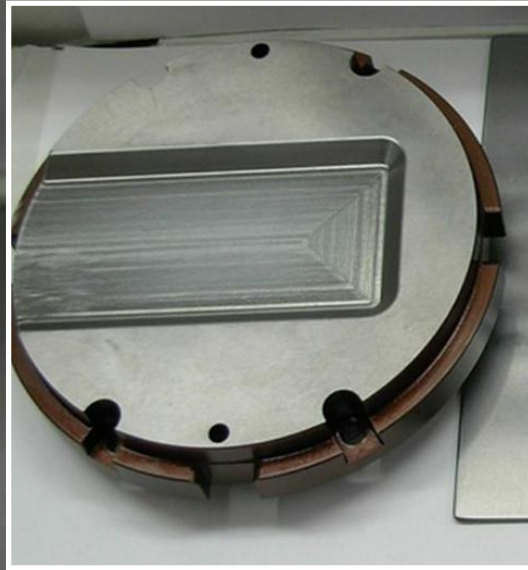


Double Lance-and-Form



X-Part # XAVED0F200

Large
Emboss

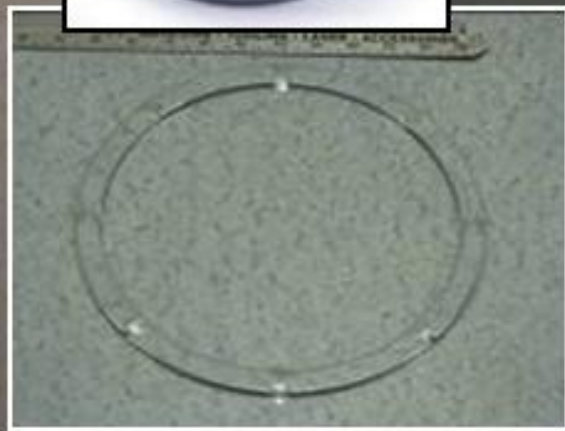
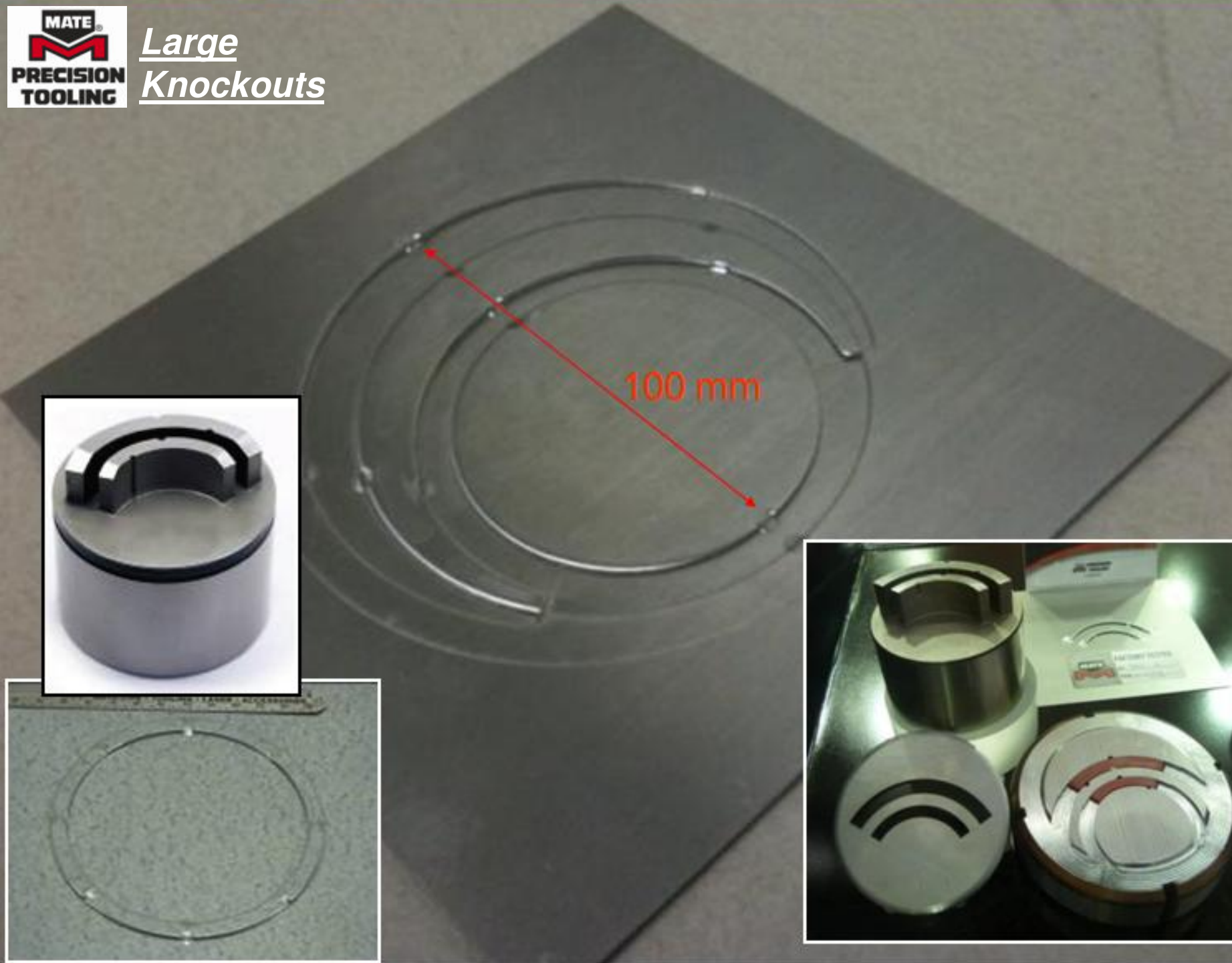


*Special Emboss Application
(2 hits with 180° rotation)*

Double Knockout



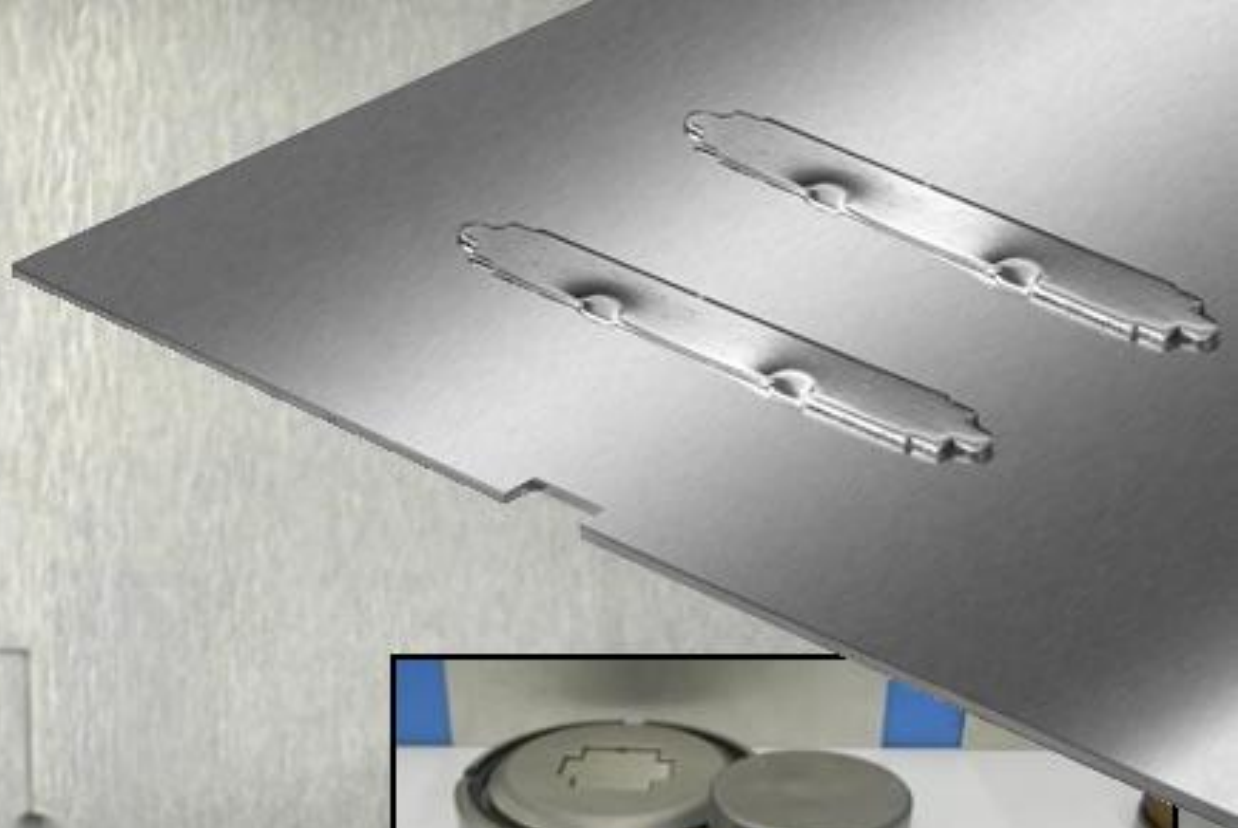
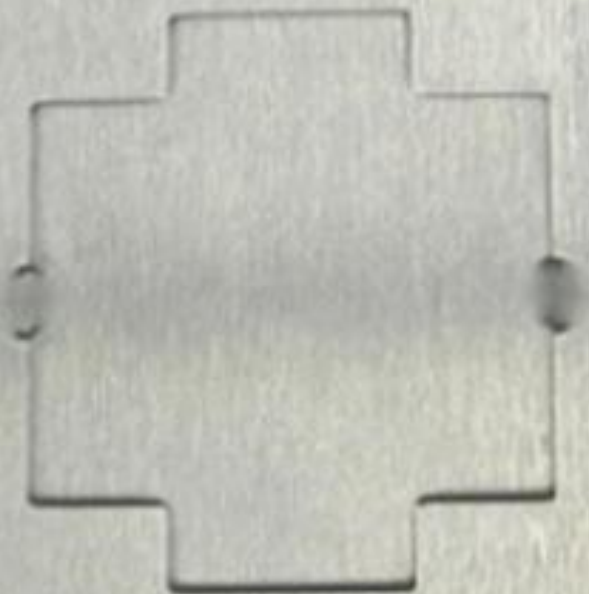
Large Knockouts



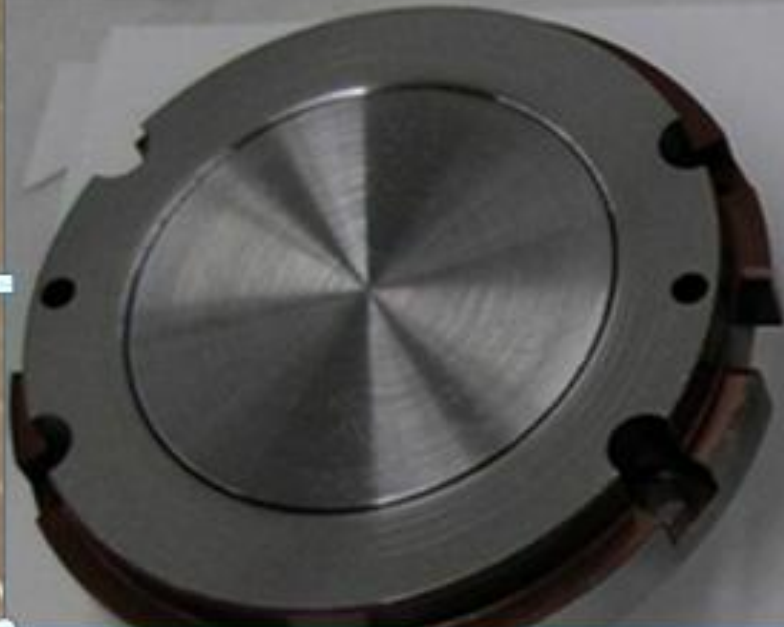
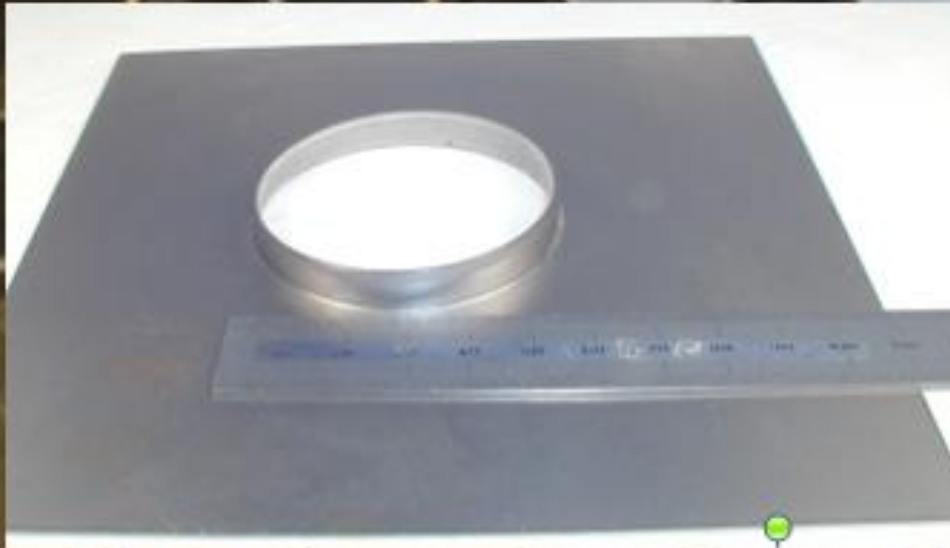
Large Knockouts



