NC TURRET PUNCH PRESS
HIGH PERFORMANCE TOOLING

High Quality & Technology For The Future

CONIC

Since 1976

AMADA TYPE (THICK TURRET) TOOLING

JAPAN QUALITY

CONIC

COMPANY GUIDANCE

ABOUT US

Conic has been produced quality punch tools since 1976 in Okayama Japan.

Our tools are used worldwide in the sheetmetal market and that quality is really satisfied from various production customers.

Our policy is that we make a high quality tools in timely, in reasonable price to helping customers manufacture sheet metal parts in high productivity and reliability.

We have done a lot of development of new products such as Super Dry Punch(SDP), Conic Long life Punch(CLP), Conic Hard Punch(CHP) for last long tools.

We recently introduced PROTECH series tool to the market and market reflect strong praise.

Conic would like to be your punch press tool partner.

We look forward to serving you.

QUALITY


Certificate

CONIC CO., LTD. Okayama Factory

JIS Q 9001:2015 (ISO 9001:2015)

Okayama factory :

ISO 9001:2015 provide superior Quality Management System in 1998 Conic Corp, received ISO9001 authorization, and it has been recognized as a very reliable company, both on the international front and Japan.

COMPANY HISTORY

1976 Established.

1979 Tokyo Sales Office opened.

1985 Okayama Factory opened.

1990 "International Sheet Metal Symposium" held by the company.

1992 Tool information and order receiving office was opened.

1993 Osaka Branch opened in Higashi-Osaka city.

1993 Head Office moved into Okayama Factory.

1998 Okayama factory was registered under required operation of international quality management system "ISO-9001".

1999 "Super Dry Punch" newly developed and launched.

2000 Internet order and quote receiving system was opened.

2002 "Conic Hard Punch" newly developed and launched.

2009 PROTECH series tooling newly developed and launched.

2012 Thailand Factory opened.

2013 "Conic Long life Punch" newly developed and launched.

2018 The Representative office in Vietnam opened.

SPECIFICATION OF CONIC TOOLING

■Various Shapes

STANDARD SHAPES

■ROUND (RO)

■SQUARE (SQ)

■RECTANGLE (RE)

■OBROUND (OB)

■SINGLE D (SD)

■DOUBLE D (DD)

WITH RADIUS CORNERS

■SQUARE WITH RADIUS CORNERS

■RECTANGLE WITH RADIUS CORNERS

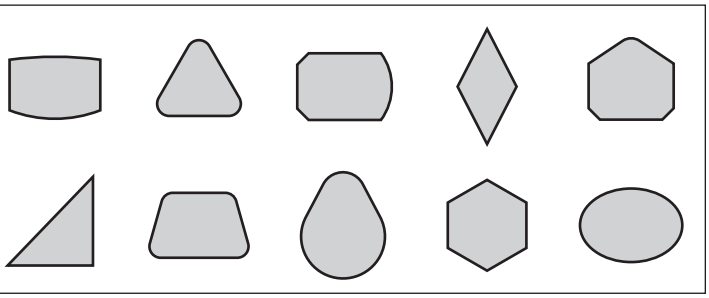
CORNER ROUNDING

■CN-42

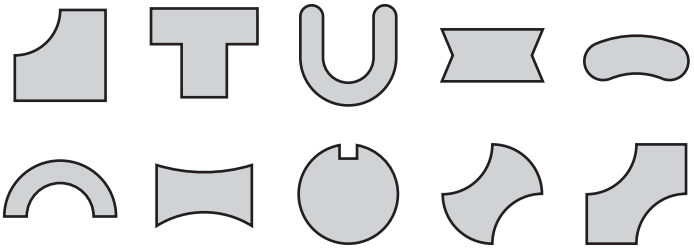
■CN-41

Note : Square and Rectangle punch corner has small radius (R0.2) for prevent crack of punch tip.
If it is not necessary, please inform us.

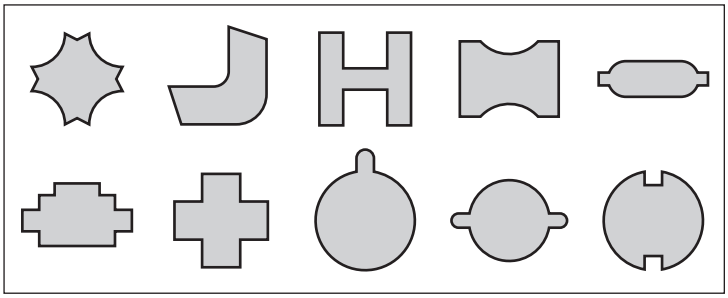
SPECIAL SHAPES (CLASS-1)



SPECIAL SHAPES (CLASS-2)



SPECIAL SHAPES (CLASS-3)



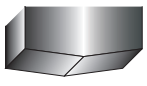
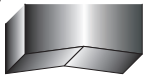
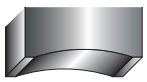
SPECIAL SHAPES (CLASS-4)

More complicated figure

When make order, please inform to us the center position of the tool.

CONIC is possible to produce other than this form list,
please contact us.

■Shear Angle Type For Punch

Roof Top Shear 	To reduce tonnage and noise by added angle 2° (or 5°) at punch shear for station C(2″), D(3-1/2″) and E(4-1/2″) with free of charge.
Inverse Roof Top Shear 	To prevent touch of punch and die when use as shearing punch tool. (Need additional charge) It is possible to cross Inverse Roof Shape shear angle when order square.
Concave Shear 	To prevent touch of punch and die when use as shearing punch tool. (Need additional charge) It is possible to cross Inverse Roof Shape shear angle when order square.

Note : Without notification, station C(2″) and D(3-1/2″) are going to be flat punch. Station E(4-1/2″) will be added roof top shear.

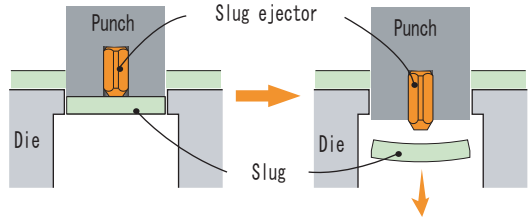
SPECIFICATION OF CONIC TOOLING

■Prevent Slug Pulling

PUNCH

Slug Ejector

Slug ejector push down the slug.
It will be installed to over φ4 for round and
over 6 mm width shape tool as our standard.
Please contact us, when punch thick material sheet
or hard material with small punch diameter.

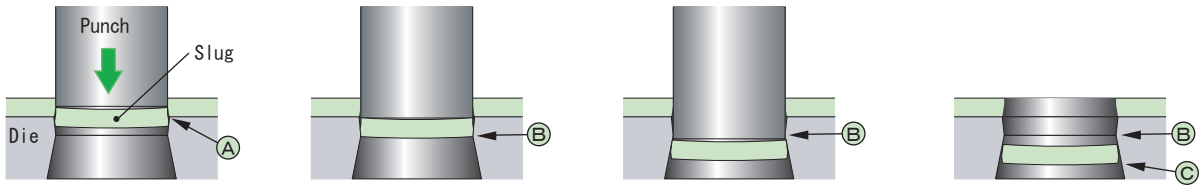


DIE

Slug Catcher Die

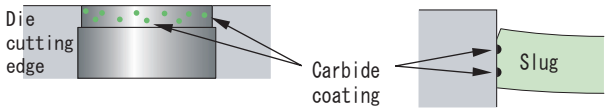
Standard shapes and special shapes have this function as standard.
(Except : Blank type, less than 2mm width die for blank will be parts, punch with heel, die clearance is less than 0.1mm)

① Material is cut off at [A] part.
② The slug is compressed in the process of punching at [B] part.
③ Drags the slug through the relief.
④ [B] part is narrower than [C] part so the slug cannot comes up.



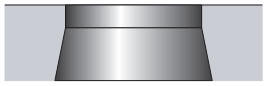
Depositron Process

Put electrical super hard spot onto inside of die hole
Except clearance 0.1mm
Standard on die diameter φ2～φ4.5



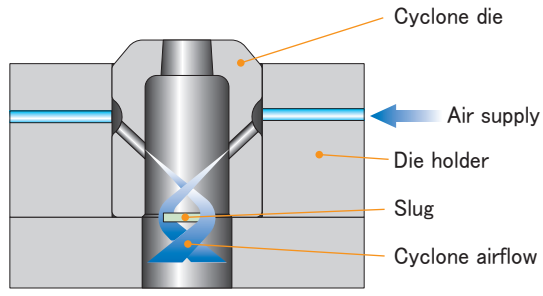
Straight with taper Die

Use this specification standard on Blank tool, less than 2mm width die
for blank will be parts, punch with heel die clearance is less than 0.1mm



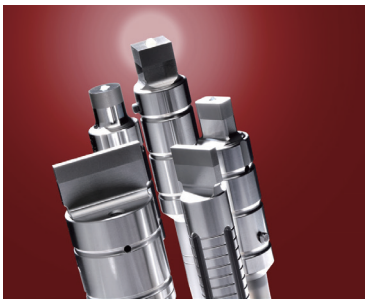
Cyclone Die (Compatible with Amada power vacuum die)

Cyclone die has small incline holes to provide cyclone airflow
to make a strong vacuum area under the die.
This vacuum helped to prevent slug pulling problems.
This function is working only when punching machine has
vacuum die use function as machine option.



SPECIFICATION OF CONIC TOOLING

■Conic Original Coating



Perfect tool for stainless steel !

Super Dry Punch (SDP)

This is our best tool. Incredible durability and defeated the common sense that "Stainless is hard to process".
This tool is suitable for night time unattended operation and dry (no oil lubrication on the sheet metal) condition punching.
Super Dry Punch (SDP) is available with only the following shapes.

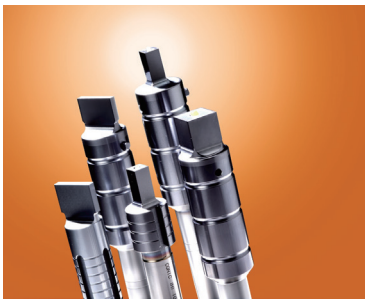
■ROUND (RO) ■SQUARE (SQ) ■RECTANGLE (RE) ■OBROUND (OB) ■SQUARE with R RECTANGLE with R

(Less than R10)

Perfect tool for continuos processing and thick material!

Heavy Duty Punch (HDP)

High performance for all purpose, especially for continuos processing.
Coating with excellent heat resistance.
The coating is difficult to peel of even with heat generated continuously.
Special shapes are also available for this treatment.



Most efficient in long life and cost !

Conic Long life Punch (CLP)

High performance for all purpose, especially for mild steel, ga lvanized steel with high corrosion resistance !
Special shapes are also available for this treatment.

Ultra cost performance tool for reasonable price !

Conic Hard Punch (CHP)

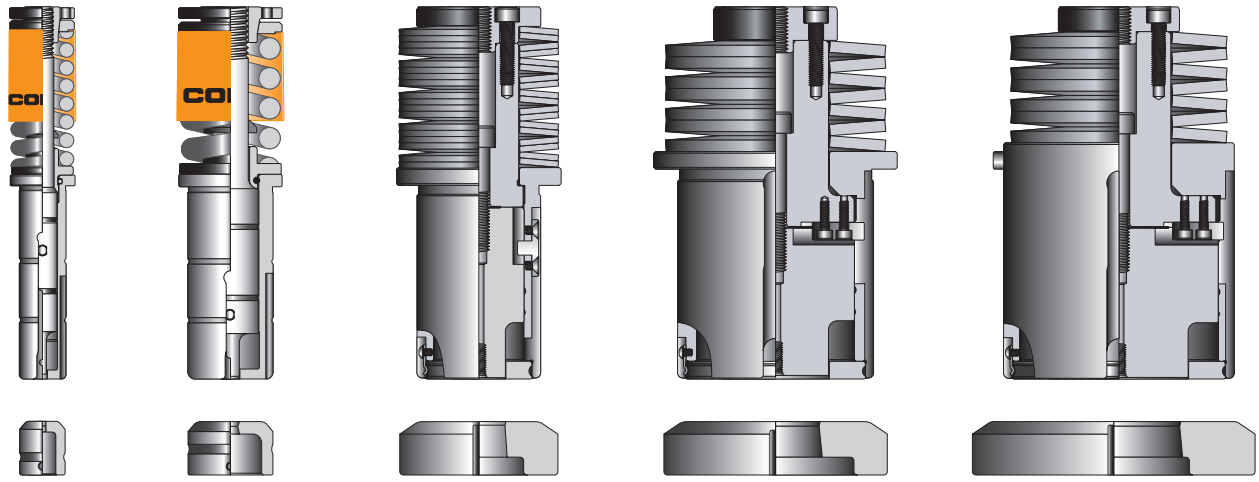
Reasonable price and suitable for all purpose.
CHP shows high performance reducing adhesion and galling which is more likely to be caused by processing Aluminum and Coated steel sheet.

Total Performance	Punch type	Aptitude			
		Stainless steel (SUS)	Mild steel (SPCC)	Aluminum	Galvanized
High Performance	Super Dry Punch (SDP)	★★★★★★	★★★★★	★★★	★★★
	Heavy Duty Punch (HDP)	★★★★★	★★★★★★	★★★★★★	★★★★★★
	Conic Long life Punch (CLP)	★★★★	★★★★★	★★★★★★	★★★★★★
	Conic Hard Punch (CHP)	★★★	★★★★	★★★★½	★★★★
	HSS	★★	★★★	★★★	★★★
Cost Performance	D2	★	★	★★	★

VARIATION OF CONIC AMADA TYPE TOOL

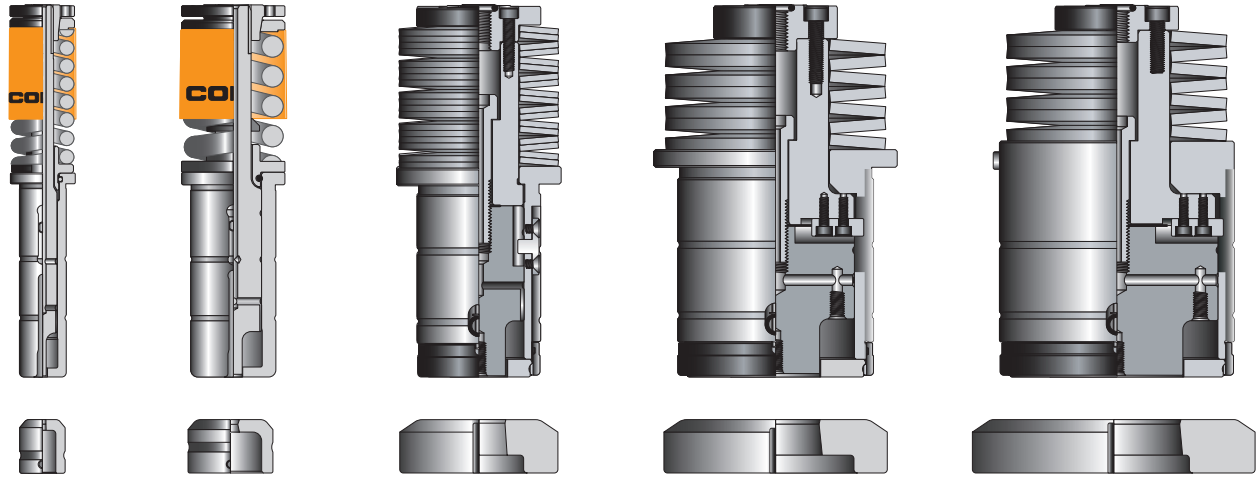
ORIGINAL STYLE (NON AIR BLOW TYPE)

1/2″ (A) 1-1/4″ (B) 2″ (C) 3-1/2″ (D) 4-1/2″ (E)



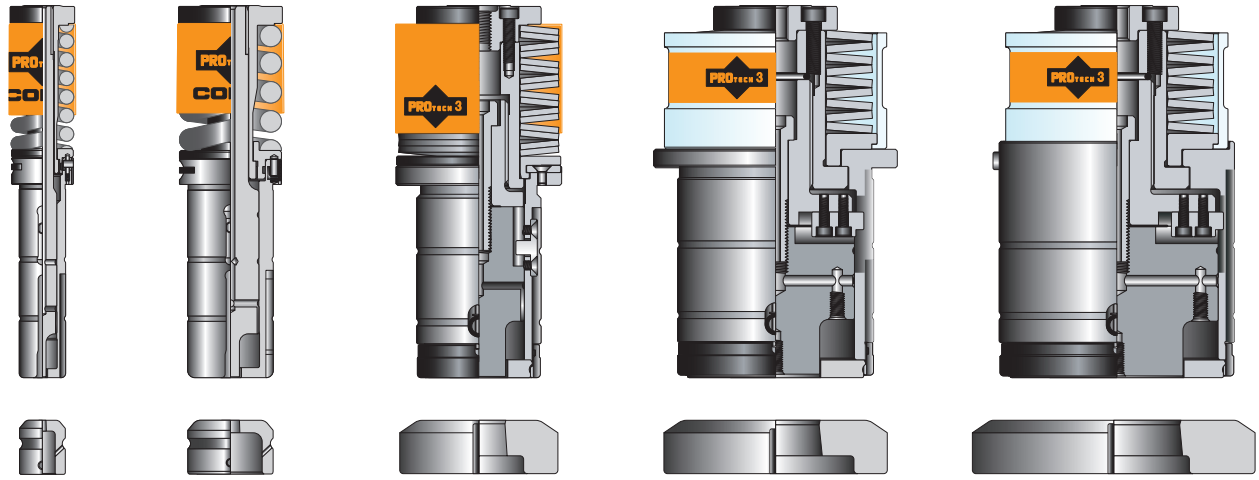
OMP (AIR BLOW TYPE)

1/2″ (A) 1-1/4″ (B) 2″ (C) 3-1/2″ (D) 4-1/2″ (E)



PROTECH SERIES (AIR BLOW SYSTEM INCLUDED)

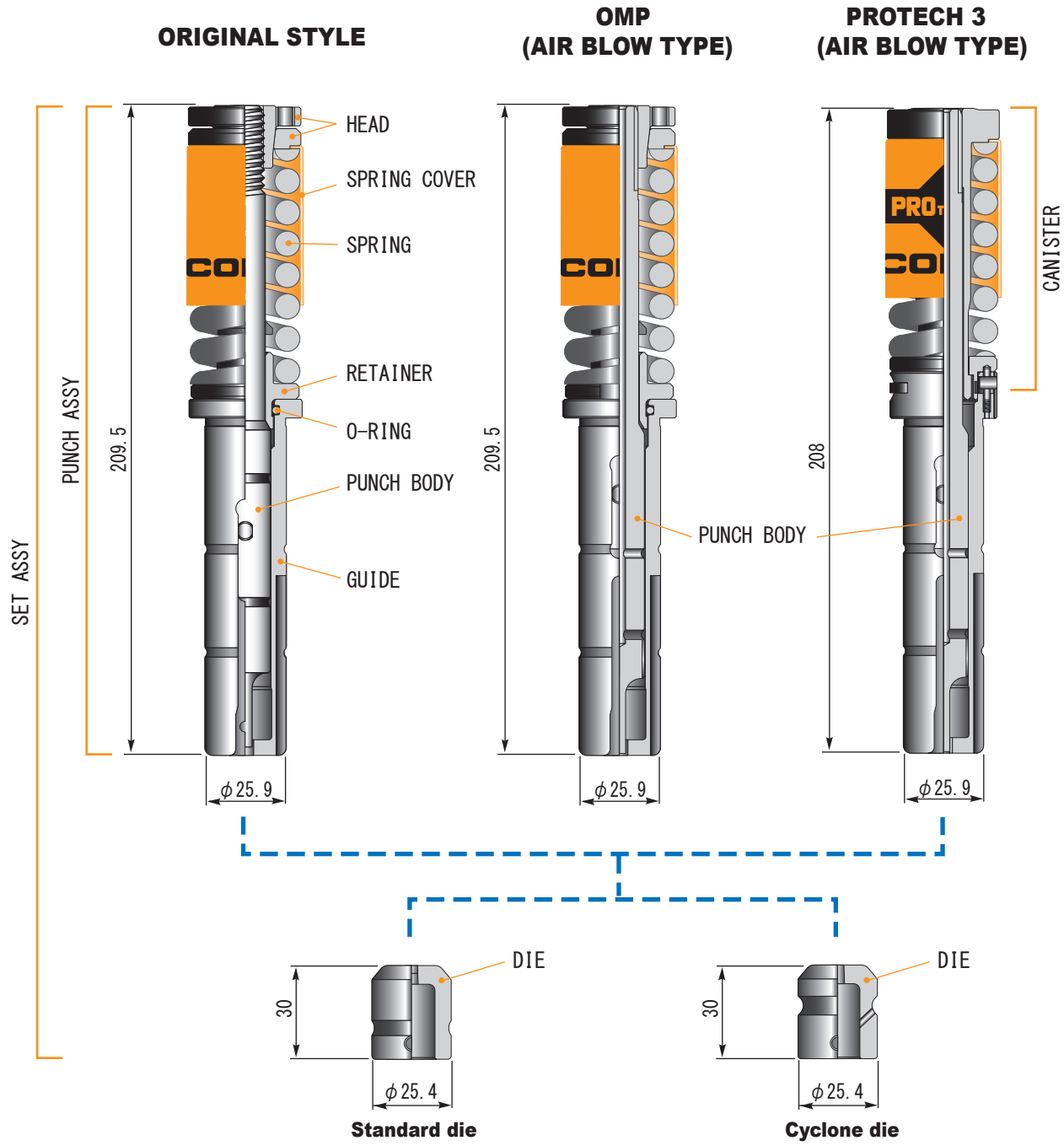
1/2″ (A) 1-1/4″ (B) 2″ (C) 3-1/2″ (D) 4-1/2″ (E)



1/2"(A) STATION TOOLING

1/2 in (A)

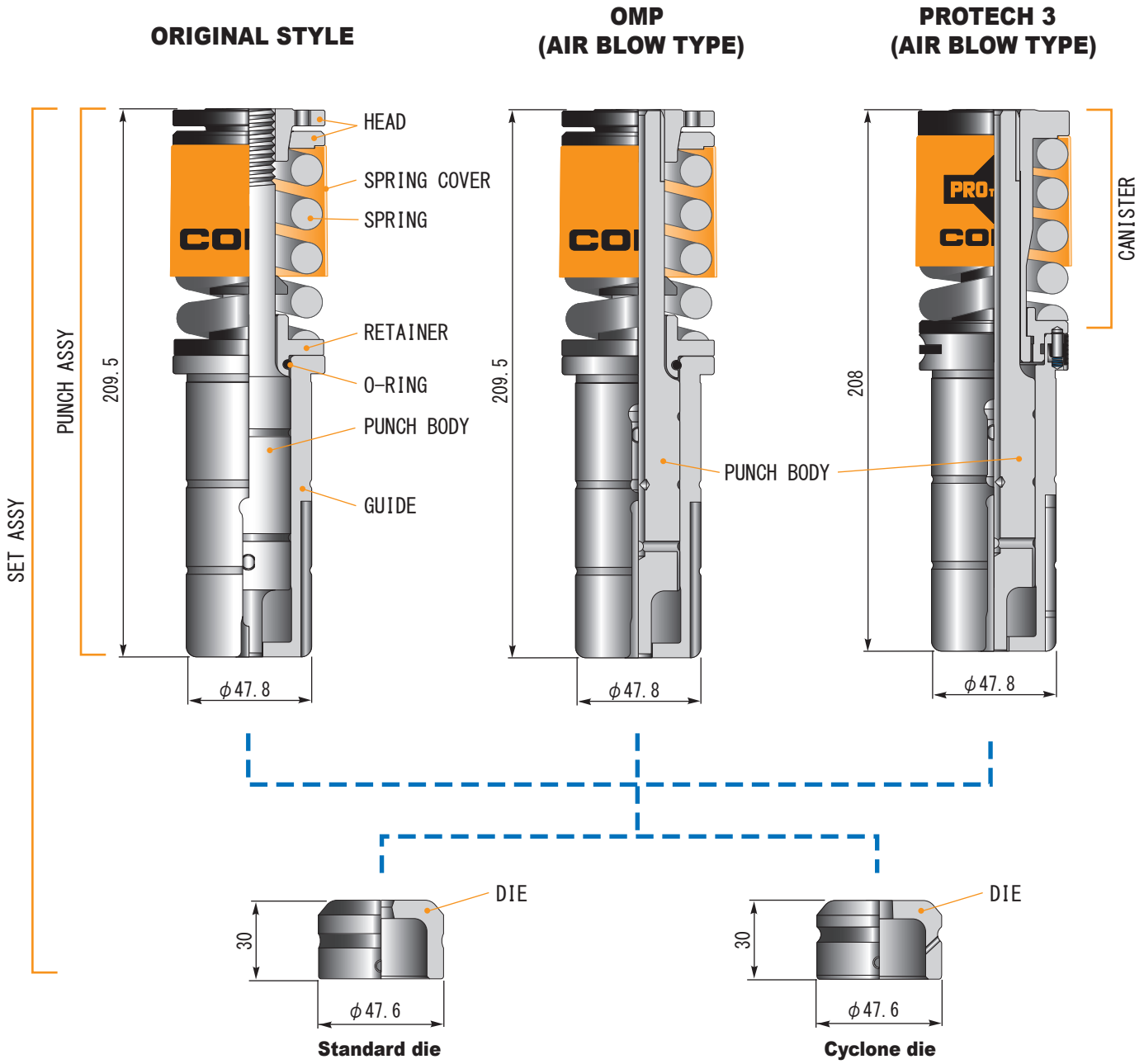
Diameters Up to 12.7mm



1-1/4"(B) STATION TOOLING

1¼in (B)