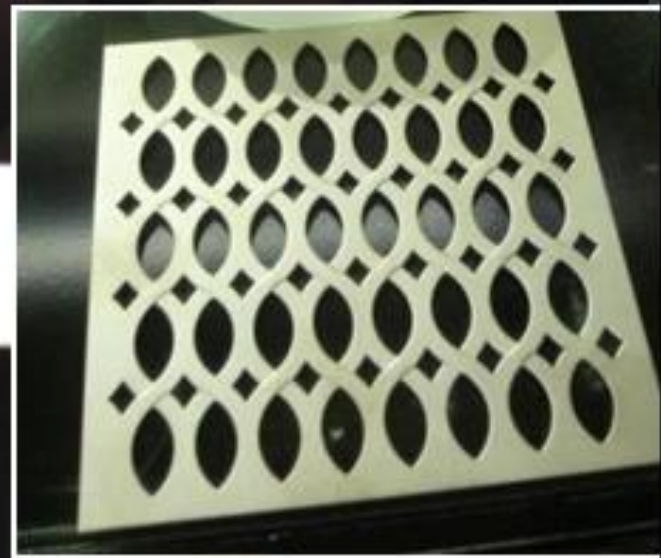
Special Shape Knockouts



Large extrusions

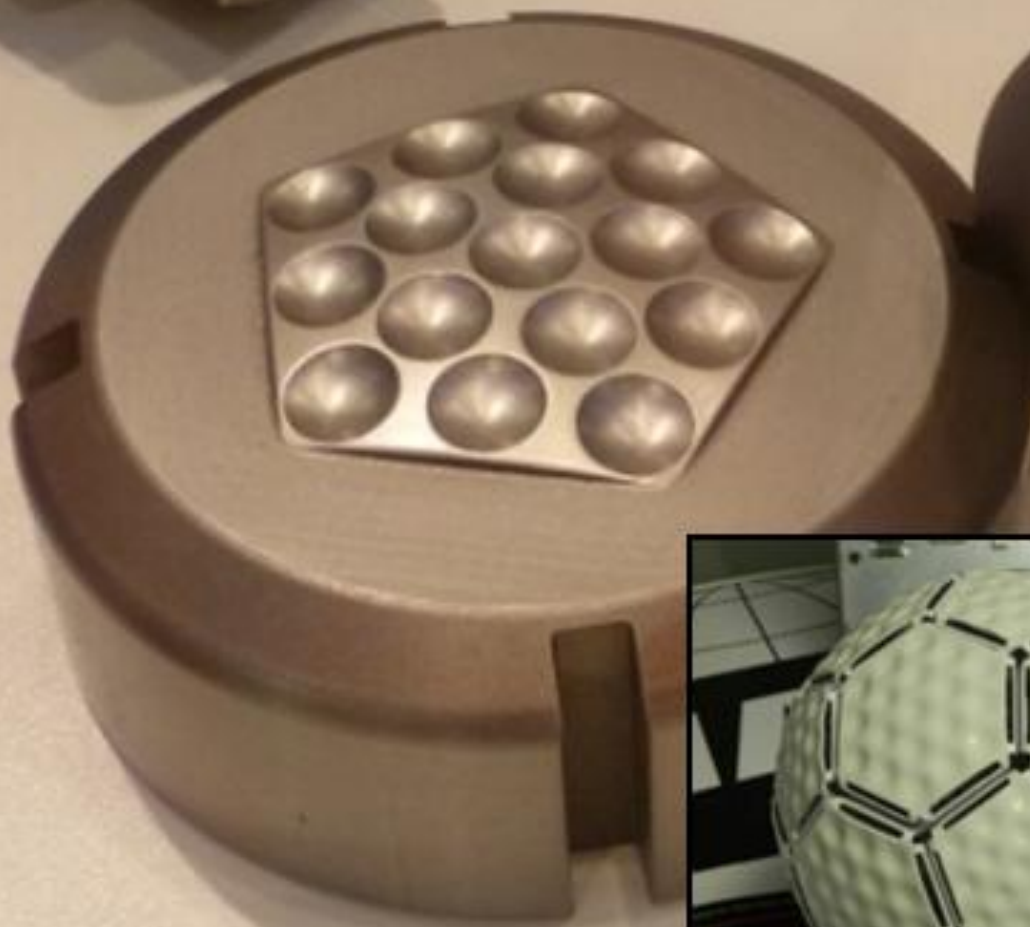


Special forming



Weaved pattern in sheet

Special Emboss



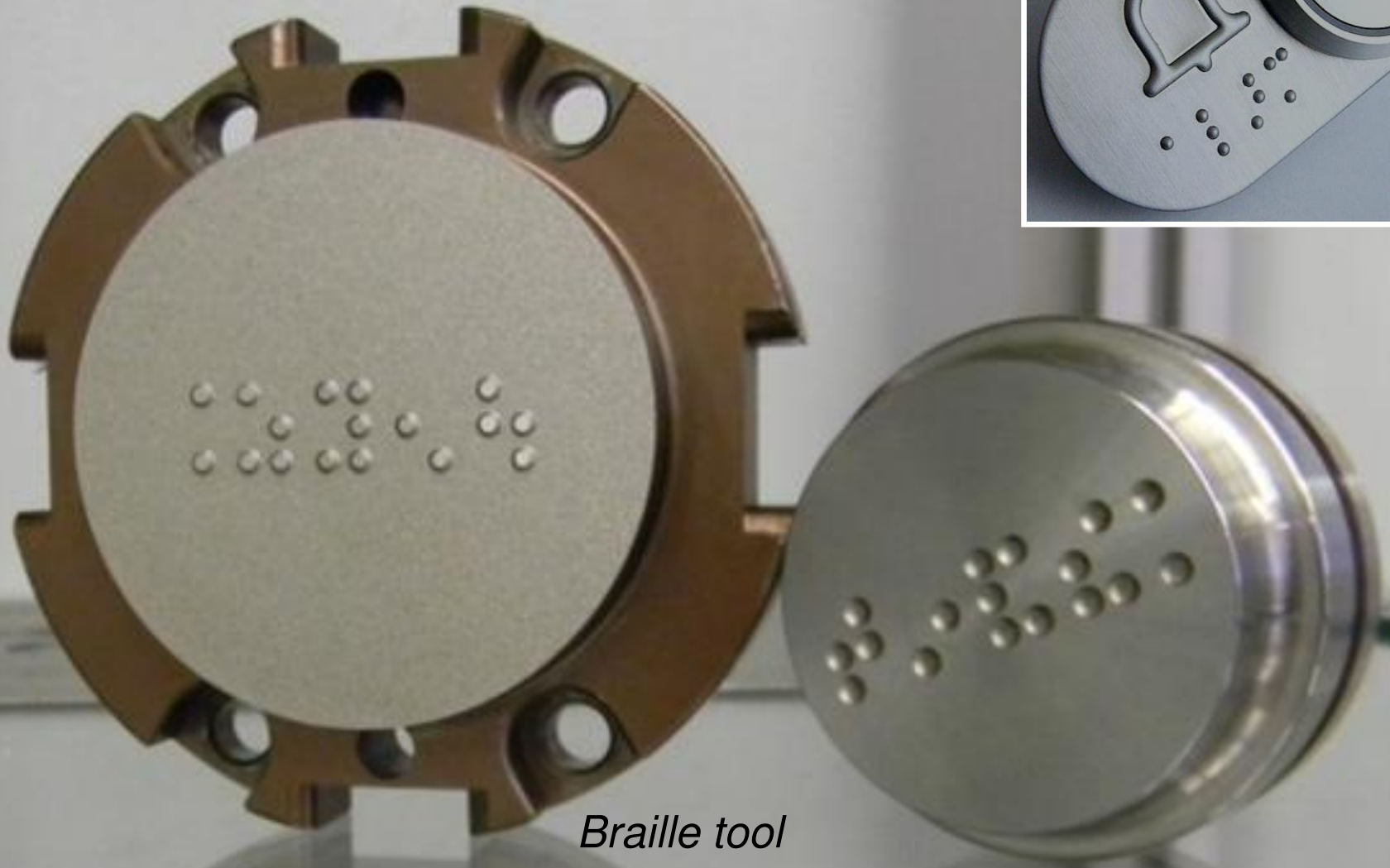
“Golf ball effect”

Special Emboss



Multiple dimple tool

Special Emboss



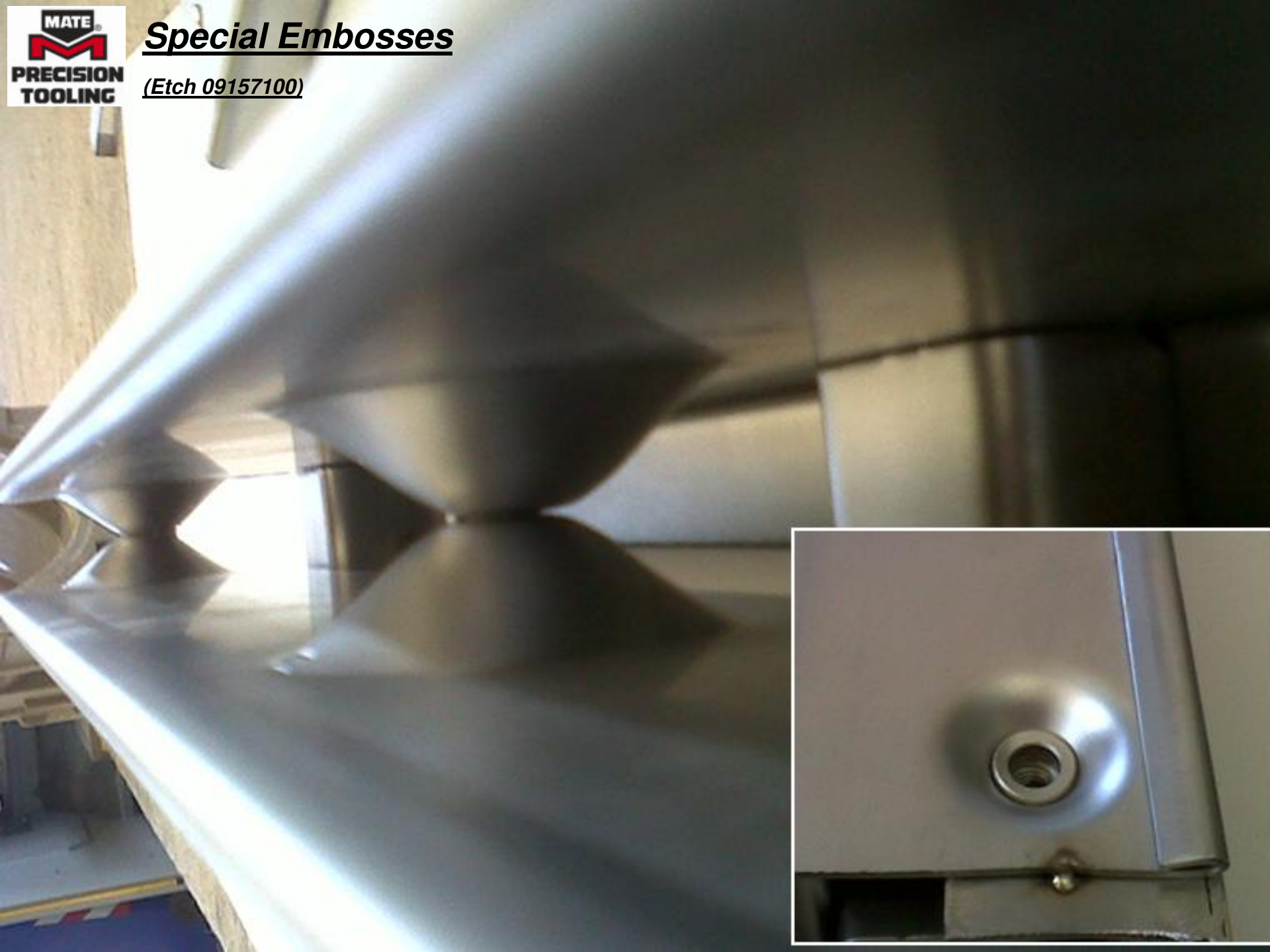
Braille tool

Special Embosses



Special Embosses

(Etch 09157100)



4. Logos and Sheet Marking



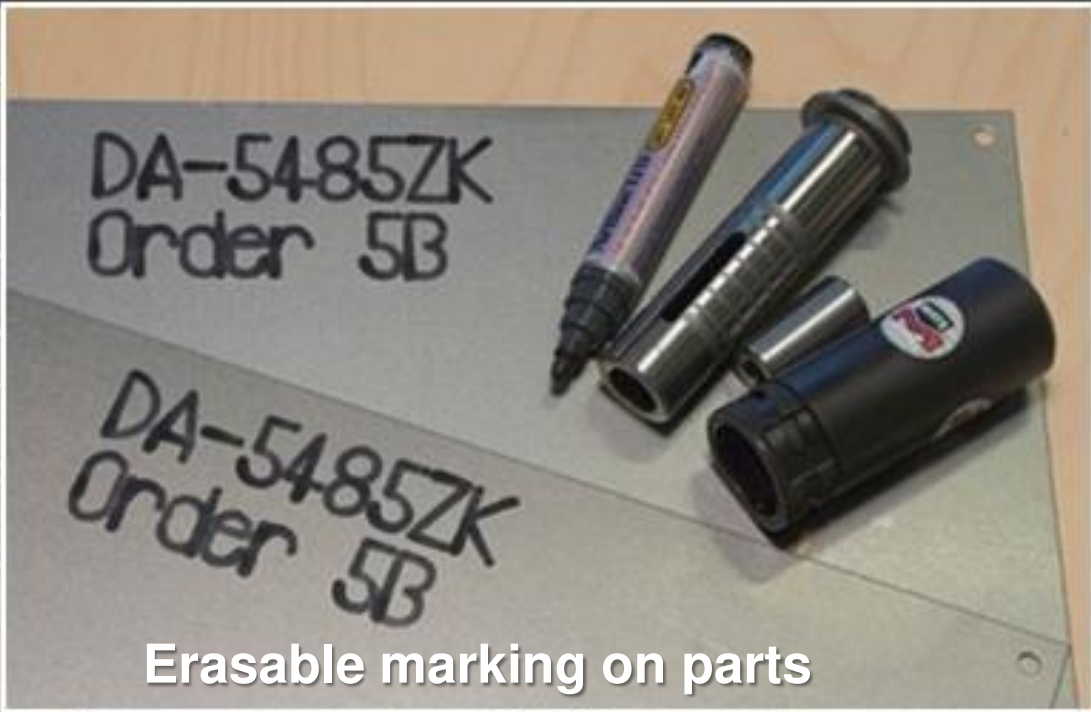
Special
Assemblies



**Flexible Marking and
Scribing Solutions**



**MATE SheetMarker®
for flexible marking**



Erasable marking on parts



MATE EasyMark



Permanent scribing



Alpha-Numeric Stamping

CHARACTER HEIGHT

3/32" (2.4 mm) CHARACTER HEIGHT

ABCDEFGHIJKLMNOPQRSTUVWXYZ

← 1.000(25.4) →

1/8" (3.2 mm) CHARACTER HEIGHT

ABCDEFGHIJKLMNOPQRSTUVWXYZ

← 1.000(25.4) →

3/16" (4.8 mm) CHARACTER HEIGHT

ABCDEFGHIJKLMNOPQRSTUVWXYZ

← 1.000(25.4) →

ABCDEFGHIJKLMNOPQRSTUVWXYZ

← 1.000(25.4) →

1/4" (6.4 mm) CHARACTER

*Flexibility through
replaceable
character inserts*



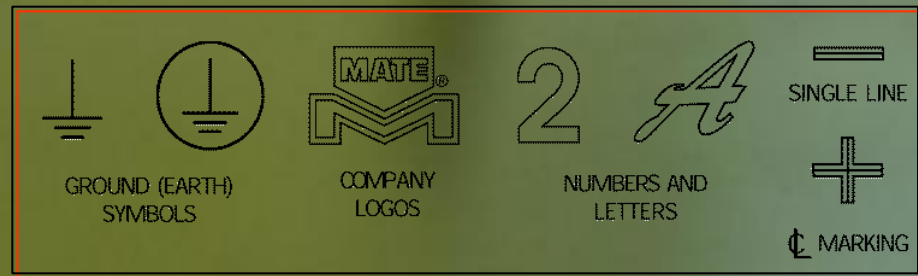
Sequential Numbering



MATE Enumerator™

*Sequential
part identification
numbering*

Logo 1: V-line



1. "Standard" inscriptions
with V-line incision tool(s)