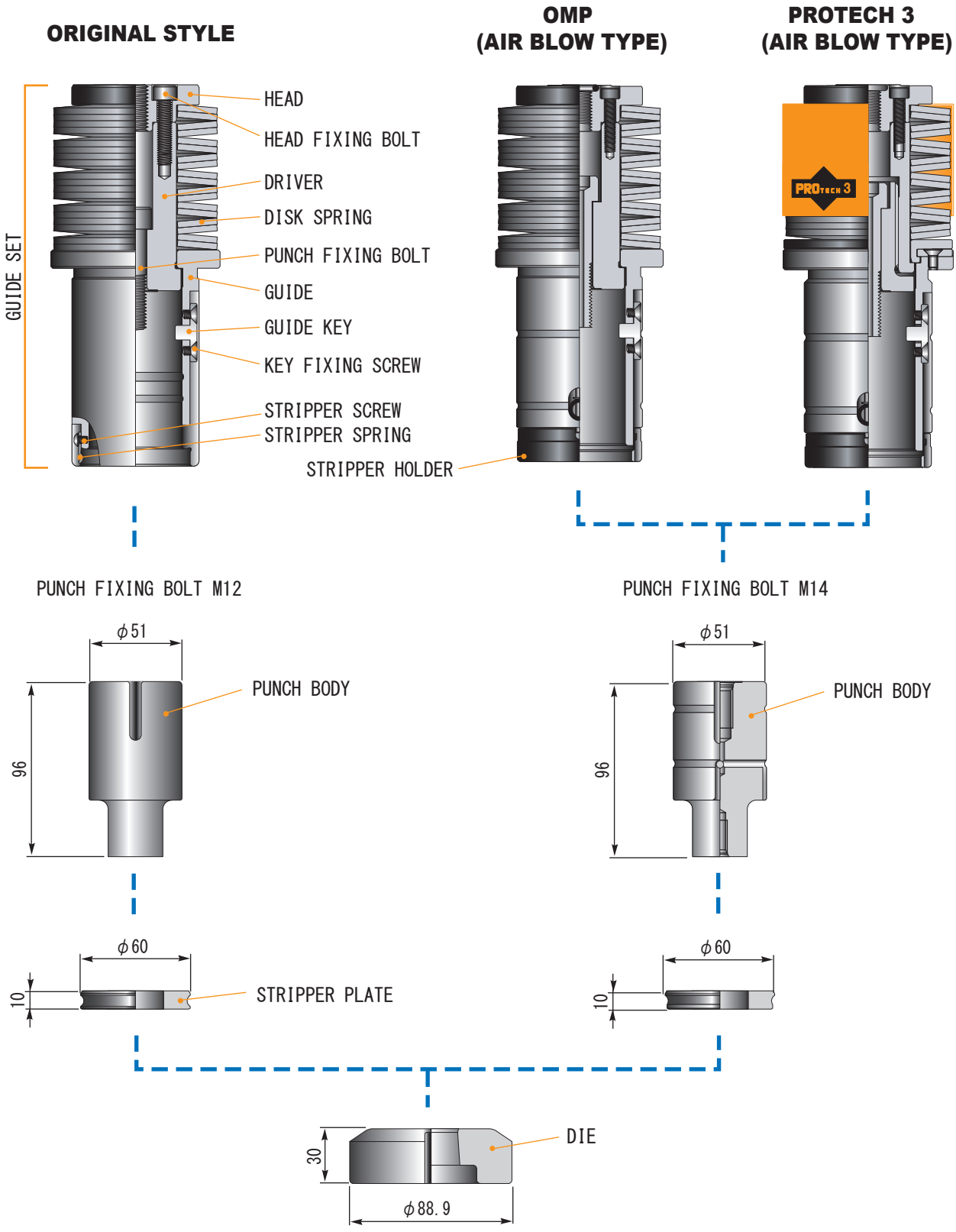
ORIGNAL STYLE : Diameters 12.71mm ~ 31.7mm
OMP / PROTECH 3 : Diameters 12.71mm ~ 30mm



2"(C) STATION TOOLING

2 in (C)

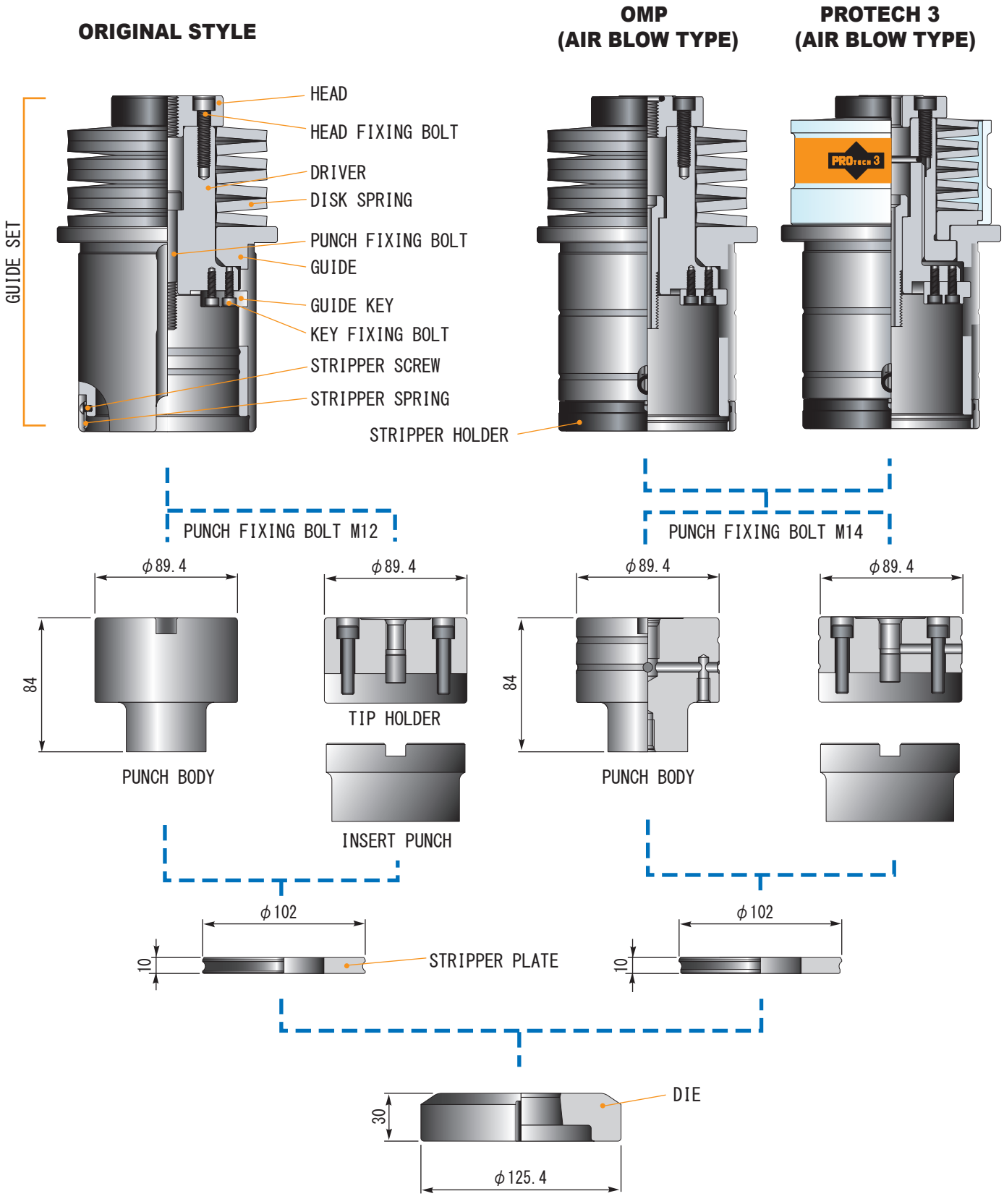
ORIGNAL STYLE : Diameters 31.71mm ~ 50.8mm
OMP / PROTECH 3 : Diameters 30.01mm ~ 47mm



3-1/2"(D) STATION TOOLING

3½in (D)

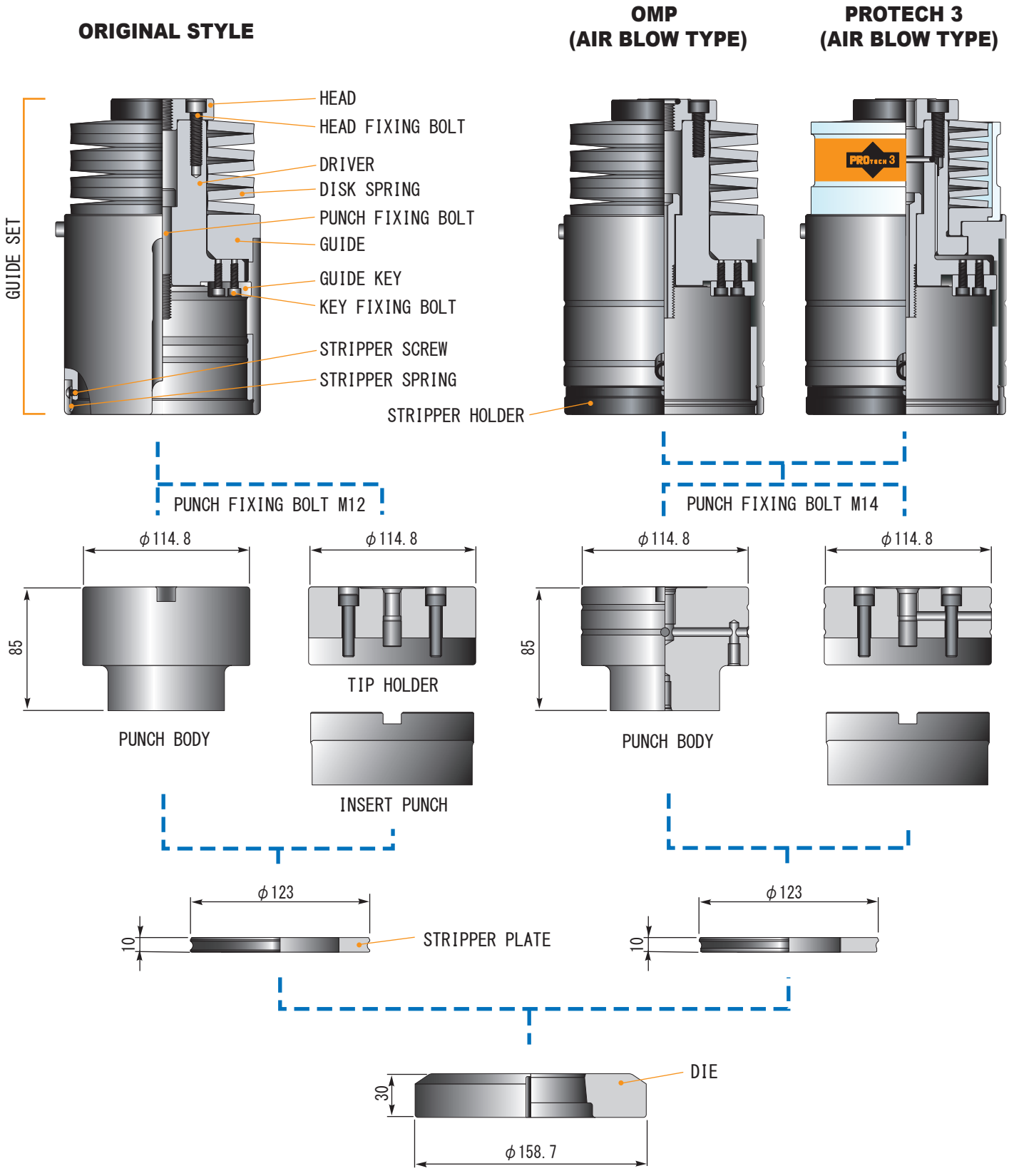
ORIGNAL STYLE : Diameters 50.81mm ~ 88.9mm
OMP / PROTECH 3 : Diameters 47.01mm ~ 85.6mm