2. Custom inscriptions
with V-line incision tool(s)

Logo 1: V-line

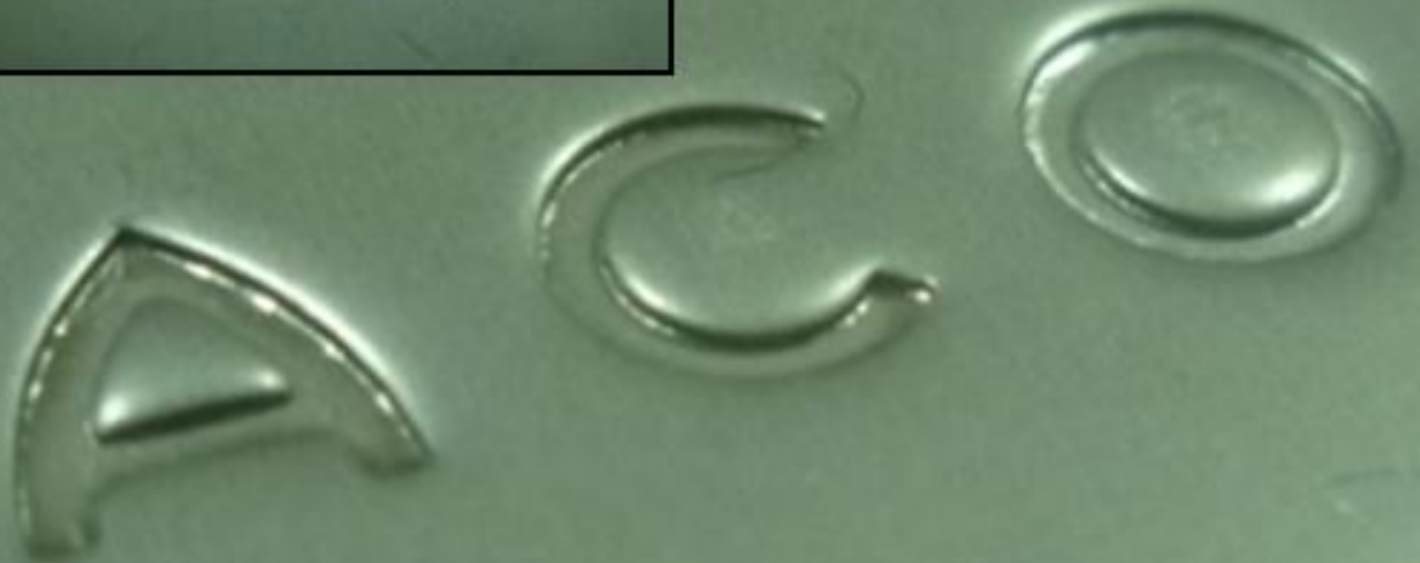
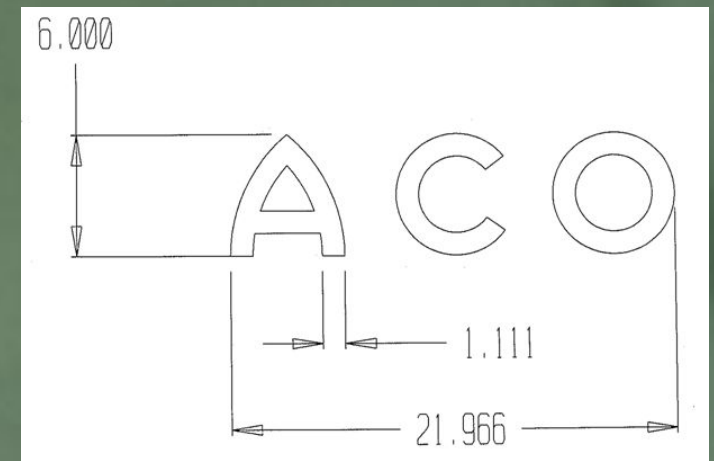


Logo 1: V-line

Custom inscriptions
with V-line incision:



Logo 2: Stamped



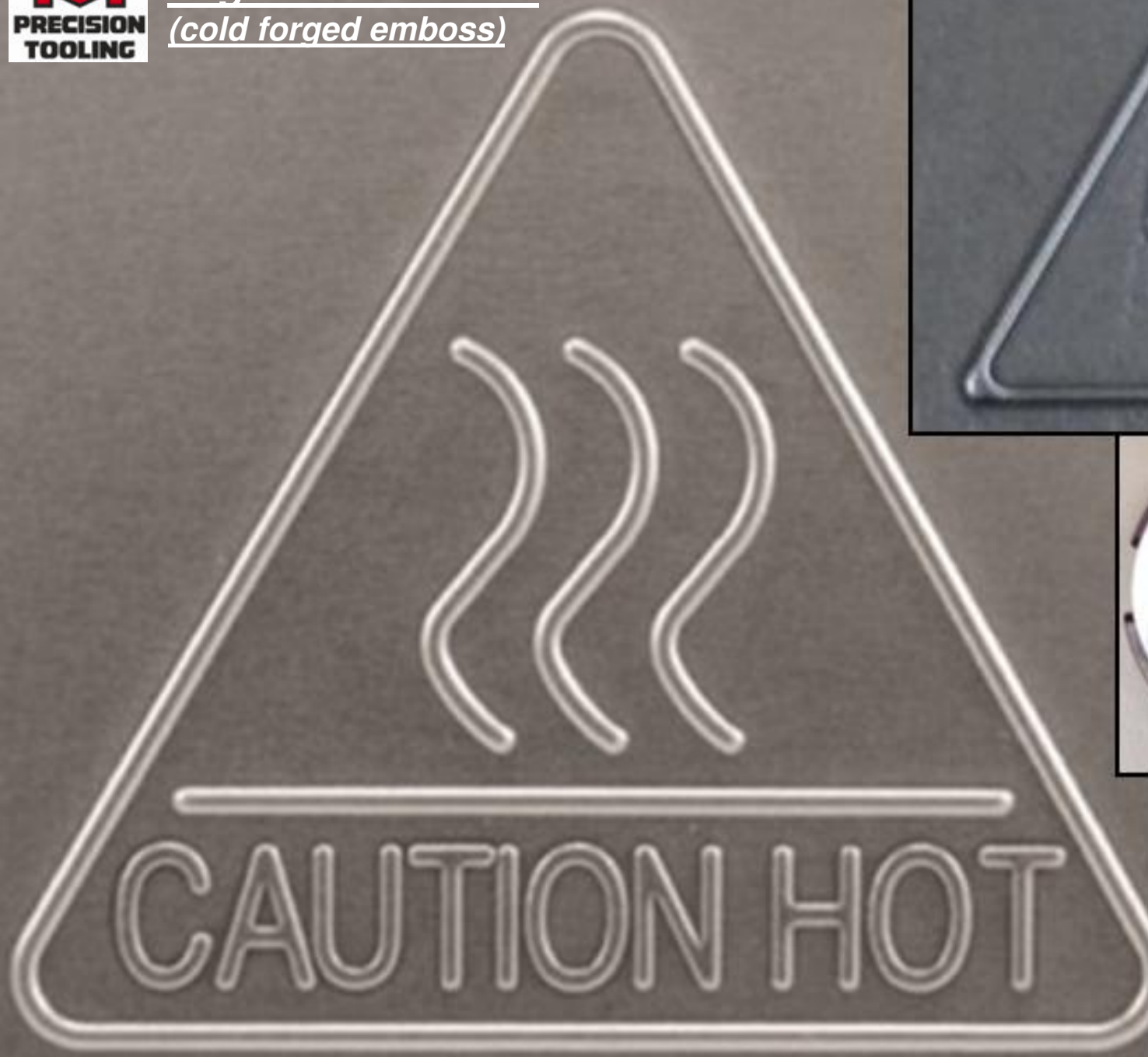
Stamped down incision

Logo 3: Embossed
(cold forged emboss)



*Cold forged raised emboss
guarantees readability
after painting*

Logo 3: Embossed
(cold forged emboss)



Logo 3: Embossed
(cold forged emboss)

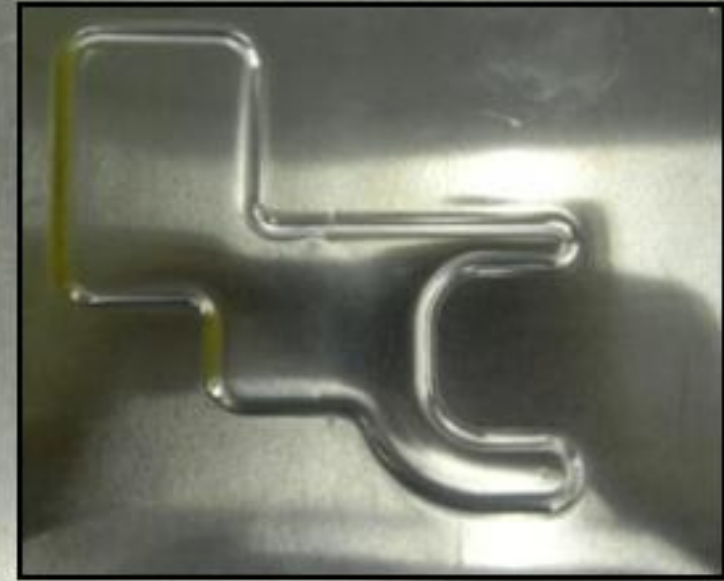


Logo 3: Embossed
(cold forged emboss)



“You’re proud of your product.
Put your name on it!”

Logo 3: Embossed
(cold forged emboss)



**“You’re proud of your product.
Put your name on it!”**

5. Easier Product Assembly

– eliminate secondary operations



Special
Assemblies

Assembly Solutions



*Quick and secured
assembly, eliminating
secondary operations*



MATE SnapLock™



Assembly Solution *with Reinforced SnapLock*



Threadform



Threadform application
with special screws,
with prepiece

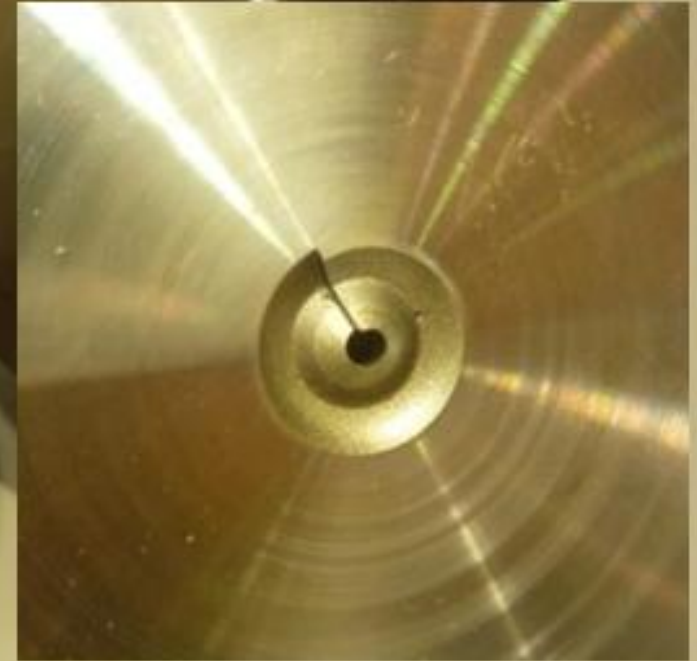


Threadform



Threadform application
on side of sheet

Hybrid Threadform (for metric bolts)

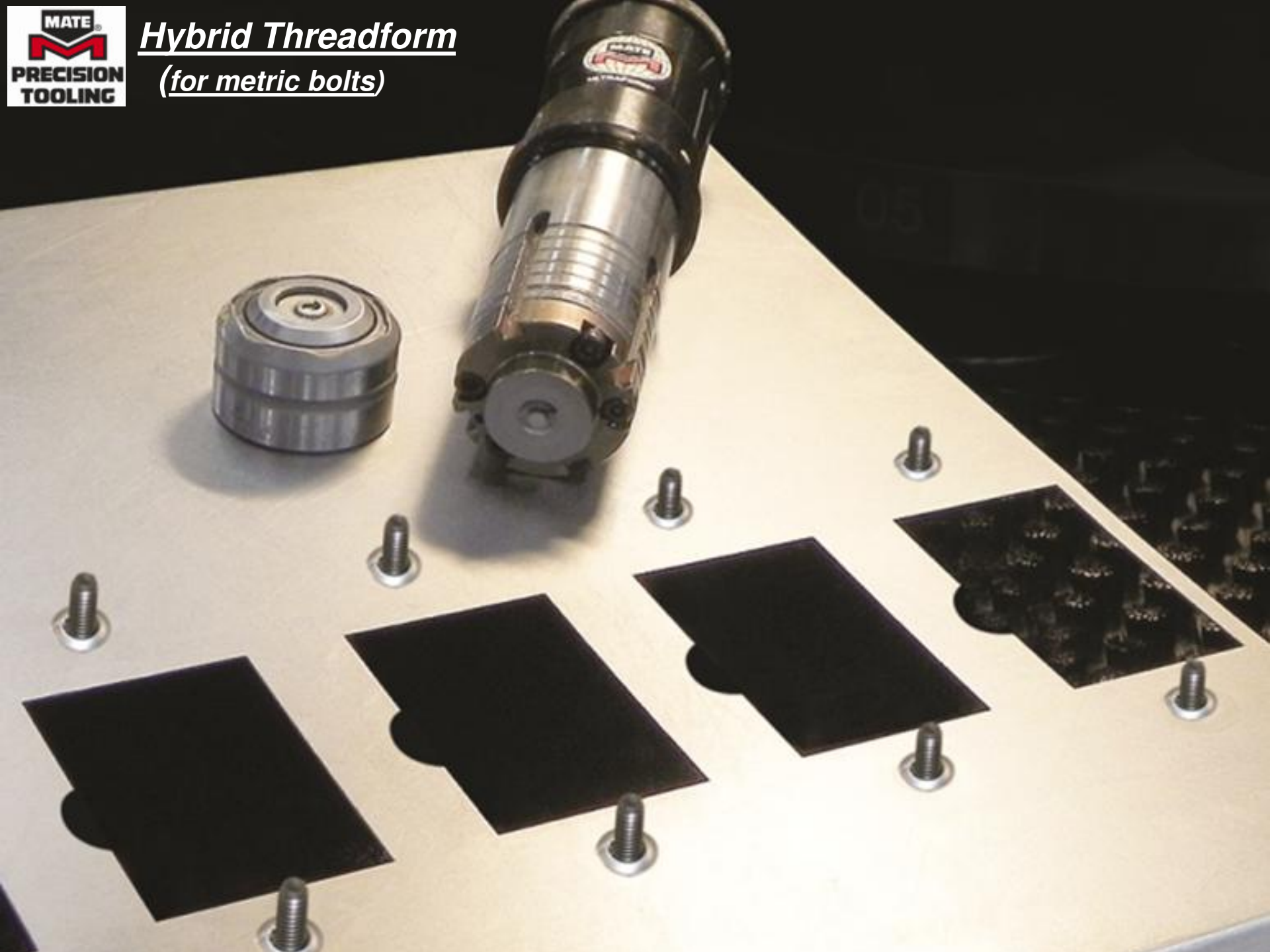


*Threadform application
for standard metric bolts*





Hybrid Threadform (for metric bolts)

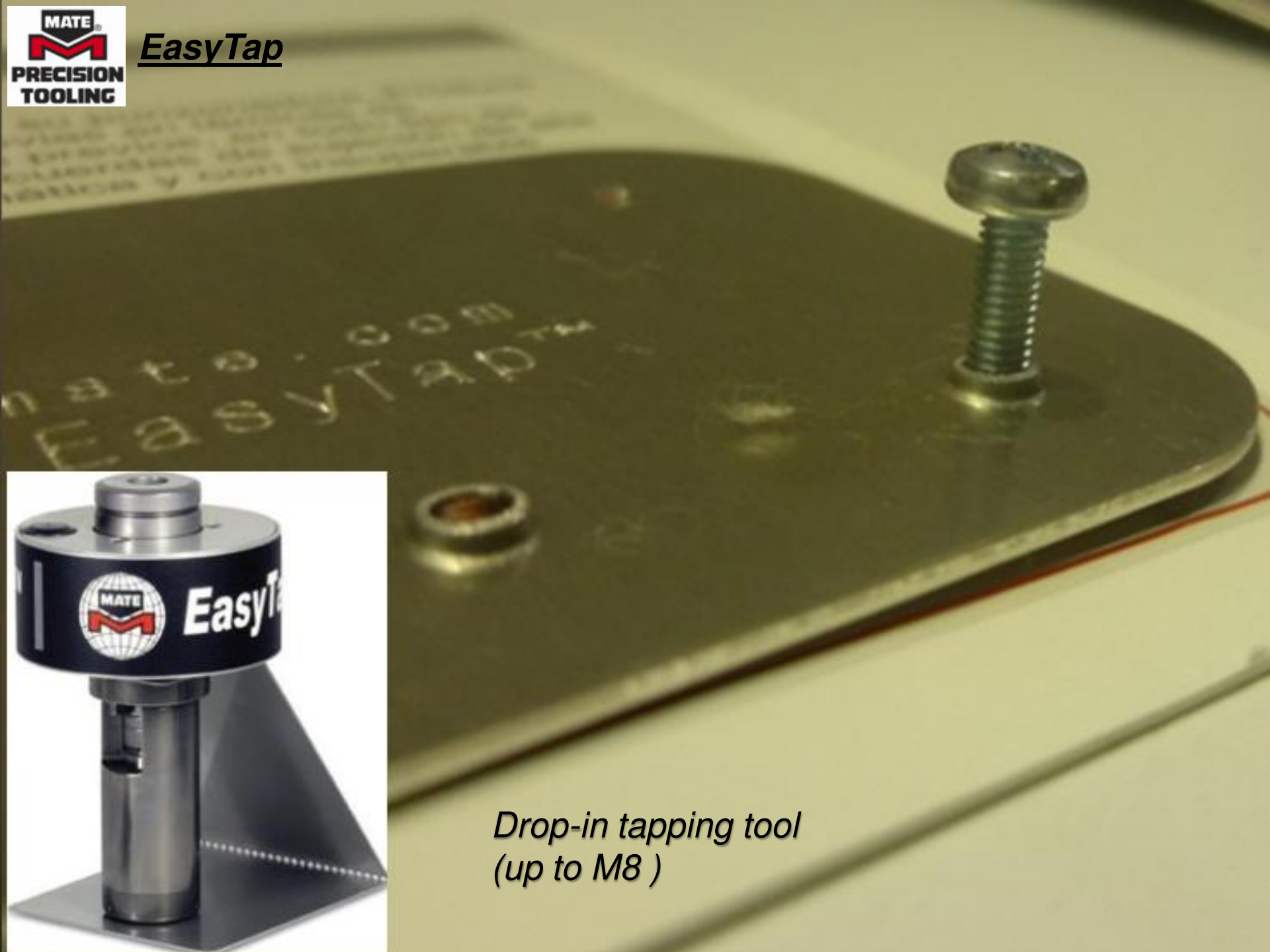


Hybrid Threadform
(for metric bolts)



Threadform application
on electrical cabinets





*Drop-in tapping tool
(up to M8)*

Assembly Solution *with double Lance-and-Form*



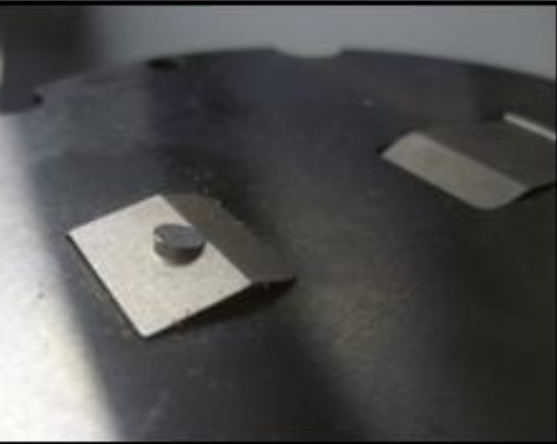
Assembly Solution

(etch 03158028)

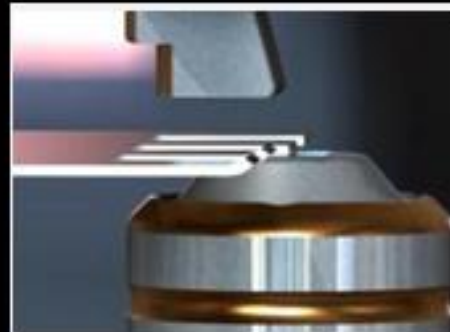


Assembly Solution

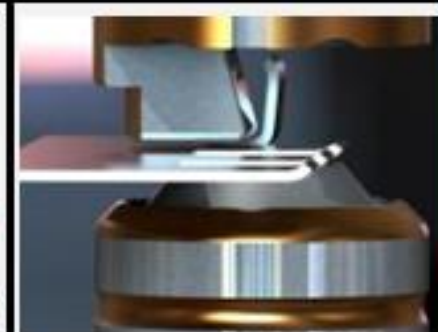
with SnapLock and Lance-and-Form in one



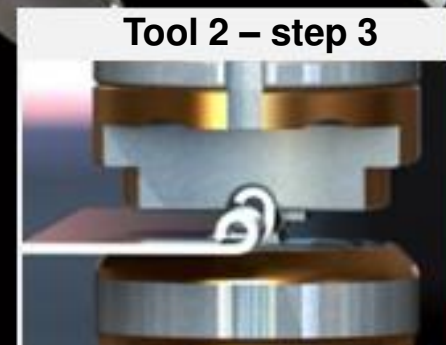
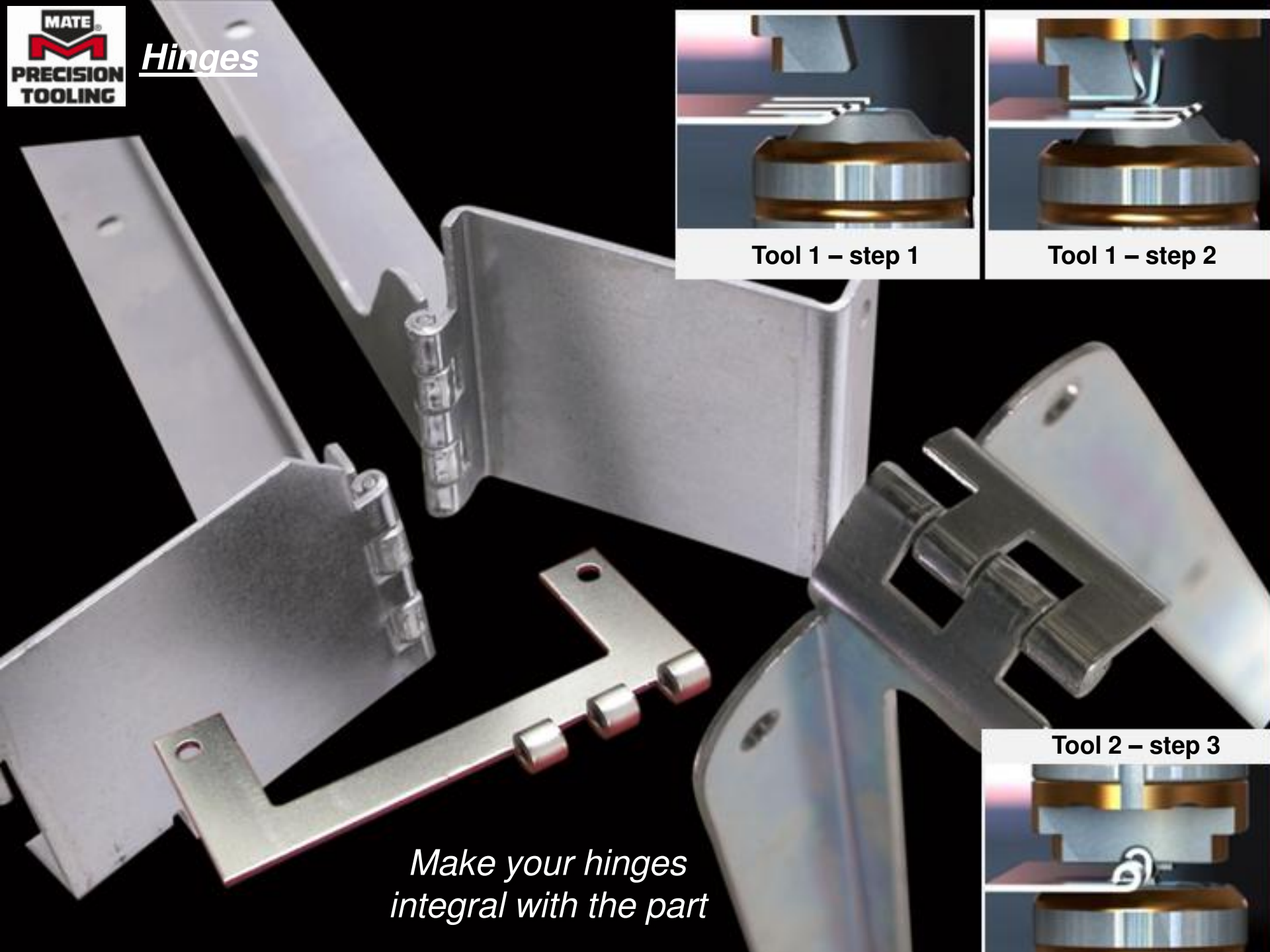
Hinges



Tool 1 – step 1

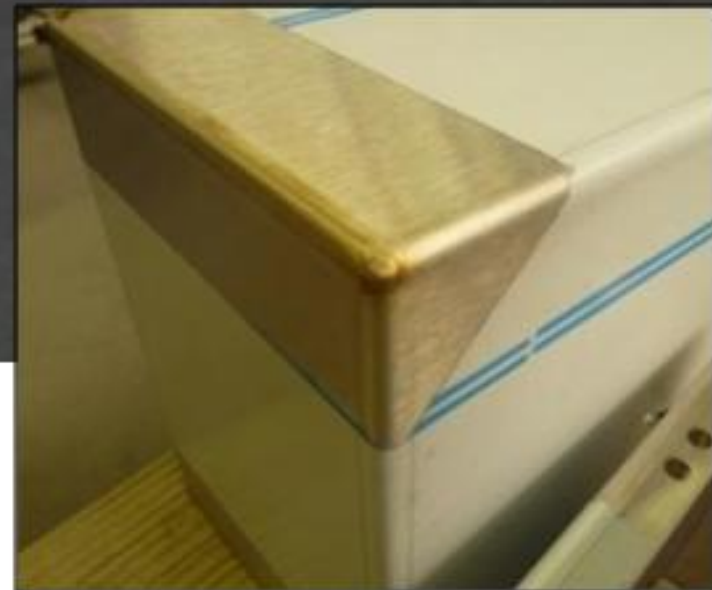


Tool 1 – step 2



Tool 2 – step 3

*Make your hinges
integral with the part*



*Precut areas for
secondary operations with
MATE SheetMarker®*

Scoring Solutions



*Precut areas
to facilitate assembly*

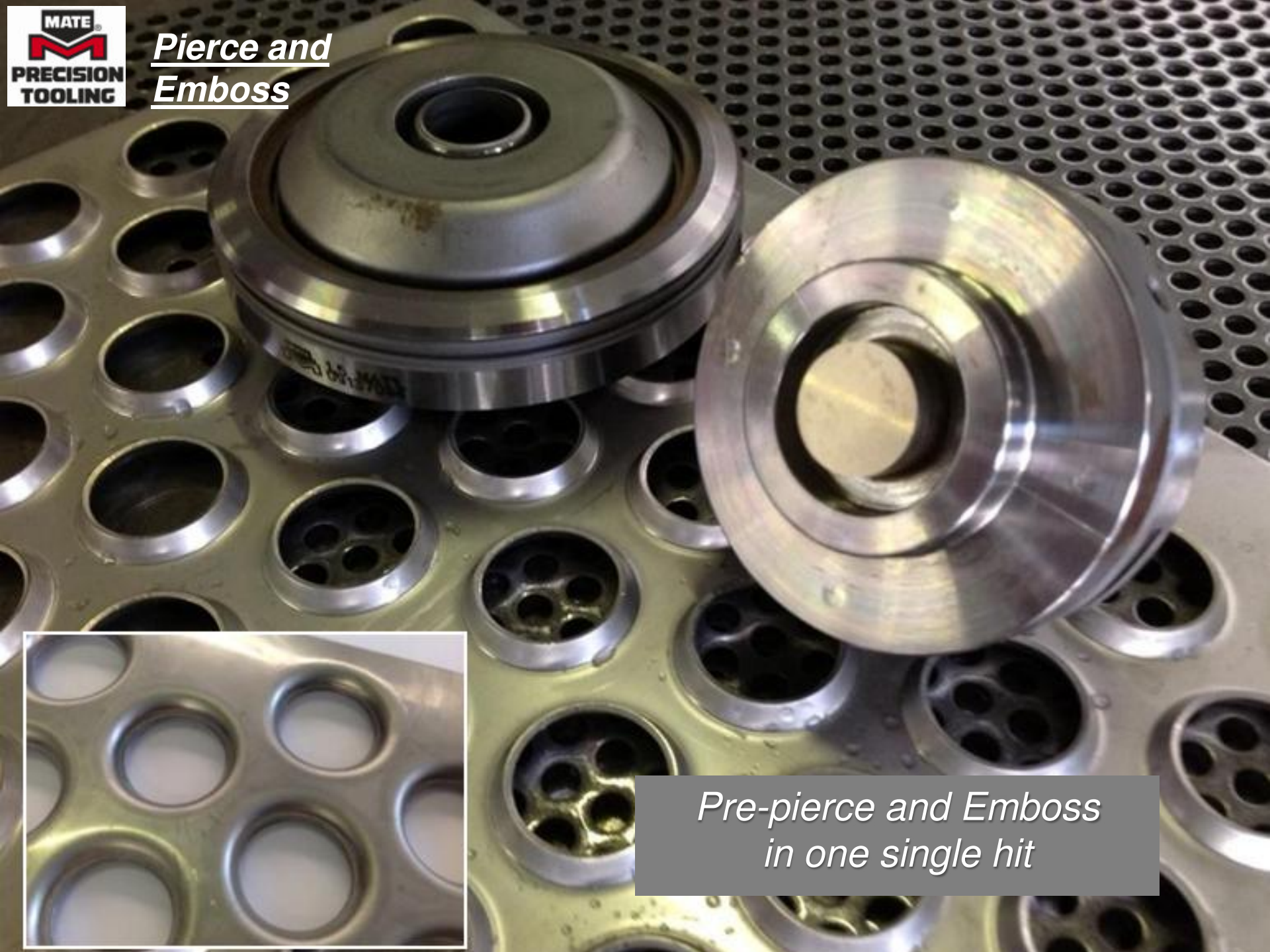


6. Complex Punching and Forming Operations

MATE
M **PRECISION**
TOOLING

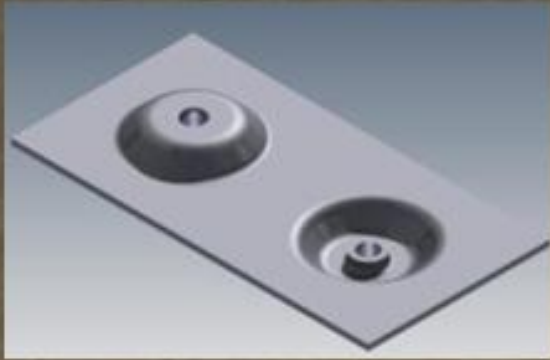
Special
Assemblies

Pierce and Emboss



*Pre-pierce and Emboss
in one single hit*

Emboss with Extrusion



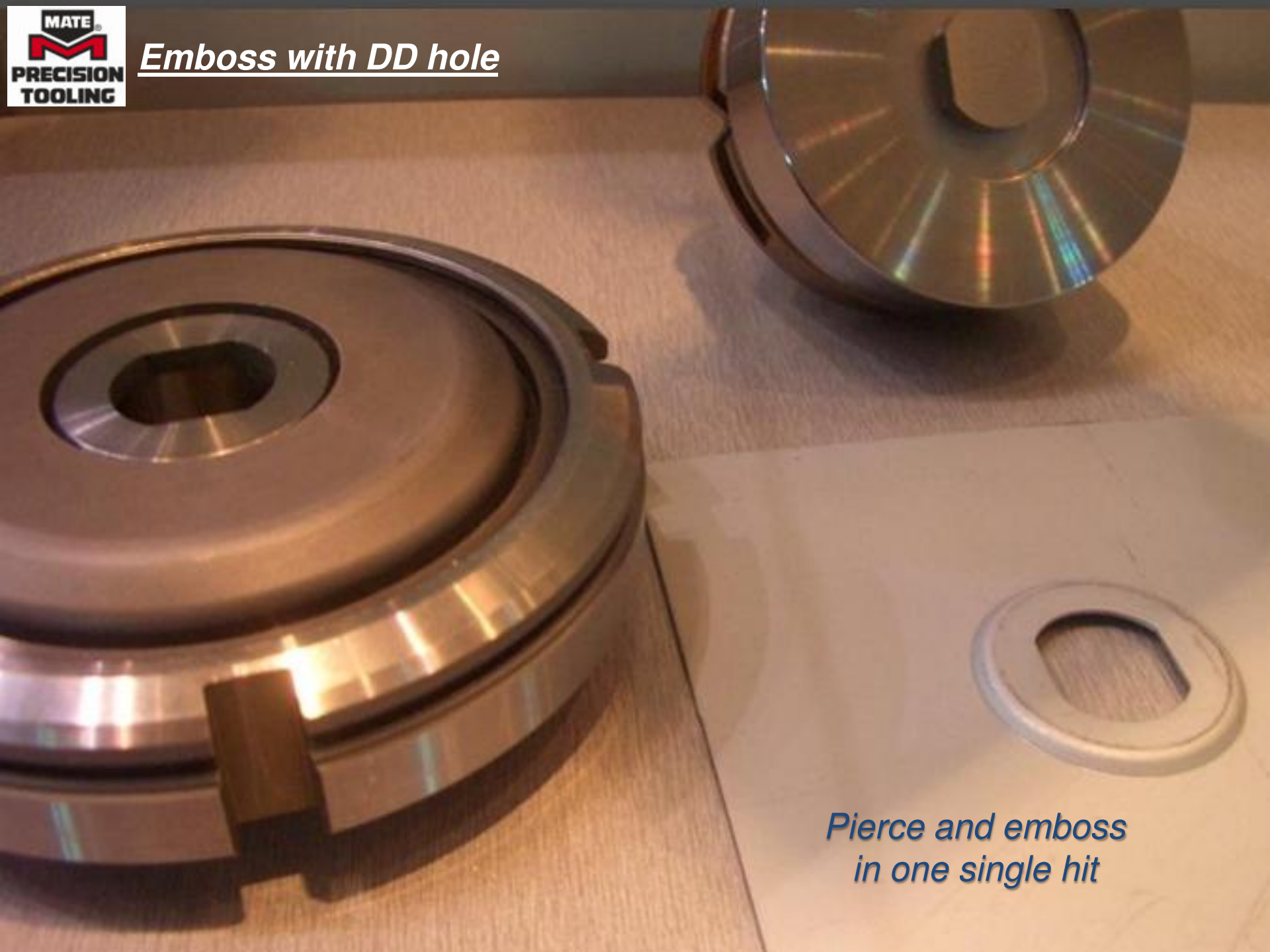
*Pre-pierce, emboss and
extrusion in one single hit*