4-1/2"(E) STATION TOOLING

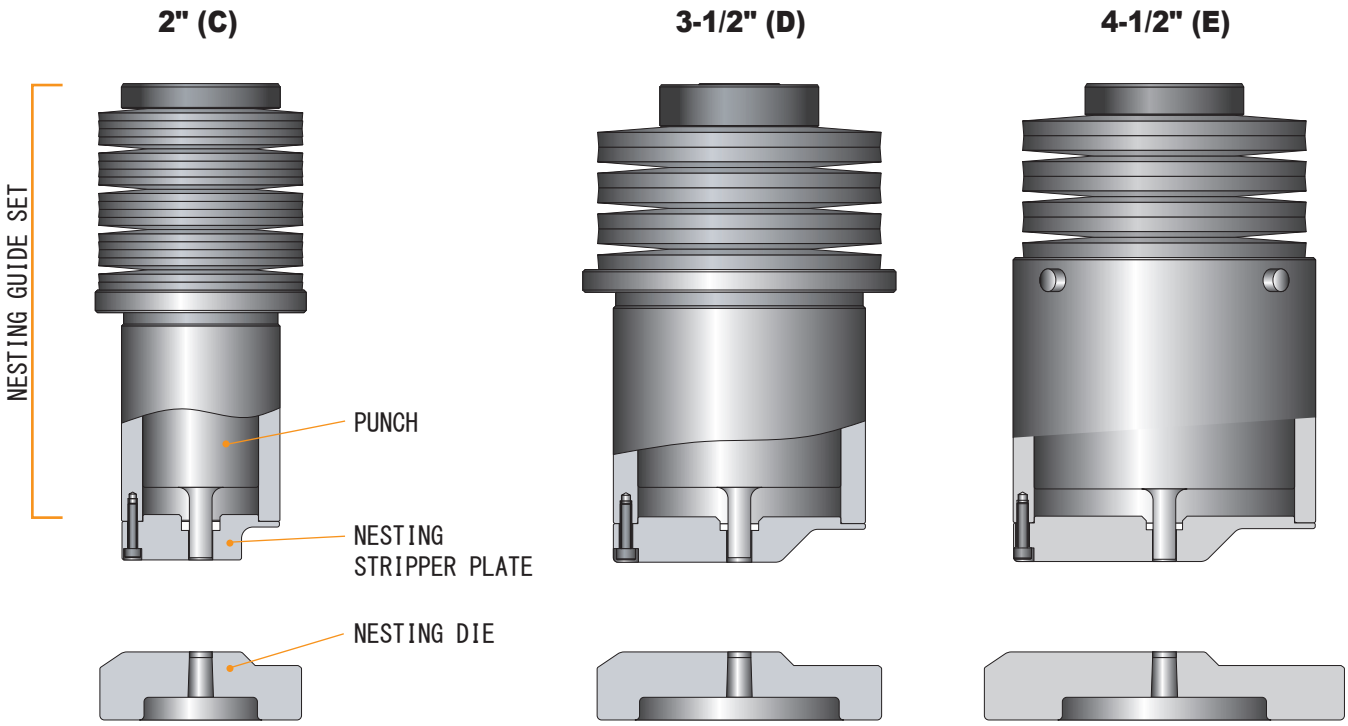
4½in (E)

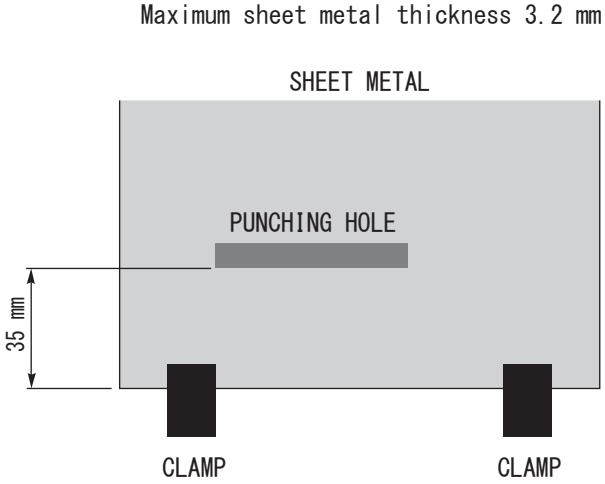
ORIGNAL STYLE : Diameters 88.91mm ~ 114.3mm
OMP / PROTECH 3 : Diameters 85.61mm ~ 110.5mm

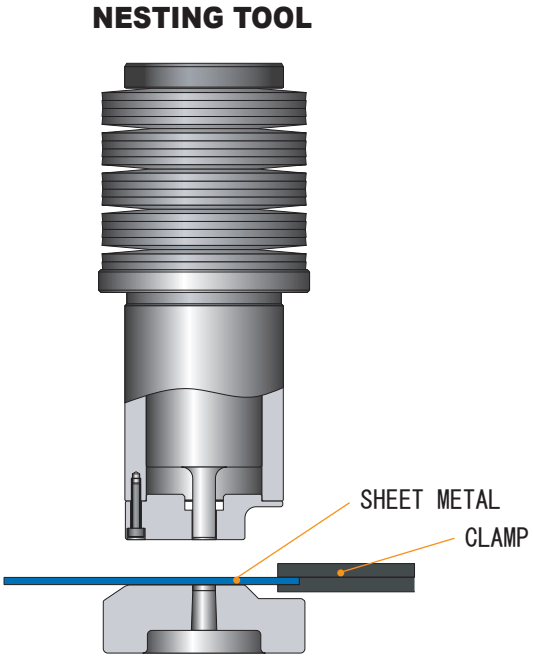


NESTING TOOL (ORIGINAL STYLE, OMP, PROTECH 3)

Special tool for punching more close position to clamp.





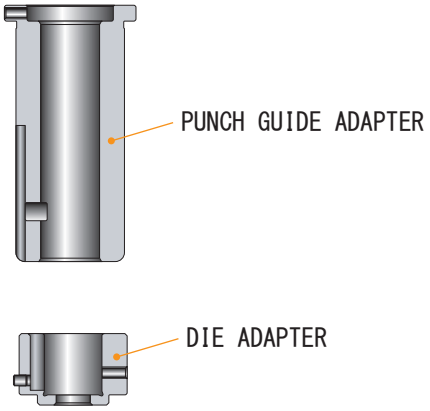


ACCESSORIES

ADAPTERS

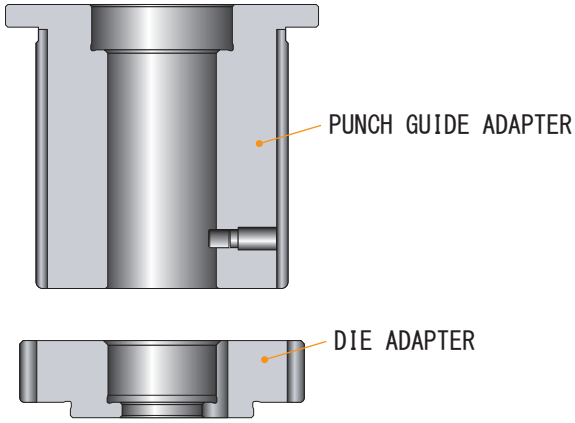
1/2"(A) Tool ➡ 1-1/4"(B) Station

Original style (Non air blow type)



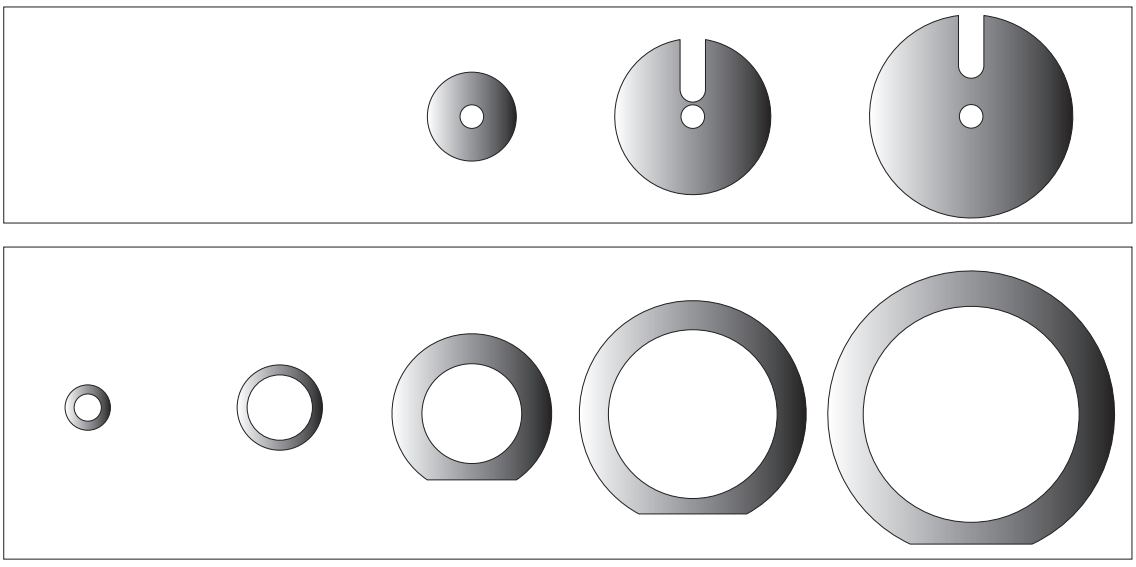
1-1/4"(B) Tool ➡ 3-1/2"(D) Station

Original style (Non air blow type)



PUNCH SHIM , DIE SHIM

	1/2"(A)	1-1/4"(B)	2"(C)	3-1/2"(D)	4-1/2"(E)
PUNCH SHIM					
DIE SHIM					

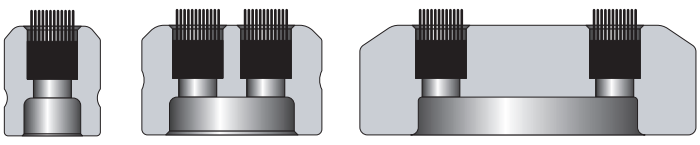


Remark : Shim set = 0.5mm, 1.0mm x 2, 1.5mm, 2mm Total 5 pieces

BRUSH DIE

Placing these "Brush Die" into the vacant stations to avoid the damage of sheet metal.

1/2"(A) 1-1/4"(B) 2"(C)



For station 3-1/2"(D) and 4-1/2"(E) also available.

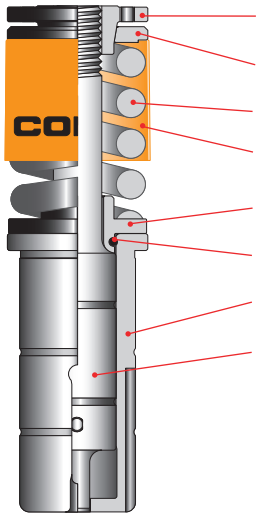
TURRET ALIGNMENT JIG

(For Amada machine)

Your favorite punch press machine in the best condition at regular turret centering work.

INSTRUCTION MANUAL (ORIGINAL STYLE, OMP)

Parts name



① Head
② Head collar
③ Spring
④ Spring cover
⑤ Retainer
⑥ O-ring
⑦ Guide
⑧ Punch body

Checkpoints

① Please follow the machine instruction manual before use punching tools.

② Please check there are no cracks or seizes. If you find such abnormal conditions, do not use the tools.

③ Machine turrets tables, die holders also should be kept clean.
(ex: Slugs in die holders can cause a serious damage on the tools)

④ Cutting edge of the tooling must be sharpened when it is dull.

How to remove punch body

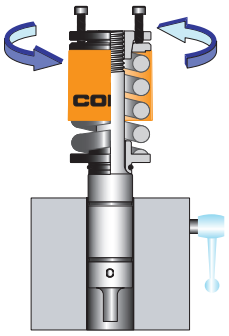
① Remove guide.

② Set punch body to punch assembly jig on the machine.

③ Insert 2 screws to the punch head's screw holes.

Cap screws are recommended.

1/2″	M5
1-1/4″	M6



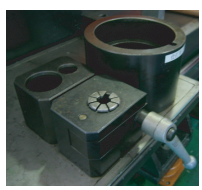
Punch assemble jig

④ Tight screws evenly until distance between head and head collar becomes 5mm.