Embossed
obround countersink



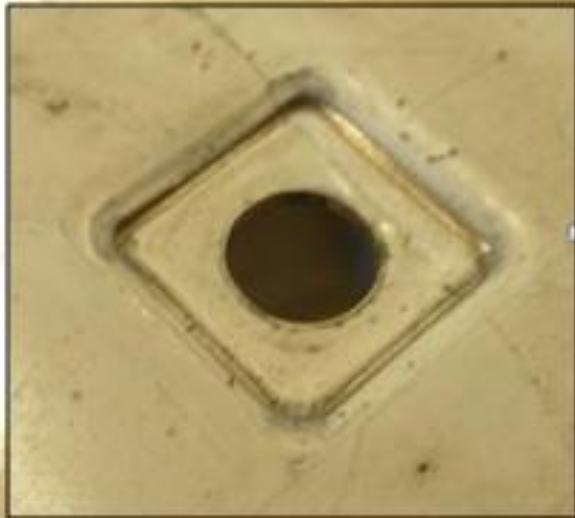
*Pre-pierce, emboss and
extrusion in one single hit*

Emboss with DD hole



*Pierce and emboss
in one single hit*

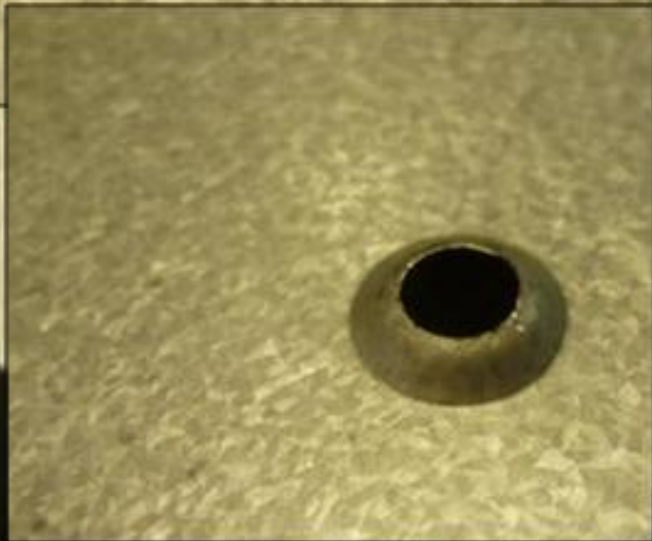
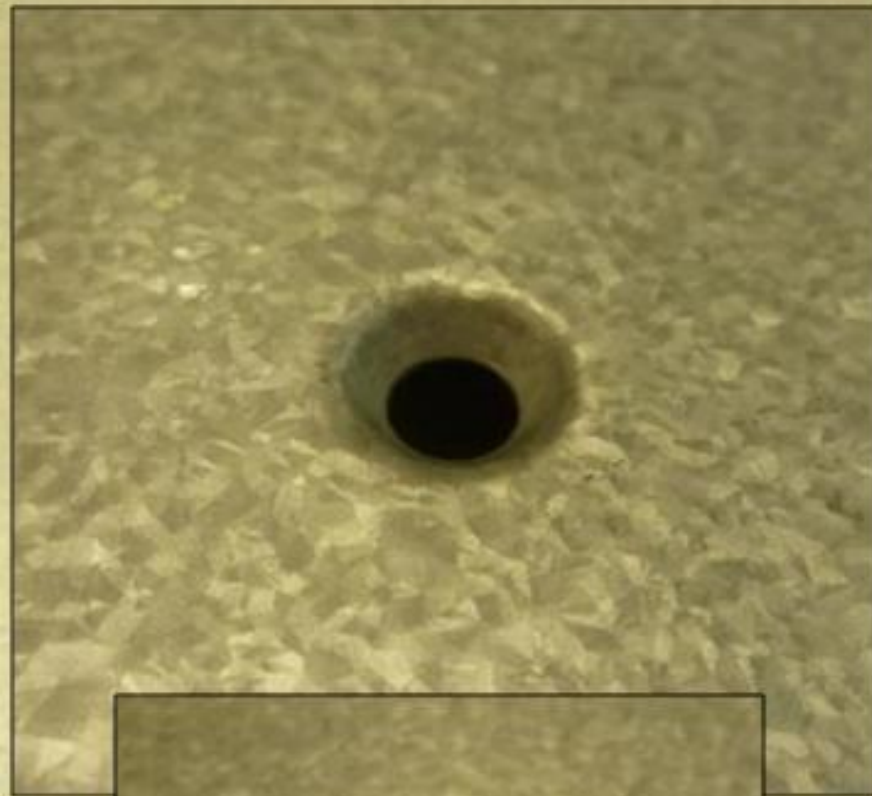
Pierce-and-emboss
(down)



*Pierce and
emboss-down
in one single hit*



Pierce-and-emboss
(down)



*Pierce and
emboss-down
in one single hit*

Pierce-and-emboss
(down)



*Emboss-up and
emboss-down
in one single hit*

Triple pierce-and-extrude
(down)

*Triple pre-pierce
and extrusion down,
in one single hit*

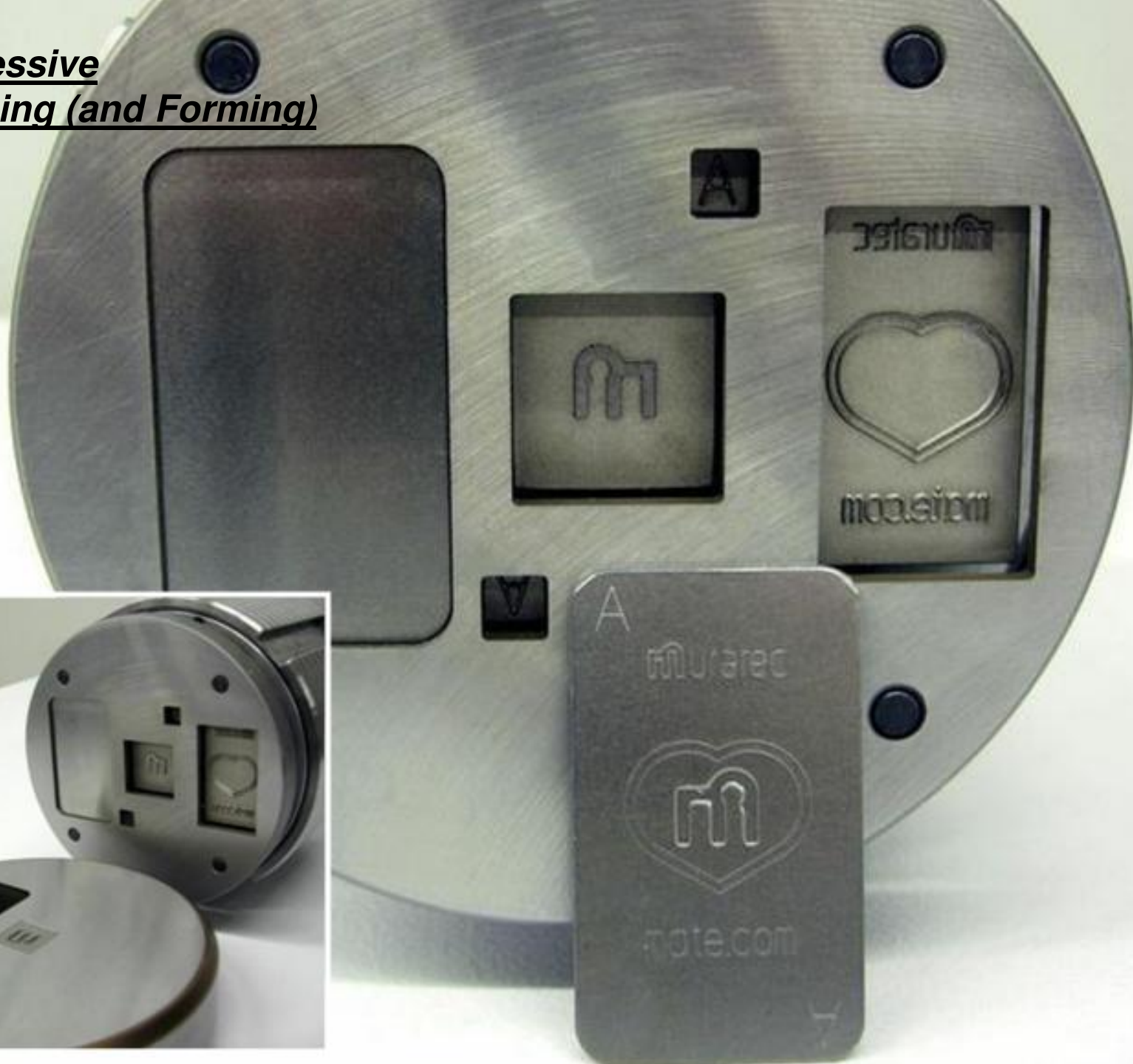


Progressive Punching (and Forming)

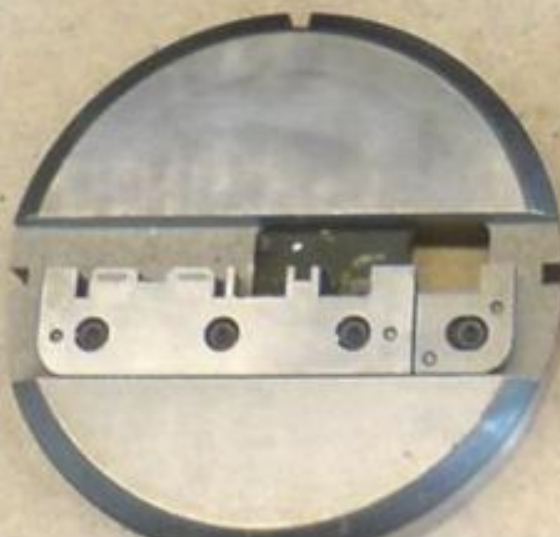
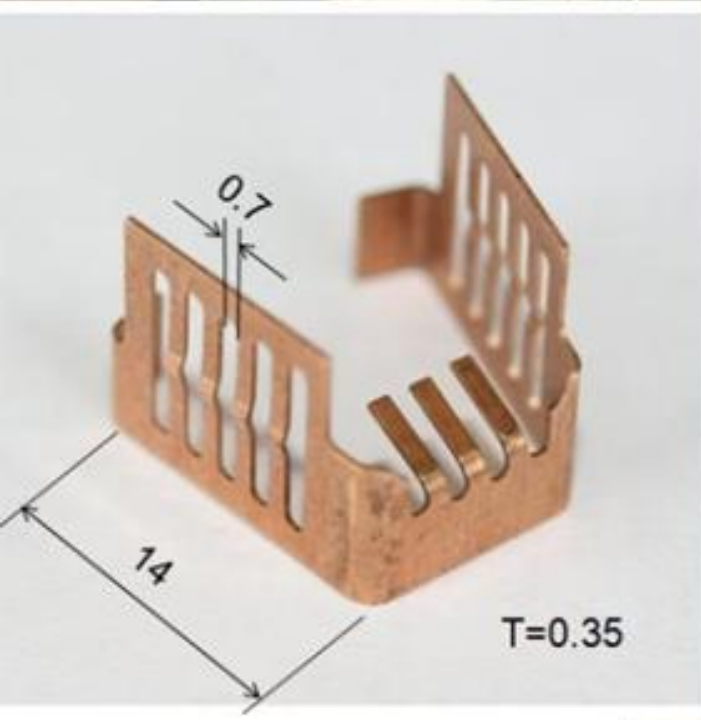
*Two or three progressive
hits required per part, but
every hit finishes a part.*



Progressive
Punching (and Forming)