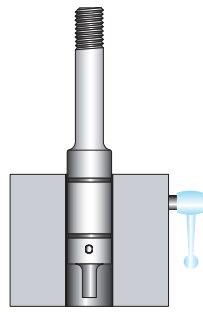
⑤ Unscrew head with belt wrench to unscrew the head.
(It is also possible to use a bar between two screws and turn CCW(counter clock wise)

⑥ Remove head , head collar, spring, spring cover, retainer.

Punch assemble jig



How to assemble punch body



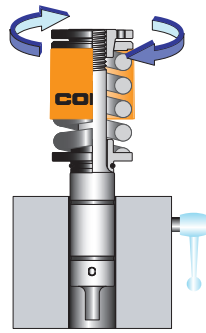
Punch assemble jig

① Set punch body to punch assembly jig on the machine.

② Set retainer, spring, spring cover, head collar, head sequentially to the punch body.

③ Turn the head unit CW(clock wise) until punch height becomes correct length. (207.5mm)

④ Put the grease on the half bottom part of punch body for lubrication.
We recommend "Mori Paste" which is available from CONIC.



Punch assemble jig

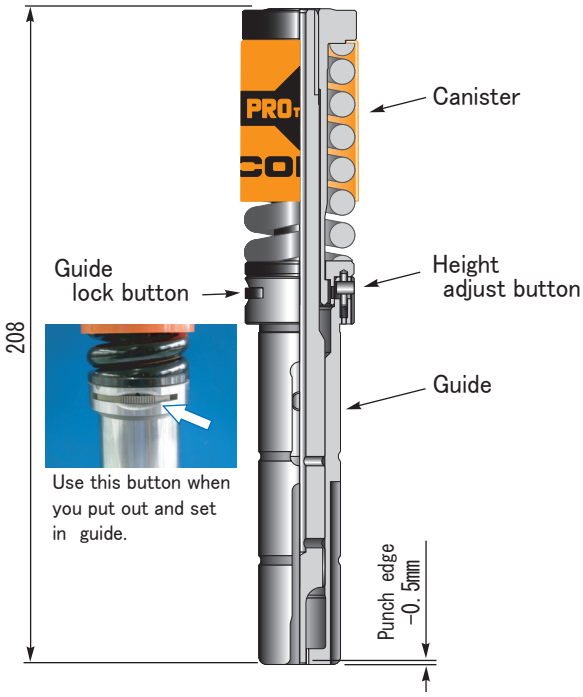
⑤ Insert guide.

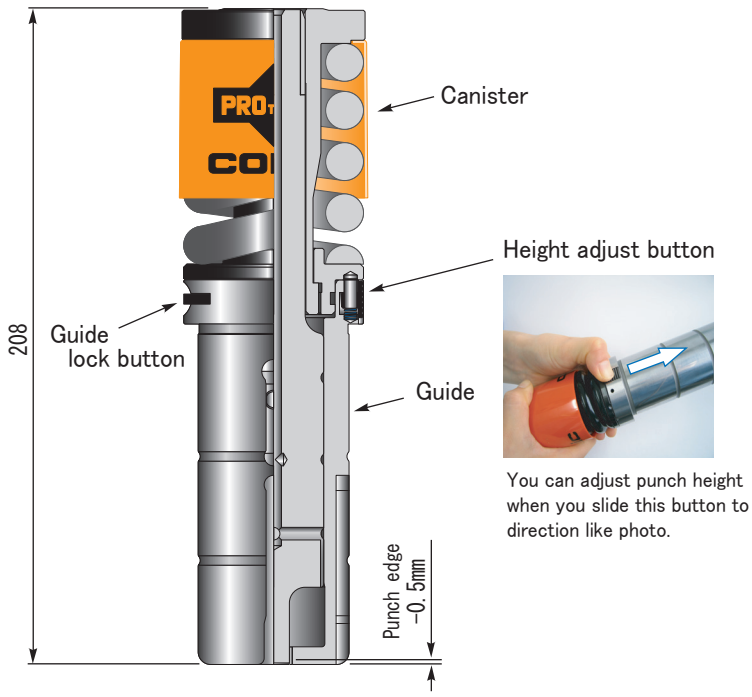
⚠ CAUTION

When assembling/disassembling punch body, we recommend to use soft metal or rugs to prevent scratches on the punch body.

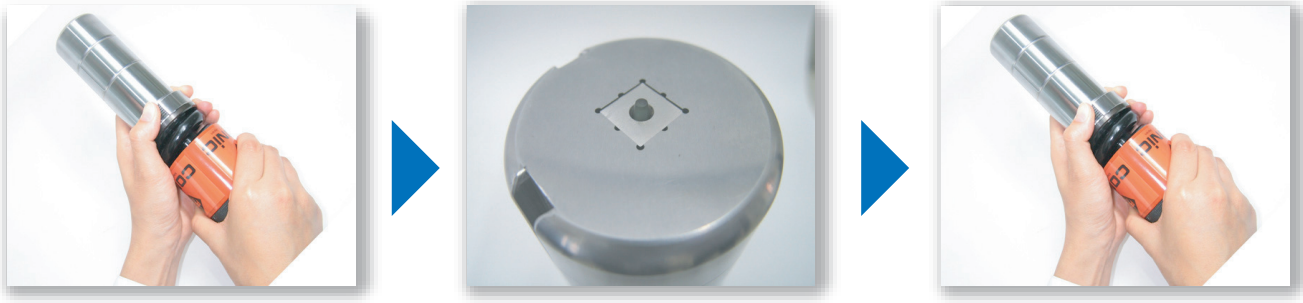
INSTRUCTION MANUAL (PROTECH 3)

SAFETY, ACCURATELY and SPEEDY - PROTECH 3





How to adjust punch height



1. Slide punch height adjust button to punch edge direction. Turn the canister during pushing the button.

2. Set the punch edge to same surface position as guide stripping surface.

3. Punch height adjusting by 3 clicks.

① During sliding height adjust button to guide direction.

② Release height adjust button as soon as starting to turn canister to right direction.

③ One click is approximately 0.2mm in case of turning canister till automatic locked position.

④ In case you repeat this work 3 times (3 clicks), punch height will be adjusted in standard dimension.

Punch edge out ・・・ Turn canister to c.c.w.

Punch edge in ・・・ Turn canister to cw.

INSTRUCTION MANUAL (PROTECH 3)

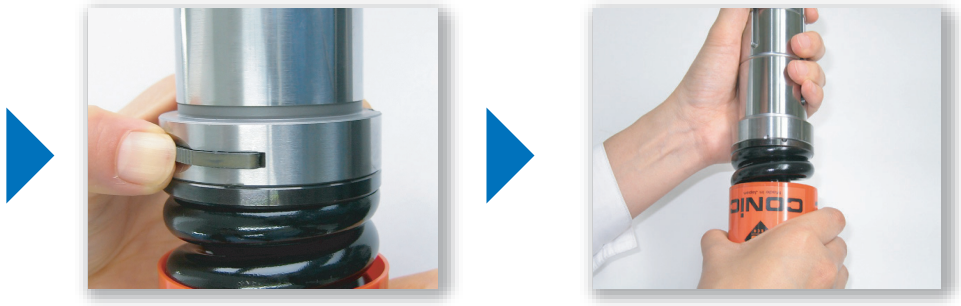
Easy & Quick operation

How to disassemble

1. Slide guide lock button to side direction of the guide.
2. Pull out guide while sliding the guide lock button.
3. Turn the punch body out from the canister.

How to assemble

1. Put the punch body into canister. Then turn the punch body till punch screw comes to head parts.
2. Insert punch body into guide after matching punch key and guide key.
3. By sliding the guide lock button, insert guide till guide flange touch to the canister.



4. When release the guide lock button, guide is locked automatically.
5. Confirm if guide and canister are locked.

FORMING TOOLS

Widest variety special forming tools in advanced technology.

Conic Special tools

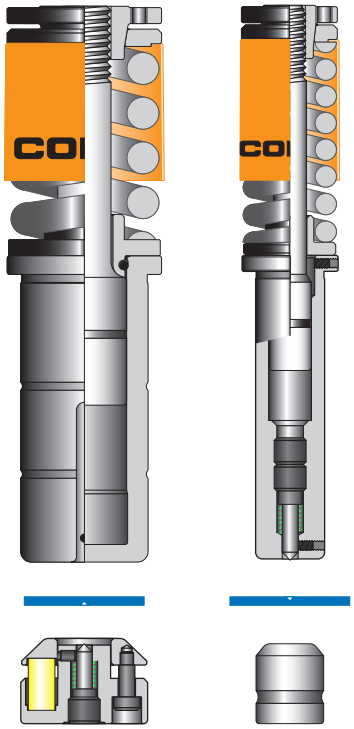
Conic offers the best performance special tools to the customer.
Conic engineers always try to find the best solution of productive tools
to the customer which uses the most advanced tooling technologies.

FORMING TOOLS

CENTER POINT

FORMING UP
NC 1-1/4″(B)

FORMING DOWN
NC 1/2″(A)

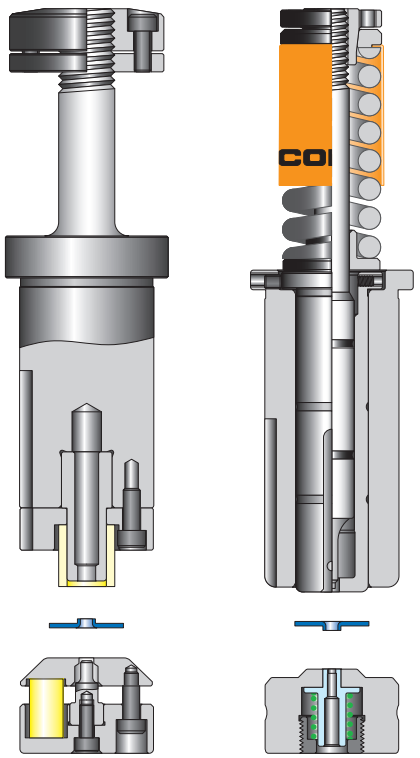


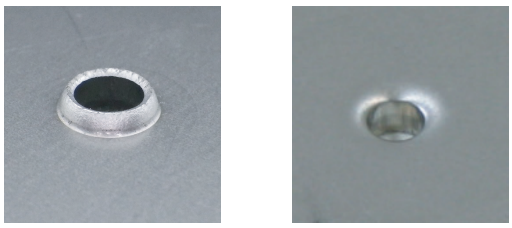
Forming process of making conical recess (center point).
Used for locator, landmark and so on.

BURRING FOR THREAD FORM

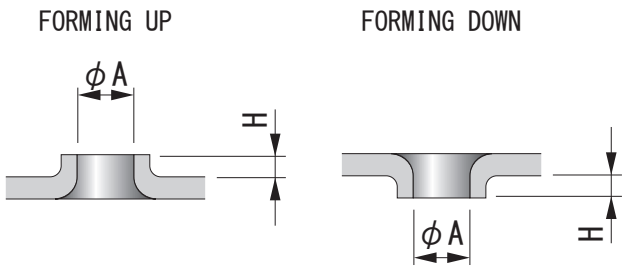
FORMING UP
NC 1-1/4″(B)
(Forming after pre-piercing)

FORMING DOWN
NC 1-1/4″(B)
(Pre-piercing and forming)





Screw size	Diameter (A)	Pre-hole
M2.5	φ2.1	φ1.2
M3	φ2.6	φ1.5
M4	φ3.4	φ2.0
M5	φ4.3	φ2.4
M6	φ5.1	φ2.8

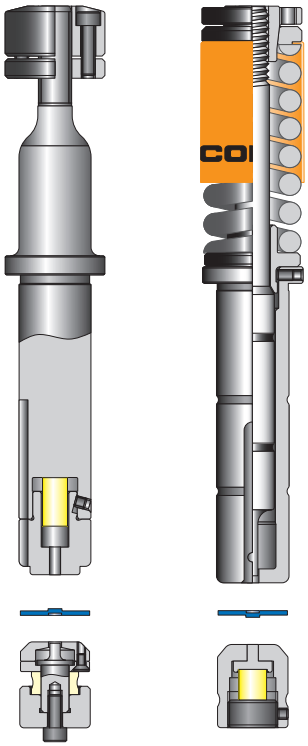


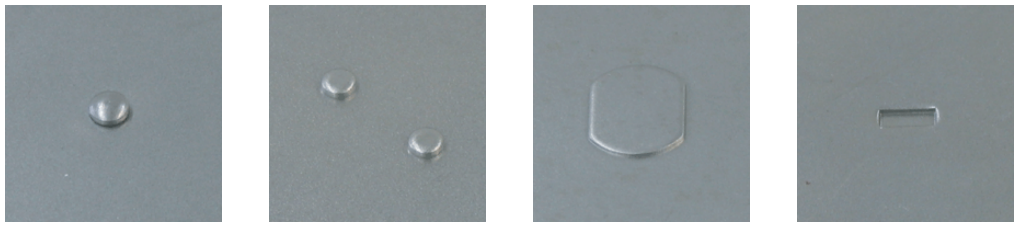
Forming process for making tubes of threading for screw.
Threading for screws and increased bearing area for tubes.