Progressive Punching and Forming



DSC01848 (2).JPG
Typ: JPG-fil
Storlek: 499 kB
Format: 1632x1224
bildpunkter

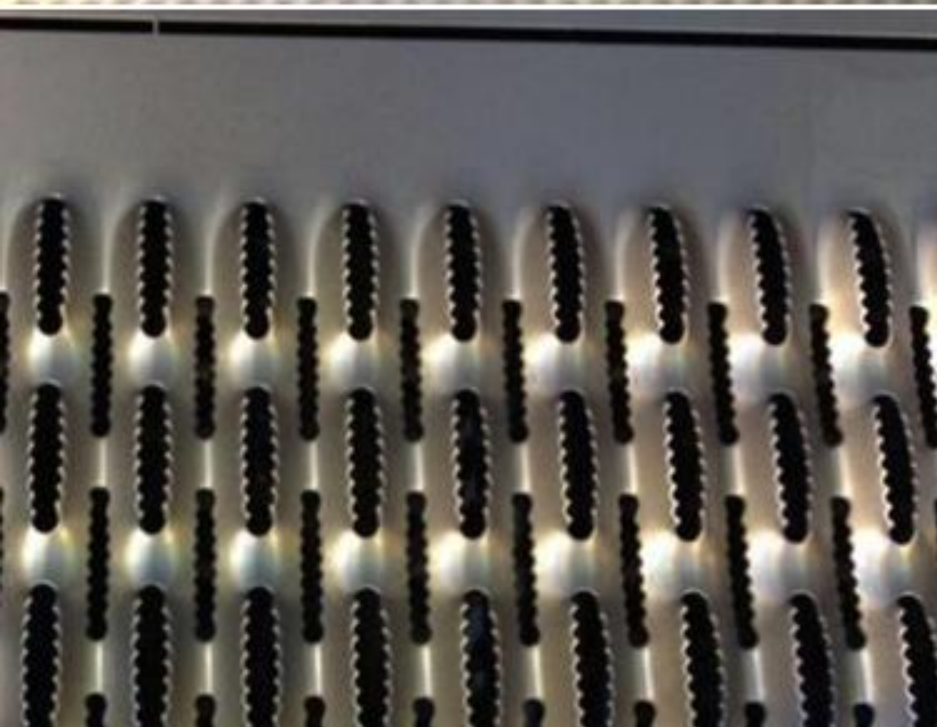
Embossing Solution



*Emboss tool with special stripper
for maximum sheet flatness*



Special Extrusions and Embosses



*Special solutions with
extrusions and embosses*



Special
Embosses





Special Embosses





Special Embosses



Lance-and-form



High Lance-
and-form





*'Heel' prevents side load
in off-center applications*

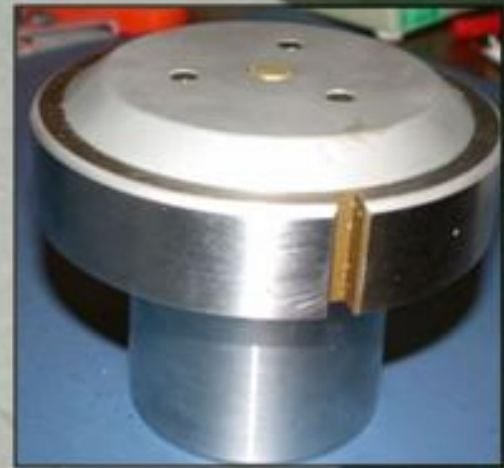


Gripper Line Solutions

*V-Line emboss ('Gripper Line')
in the stripper isolates the
forming area.*

*Used in combination with
PowerMax Die*





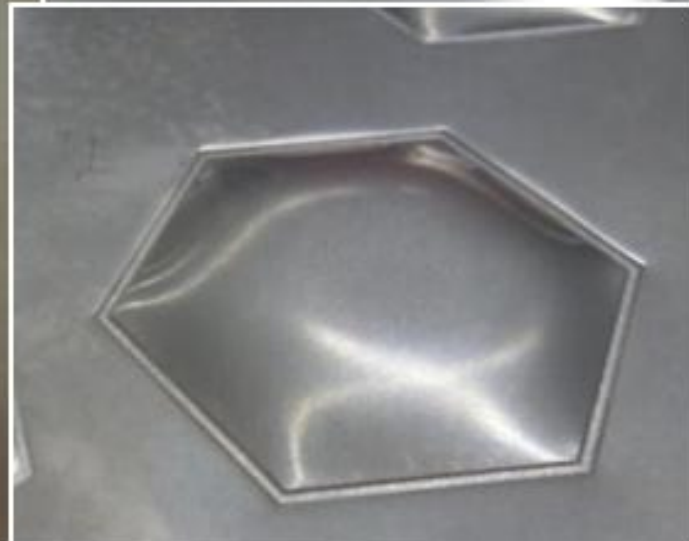
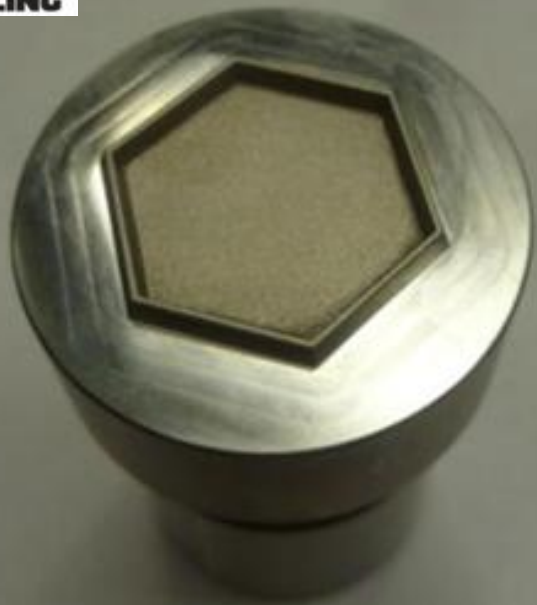
Sheet border and near holes
remain unaffected

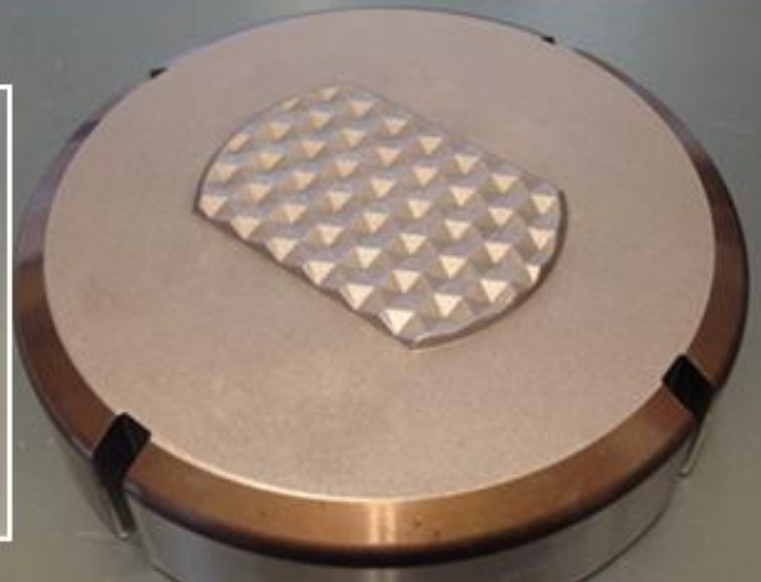
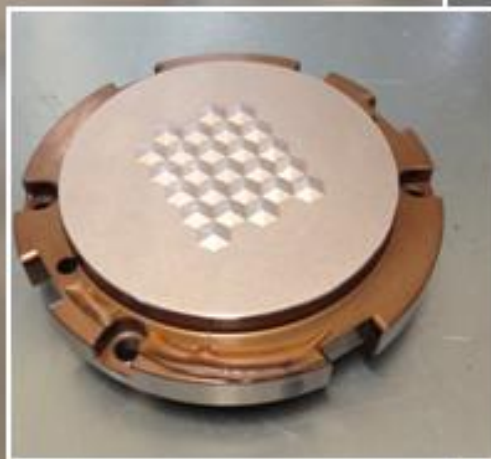
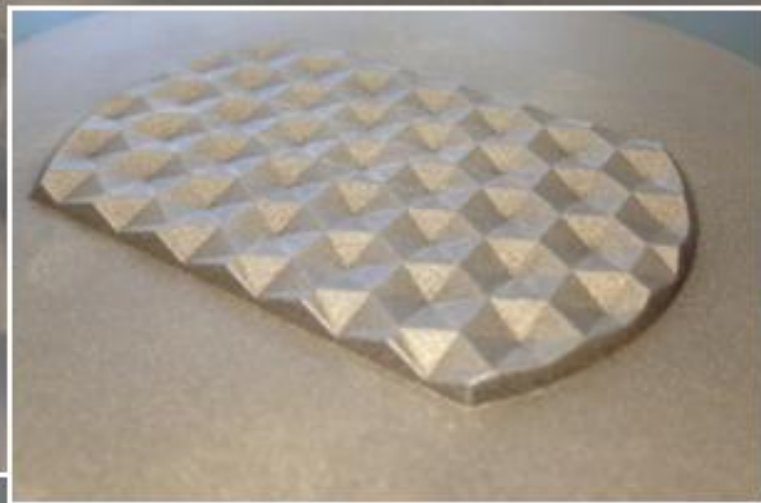
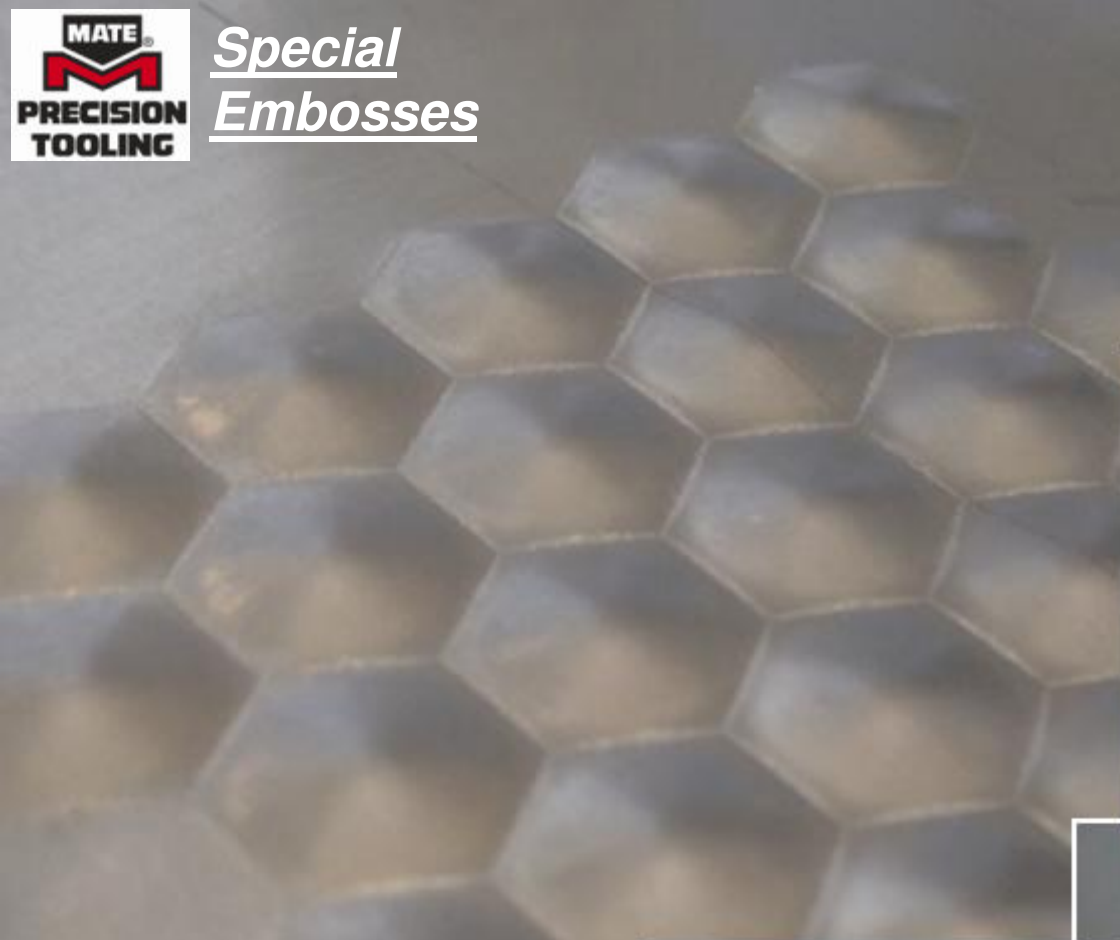


Gripper Line
Solutions

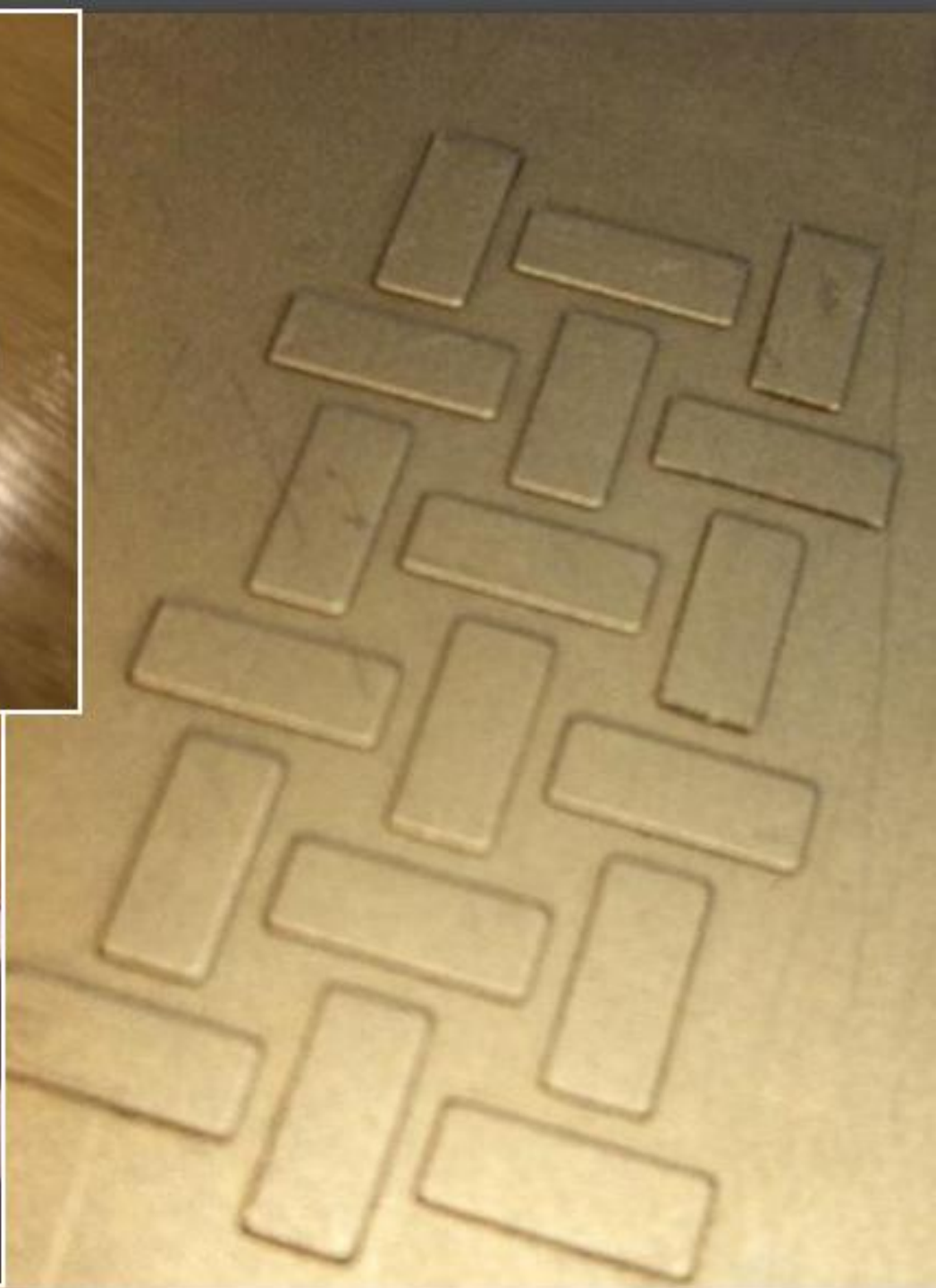


Special
Embosses





Special
Embosses

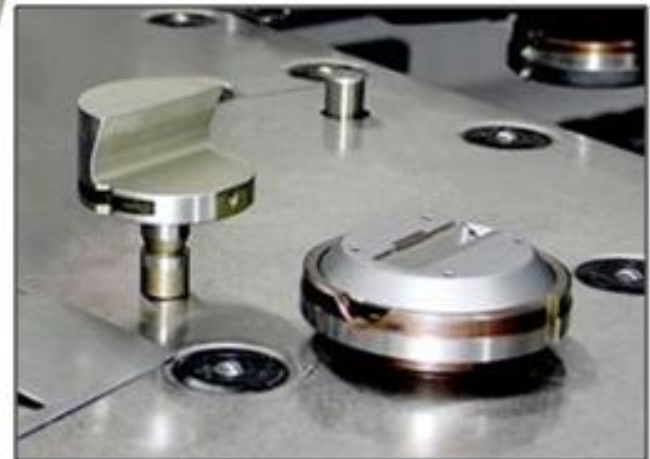
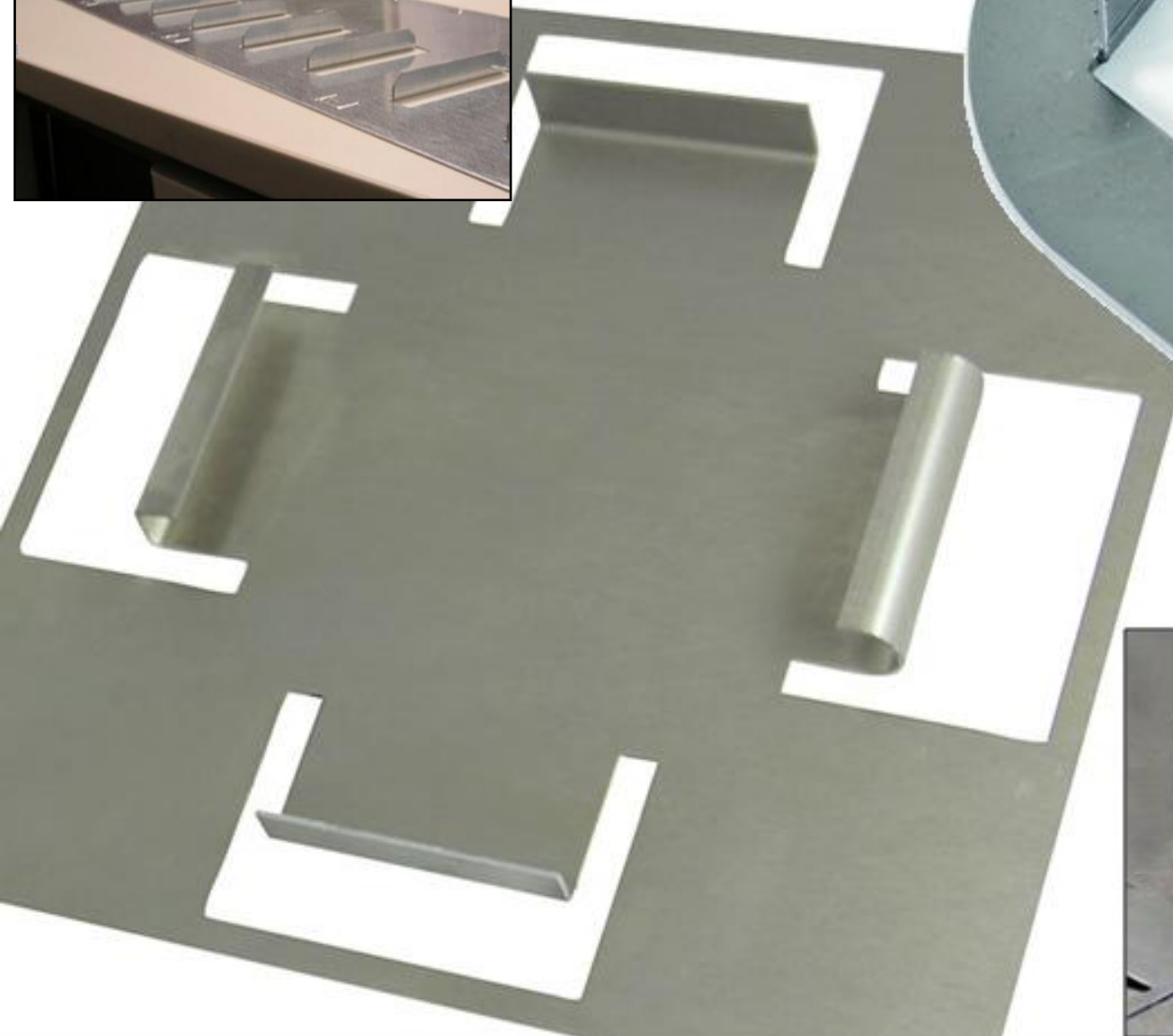