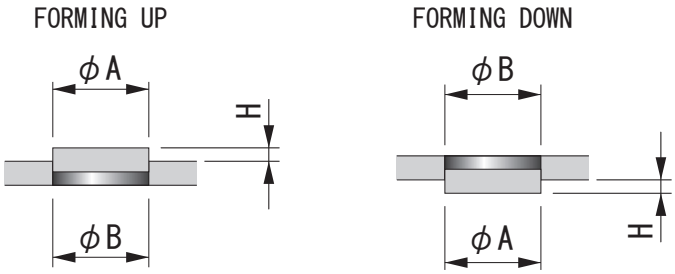
FORMING TOOLS

HALF SHEAR

FORMING UP FORMING DOWN



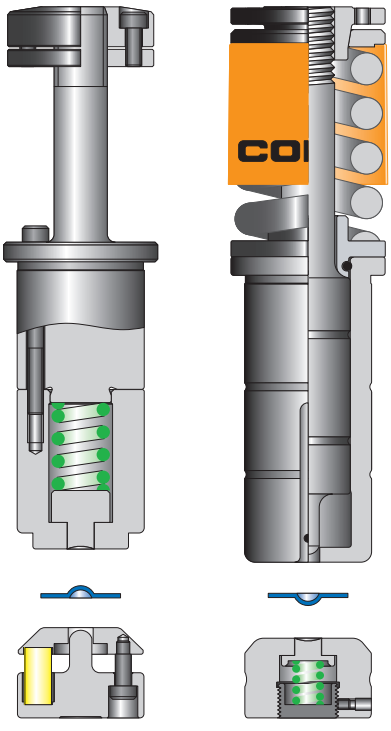


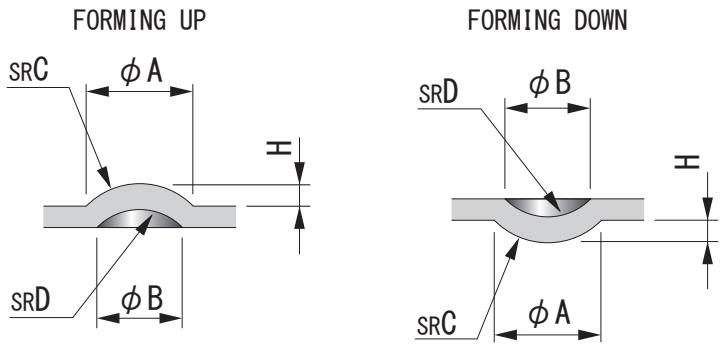


Forming process of pierce half of material thickness.
Used for locator or stopper.

EMBOSS (DIMPLE)

FORMING UP FORMING DOWN



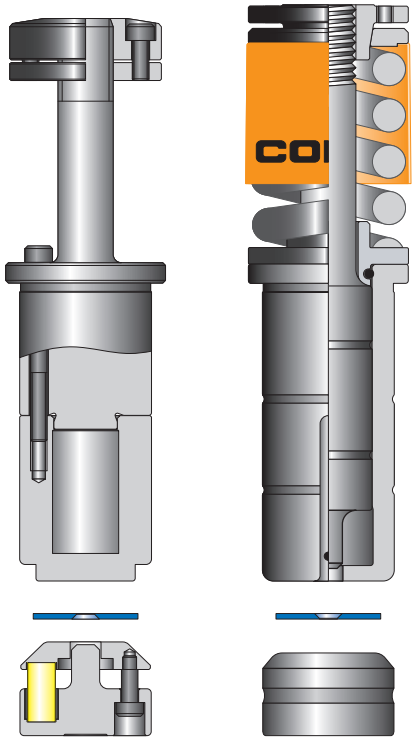


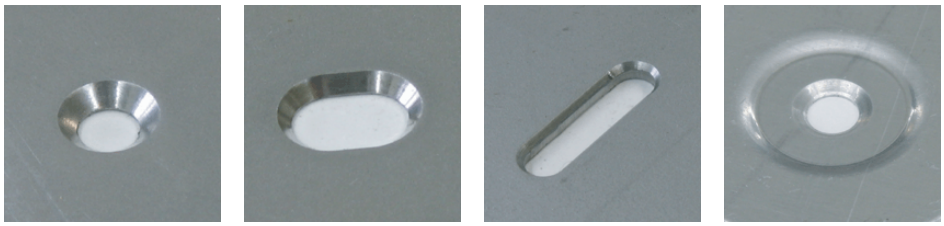
Forming process of embossing material like dimple.
Used for locator or decorative pattern of the material.

FORMING TOOLS

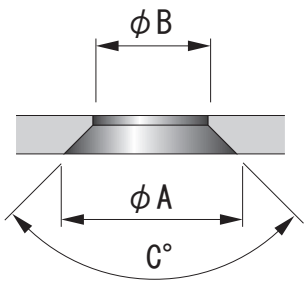
COUNTERSINK FOR COUNTERSUNK SCREW (CHAMFERING)

FORMING UP FORMING DOWN

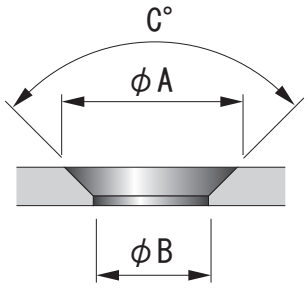




FORMING UP



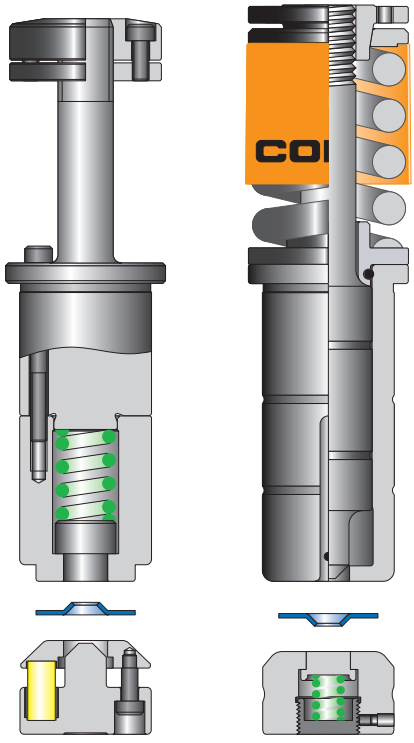
FORMING DOWN

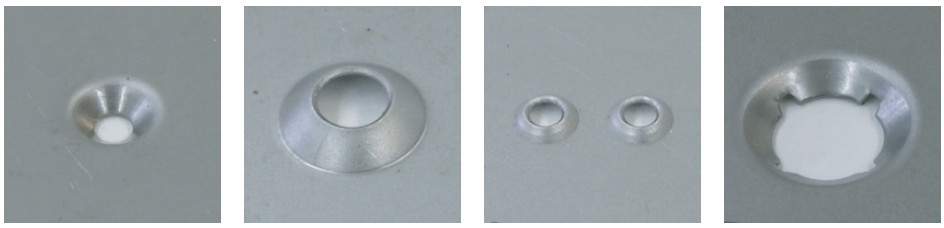


Forming process of making a chamfer to material.
Used for sink a countersunk screw head, make chamfer to a corner after punching, guide of tapping.

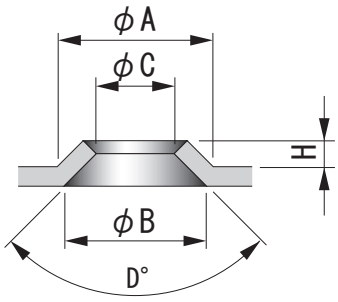
COUNTERSINK

FORMING UP FORMING DOWN

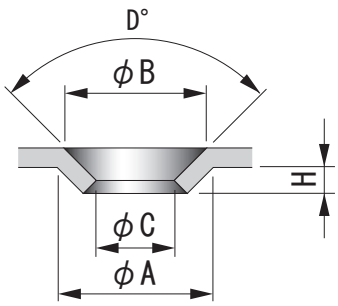




FORMING UP



FORMING DOWN

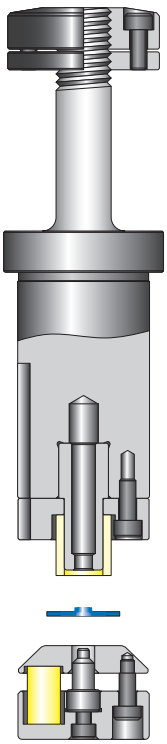


Forming process of embossing work, such as dish-shaped.
Used for sink a countersunk screw head, or used for nonslip.

FORMING TOOLS

COUNTERSINK BURRING

FORMING UP



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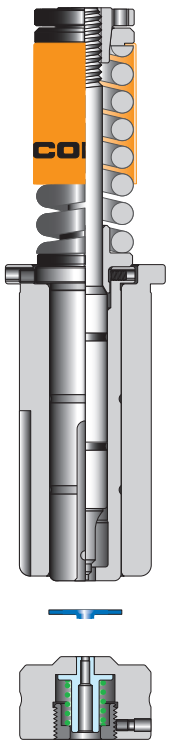

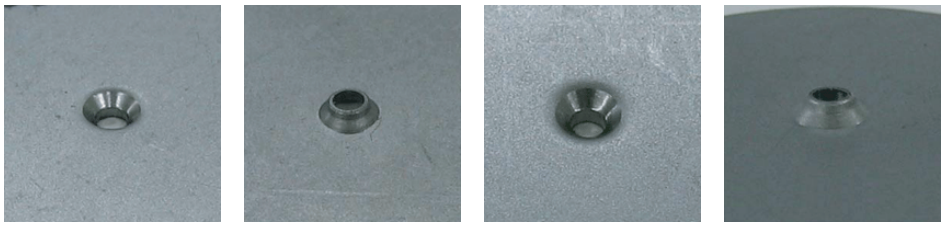

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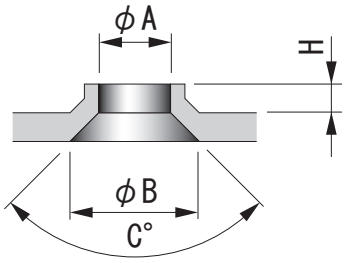
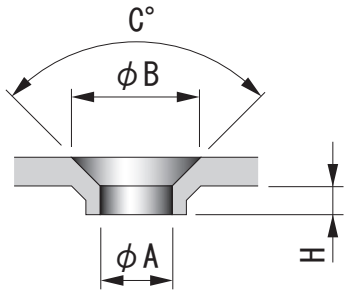


FORMING DOWN

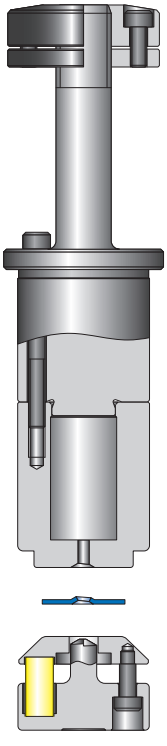


Forming process for making tube of threading for screw, and at the same time make a chamfer in the entrance part.

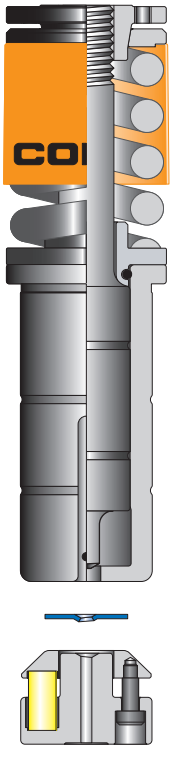
Used for threading for screw. Used to guide at the time of tapping.