7. Bending Operations



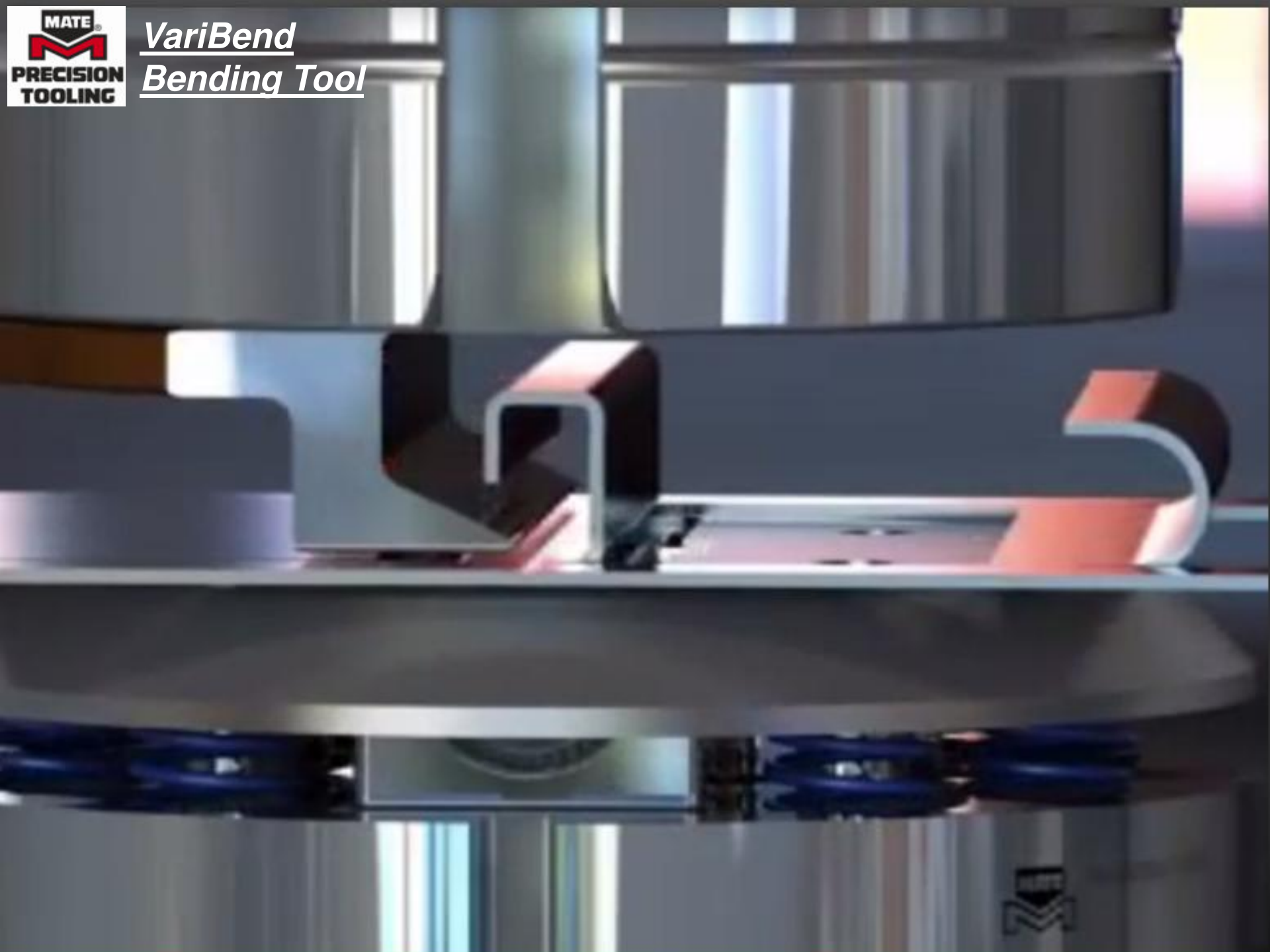
Special
Assemblies

VariBend Bending Tool



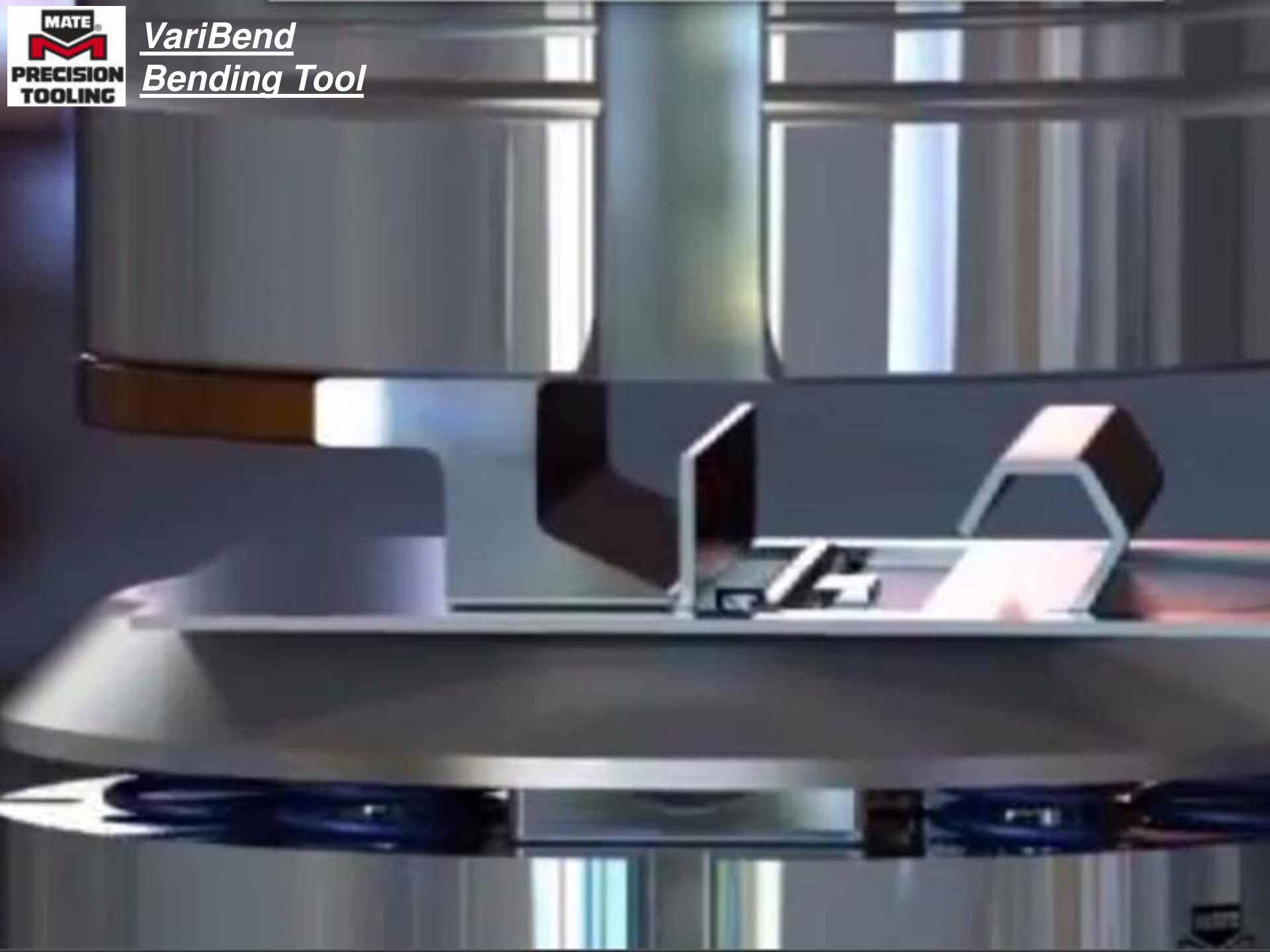


VariBend Bending Tool

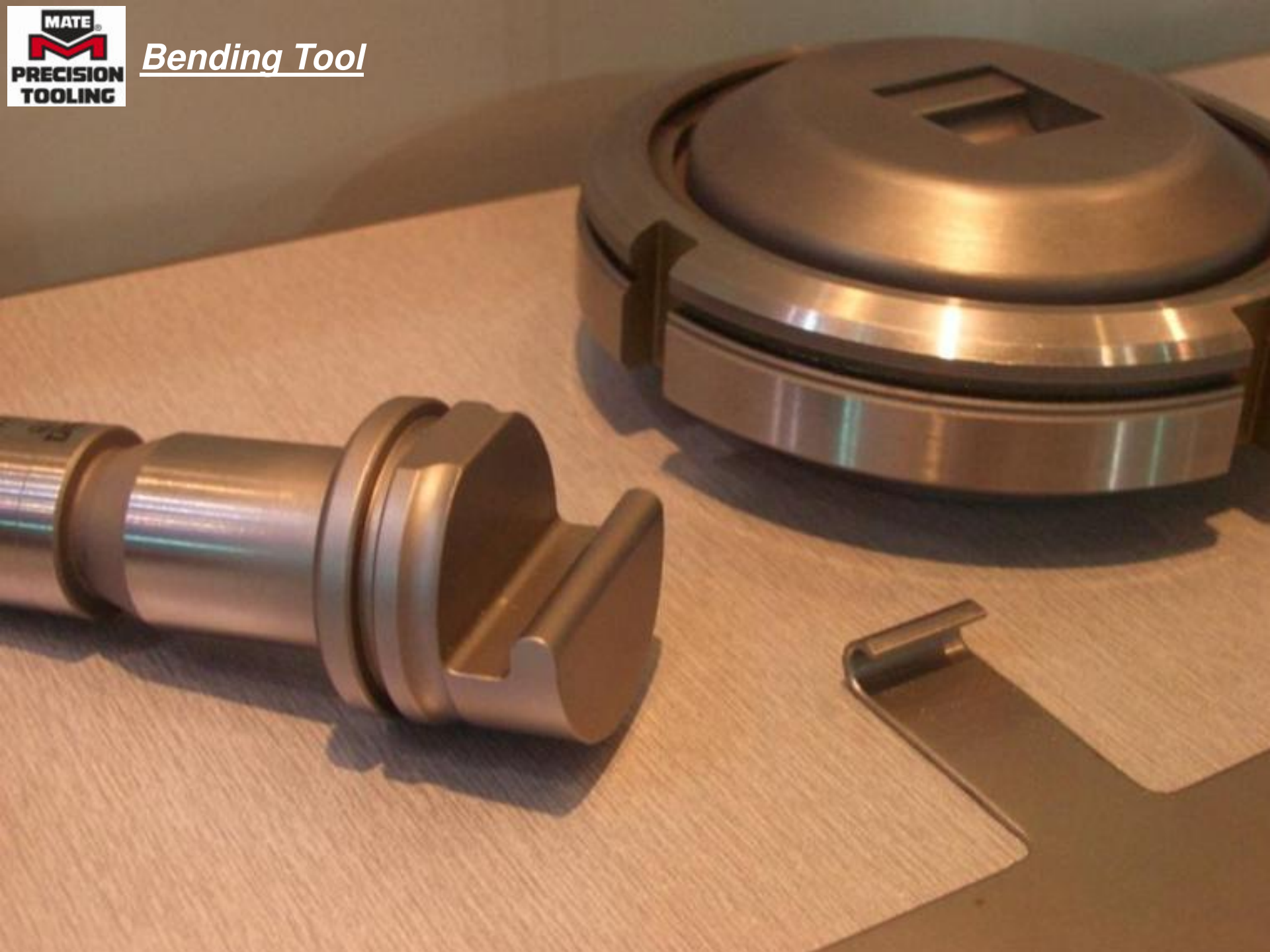




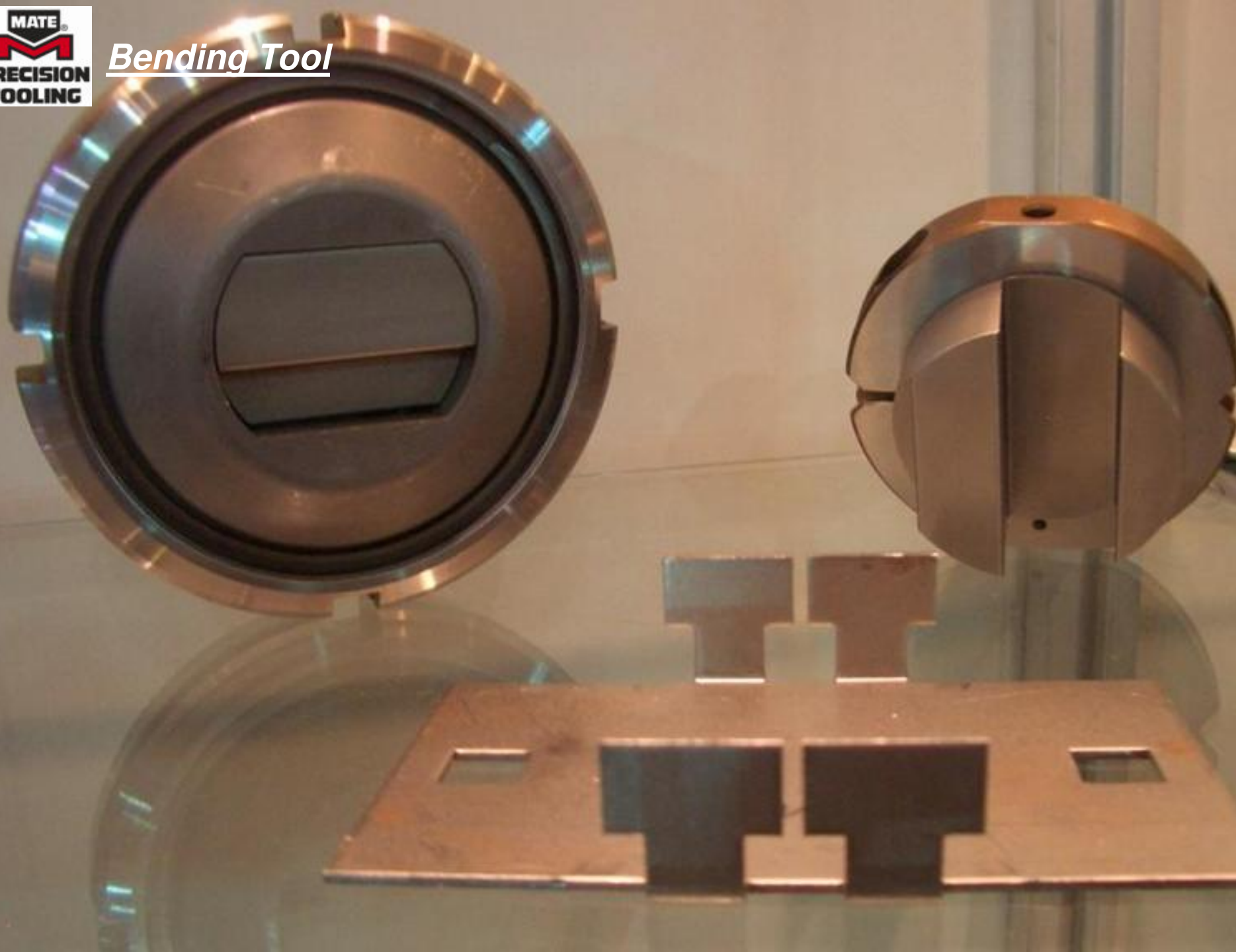
VariBend Bending Tool



Bending Tool



Bending Tool



Border Bending Tool



8. EasyBend and EasySnap

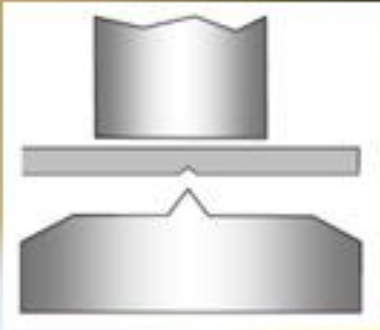


Special
Assemblies

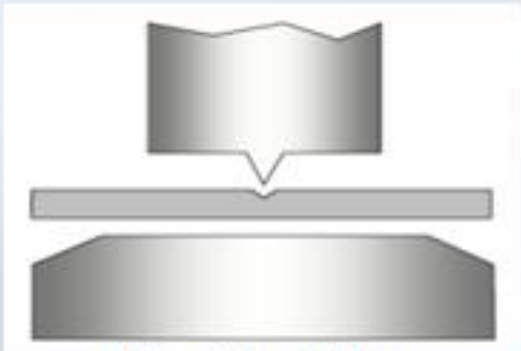


EasyBend Solutions

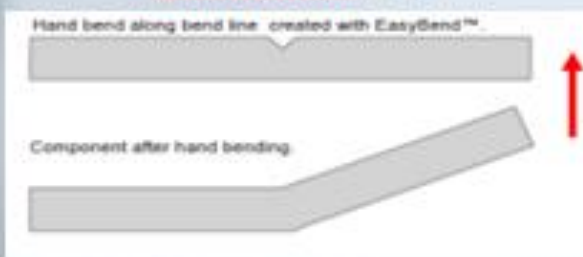
*EasyBend for manual bending
eliminates press brake operation
and allows shipping in flat condition*



EasyBend Down

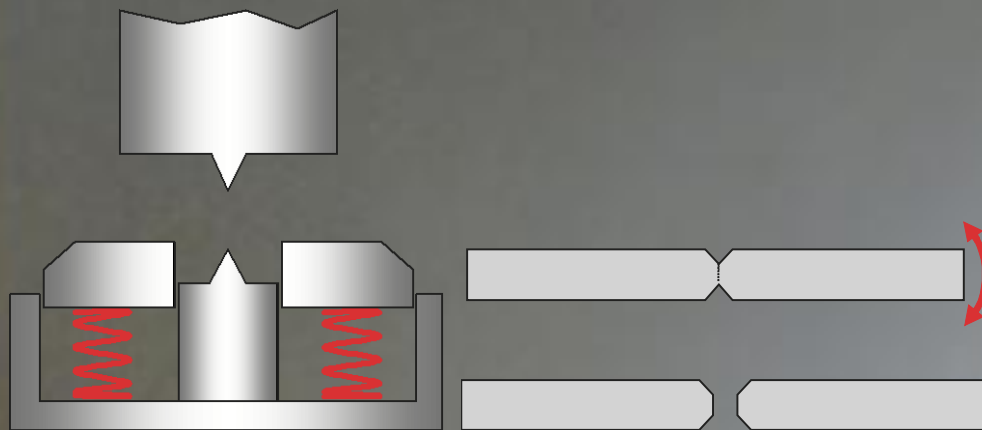


EasyBend Up





*Special Solution in thick material:
EasyBend can help making sharp and
straight bends on the press brake*



- *V-line incision on top and bottom of sheet*
- *Ideal for separation of parts*
- *Microjoint Solution for smoother edges*





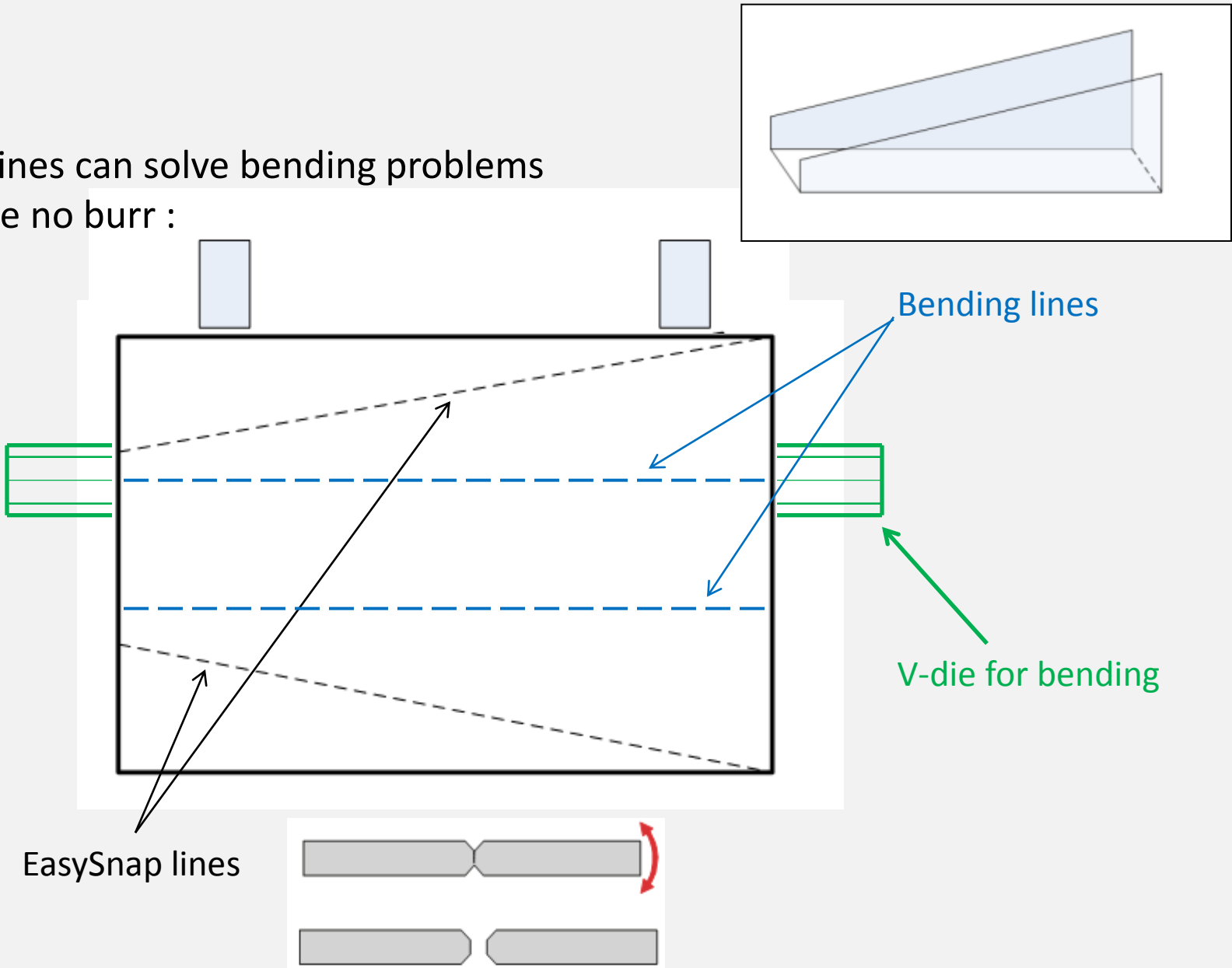
EasySnap
Solutions



*Short bends on the press brake
made possible with EasySnap*



EasySnap lines can solve bending problems
... and leave no burr :

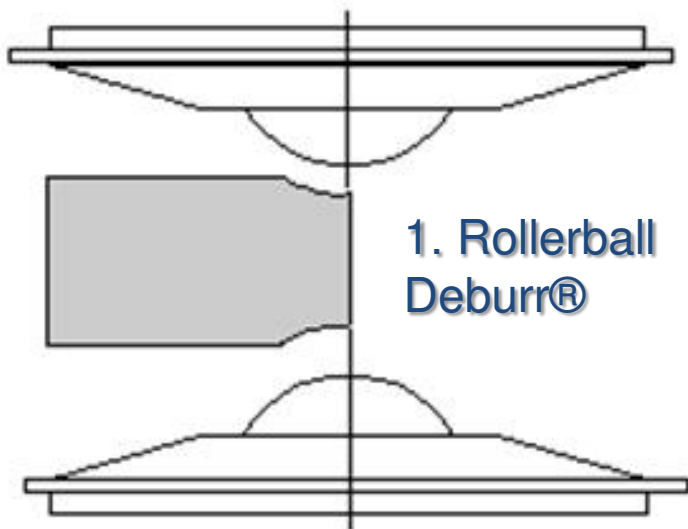


9. Deburring Operations

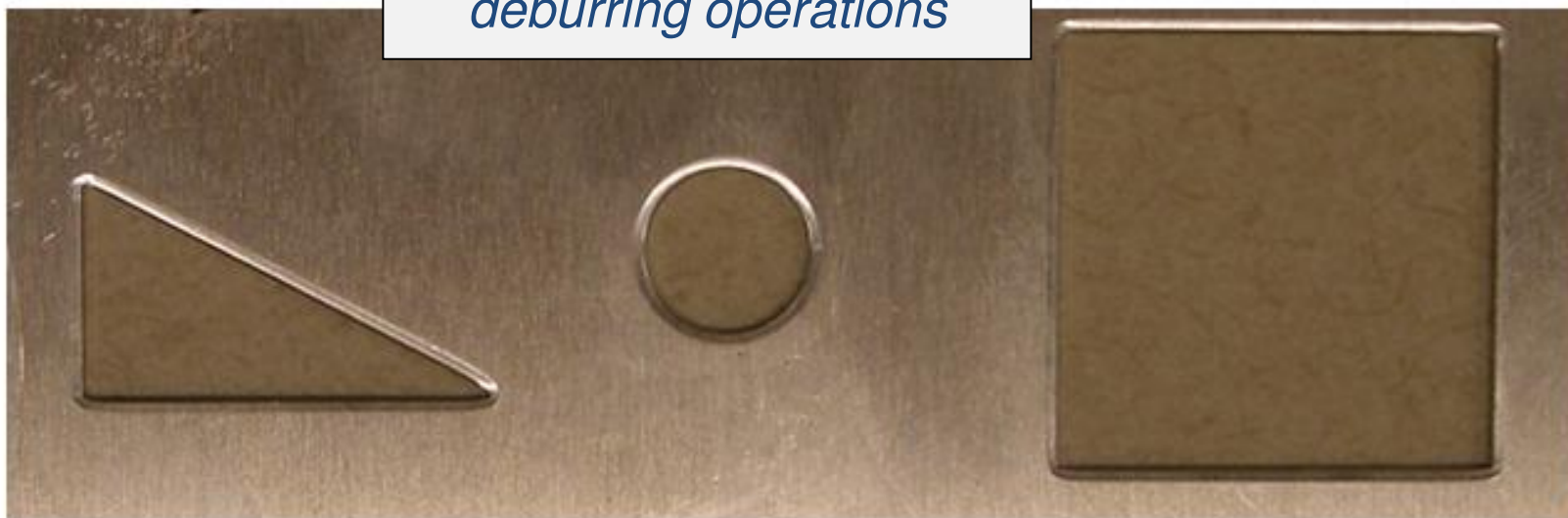


Special
Assemblies

Deburring Applications



*Eliminate secondary
deburring operations*





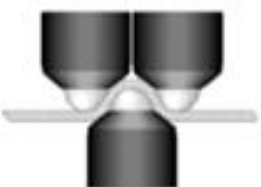
10. Ribs and Offsets

MATE
M **PRECISION**
TOOLING

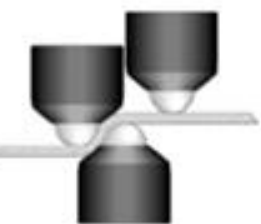
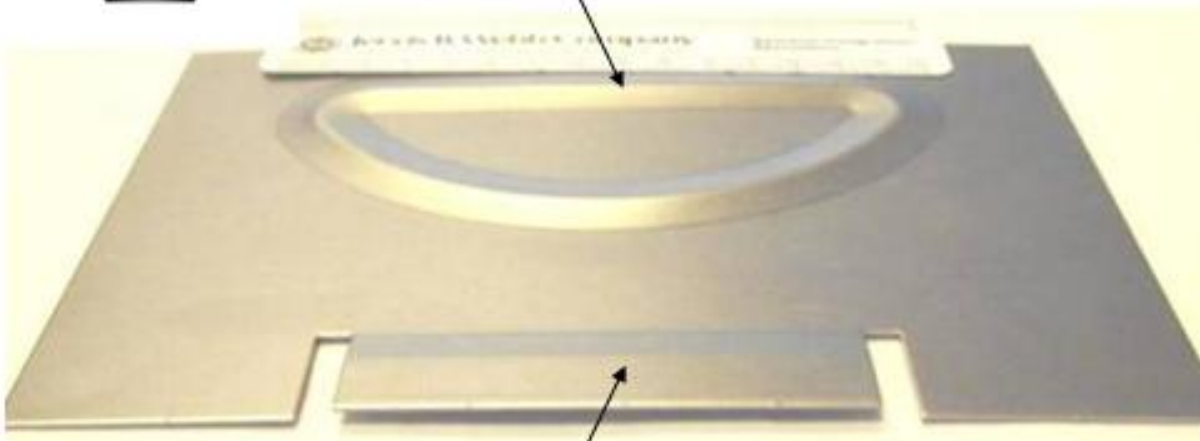
Special
Assemblies



RollerBall® Applications



Ribs



Offsets



Roller Solutions



Rolling Shear

Rolling Rib

Rolling Offset

Rolling Pincher

Web Tool

*Strengthen
parts and save
on material
cost with the
Web Tool*





Thank you !



**Punching
Adds Value !**