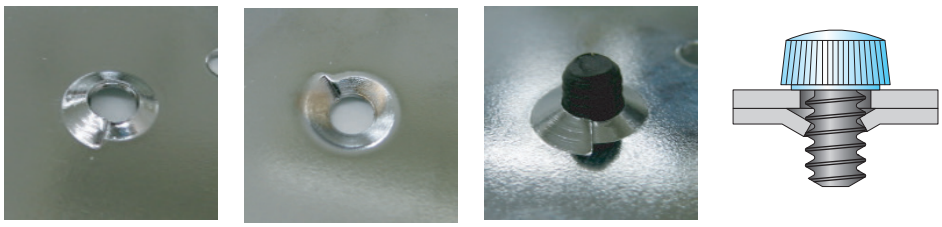
ONE PITCH THREAD FORM

FORMING UP



FORMING DOWN





FORMING UP

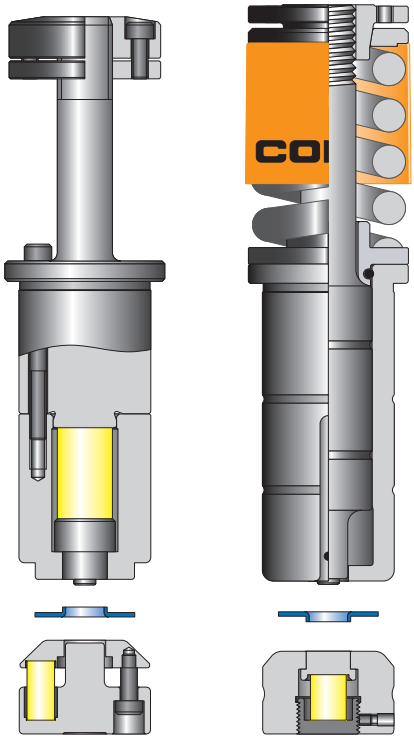
FORMING DOWN

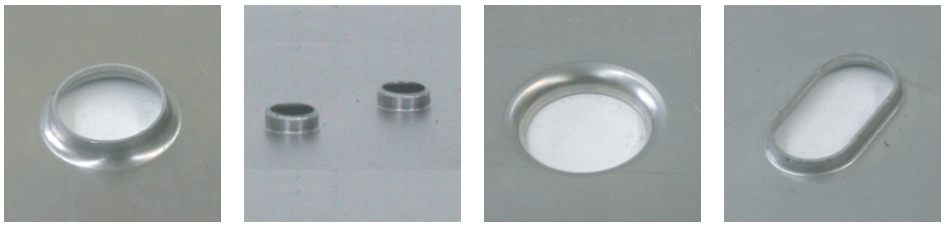
Forming process of making the one pitch thread form.
Used to screw in place that does not require a heavy strength.

FORMING TOOLS

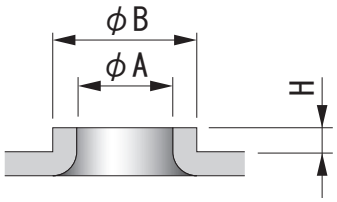
COUNTERSINK BURRING

FORMING UP FORMING DOWN





FORMING UP



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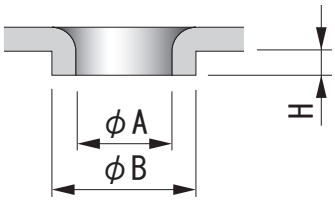
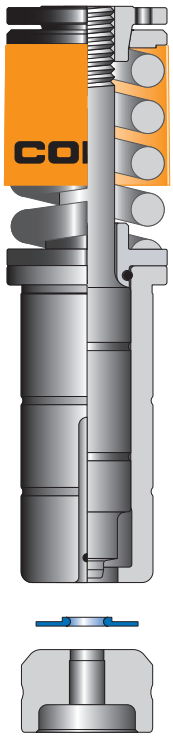


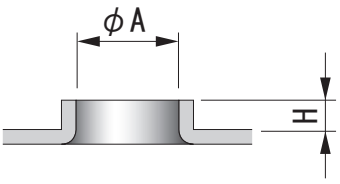
Forming process for making tubes.
Used to guide or protect the code and pipe.

CURLING

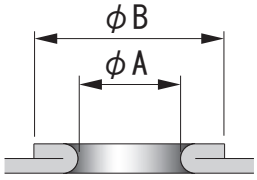
FORMING DOWN



BURRING



CURLING

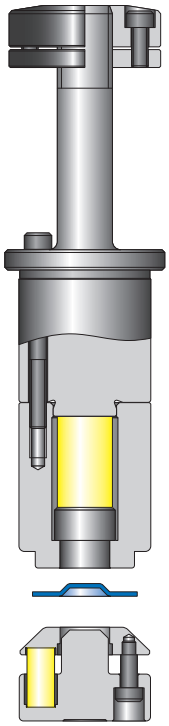


Forming process to bend the material after forming of burring.
Used to guide or protect the code and pipe.
The order of processing is Pre-hole ⇒ Burring ⇒ Curling.

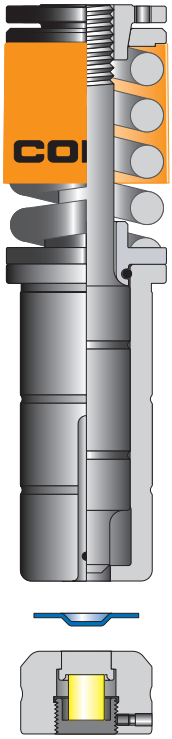
FORMING TOOLS

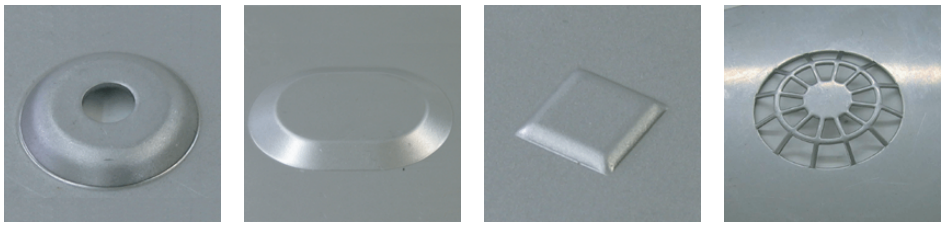
EMBOSS

FORMING UP



FORMING DOWN





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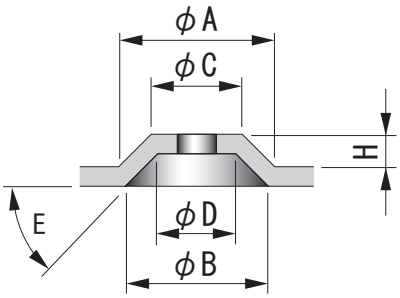
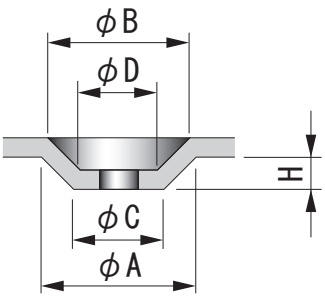


FORMING DOWN

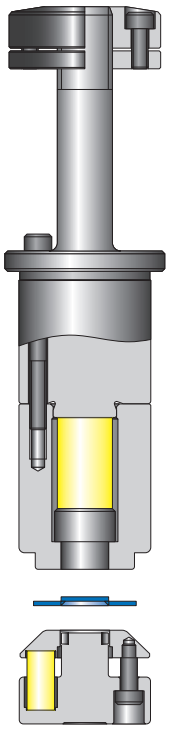


Forming process to produce raised or sunken shape.

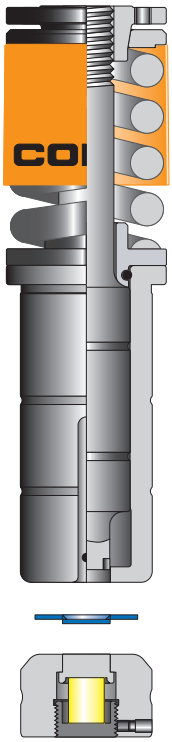
Used for sinking a head of bolts or nuts.
Used for the seat of the product.

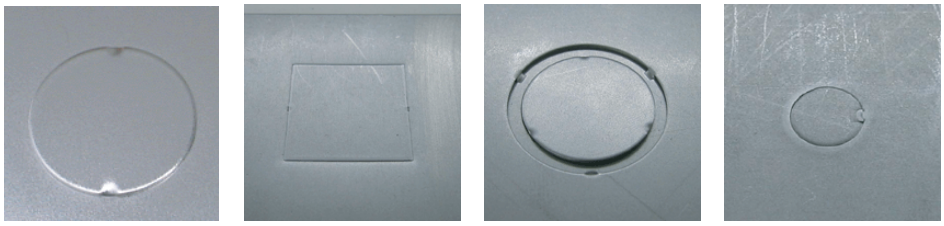
KNOCKOUT

FORMING UP



FORMING DOWN





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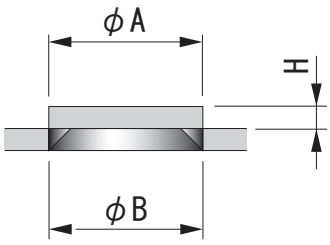
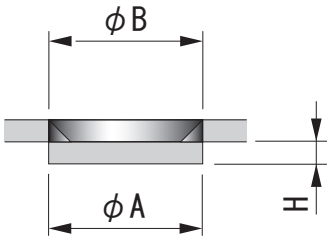


FORMING DOWN



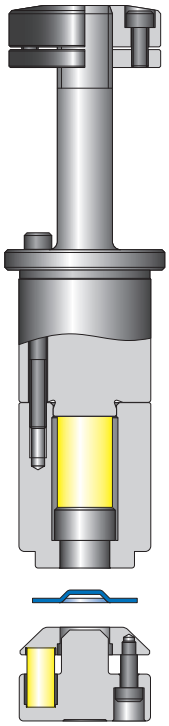
Forming process of piercing a hole and keep the slug on the sheet metal by tabs.

When using a hole, remove the slug using a screwdriver.

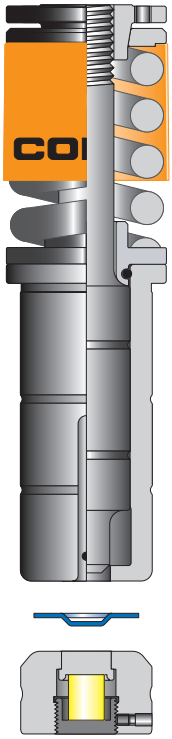
FORMING TOOLS

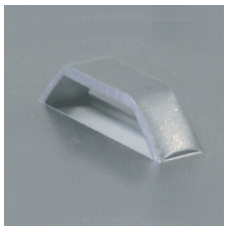
BRIDGE , DOUBLE BRIDGE

FORMING UP

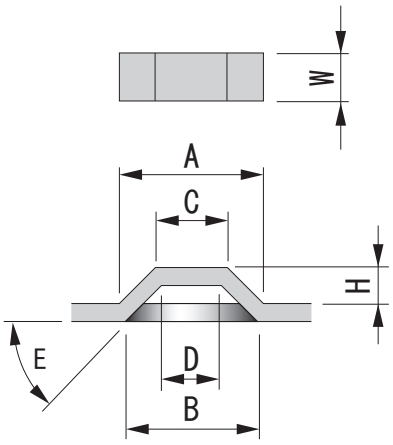


FORMING DOWN

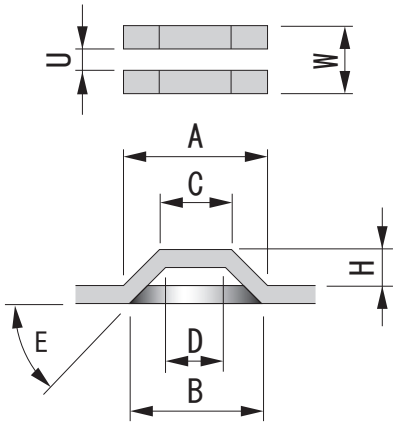




SINGLE BRIDGE(FORMING UP)



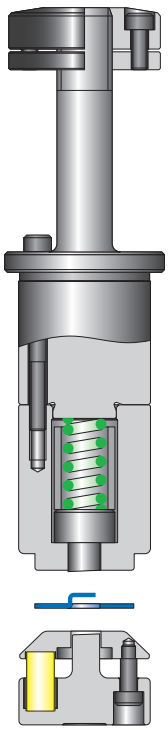
DOUBLE BRIDGE(FORMING UP)

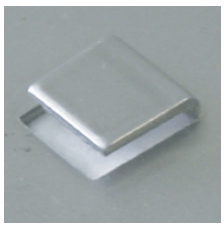


Forming process of lance like a bridge.

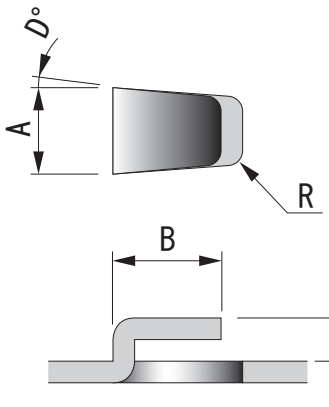
LANCE (Z-BENDING)

FORMING UP

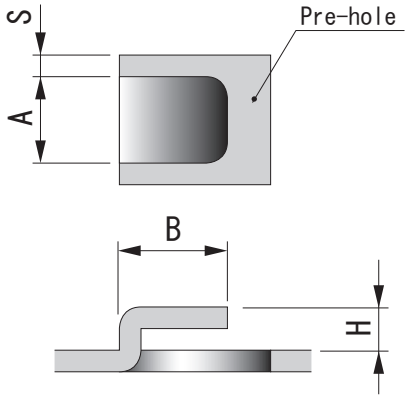




Forming without pre-hole



Forming after pre-hole



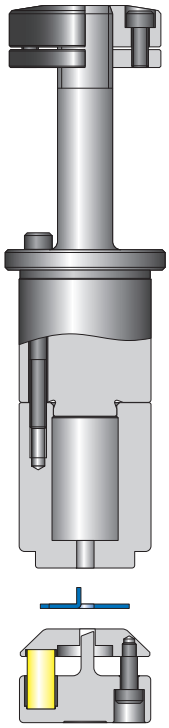
Forming process of lance like Z figure.

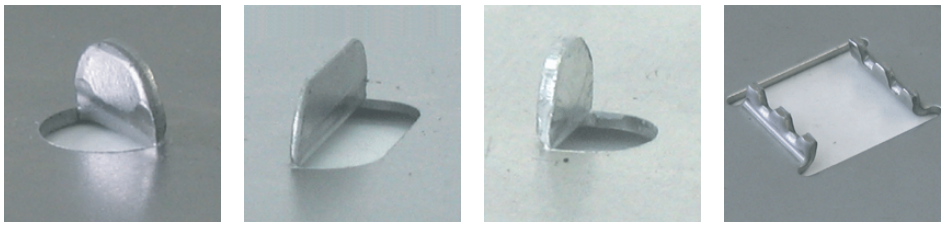
Used for hook, locator and stopper.

FORMING TOOLS

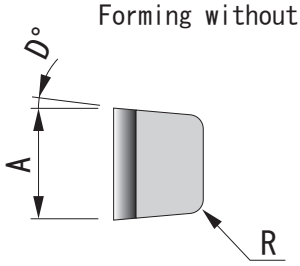
LANCE (L-BENDING)

FORMING UP

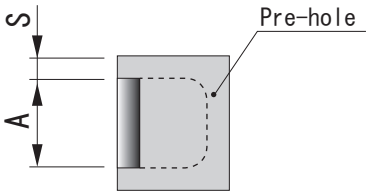




Forming without pre-hole



Forming after pre-hole



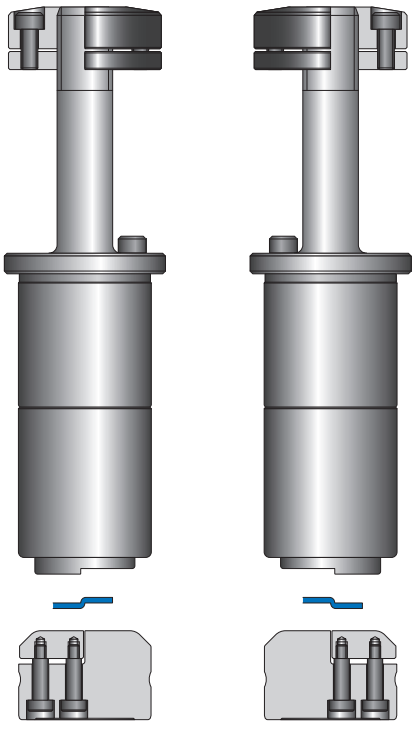
Forming process of lance like L figure.

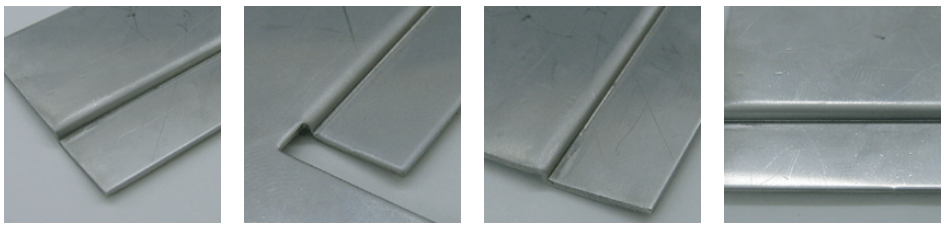
Used for hook, locator and stopper.

BENDING (OFFSET TOOL)

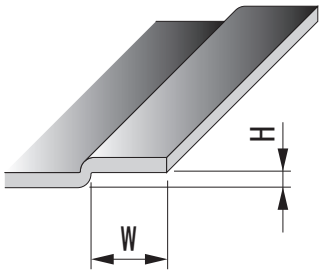
FORMING UP

FORMING DOWN

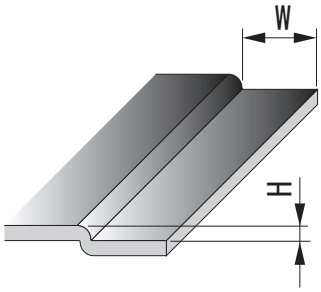




FORMING UP



FORMING DOWN



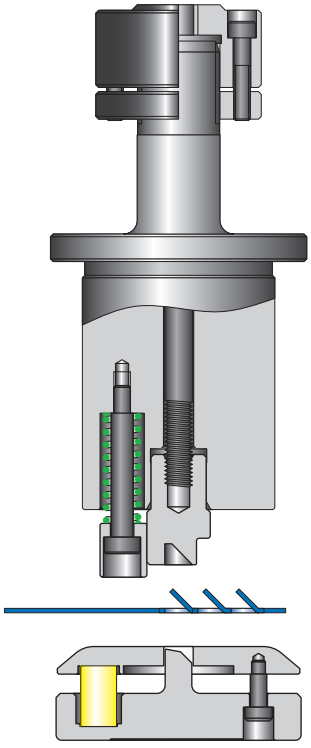
Forming process of bending that can hit continuously along the sheet.

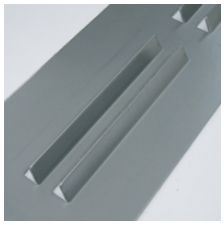
Used for the overlaying the sheet.

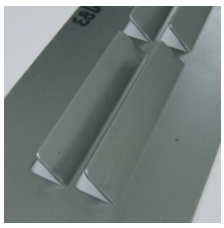
FORMING TOOLS

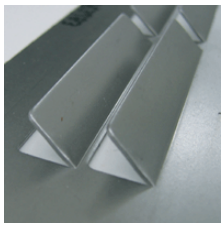
LANCE FOR AIR FLOW

FORMING UP

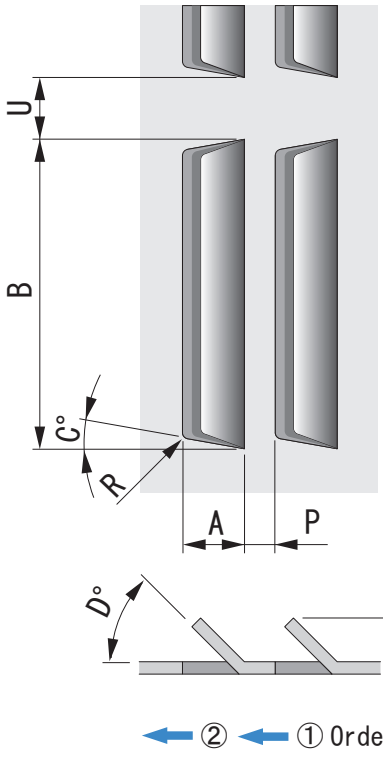








FORMING UP



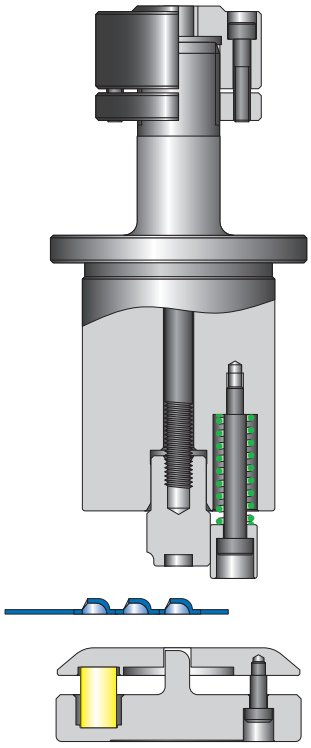
Order of punching ② ① ←

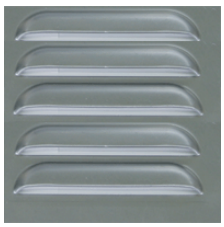
Forming process of lance to create an opening.

Used to provide air flow or ventilation.

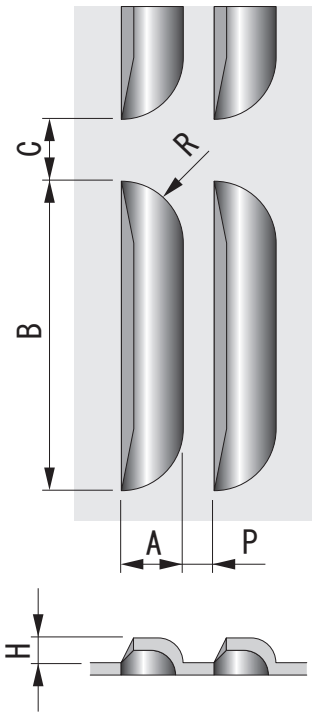
LOUVER FOR AIR FLOW

FORMING UP





FORMING UP



Order of punching ① → ② →

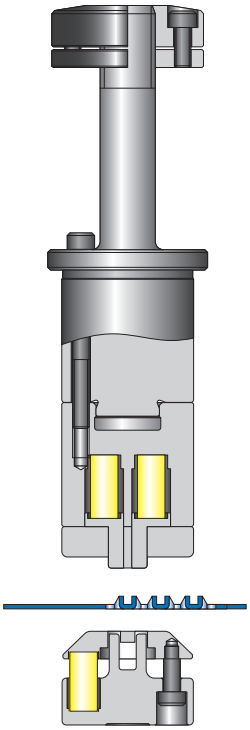
Forming process of louver to create an opening.

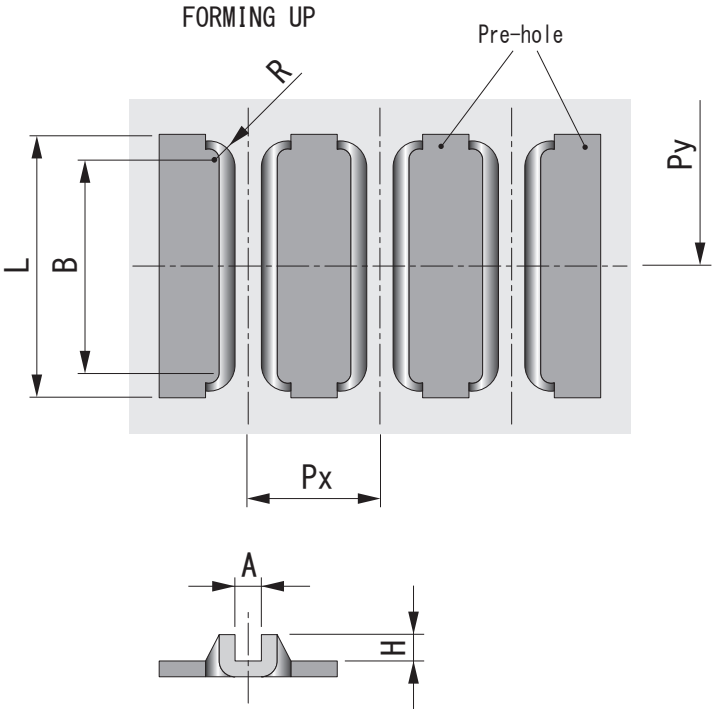
Used to provide air flow or ventilation.

FORMING TOOLS

CARD GUIDE

FORMING UP

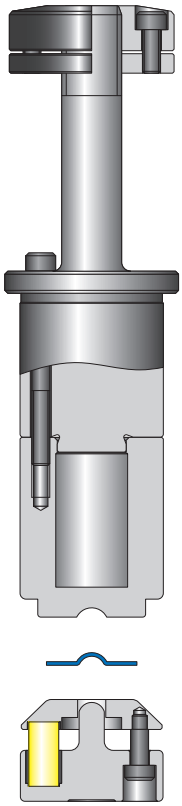


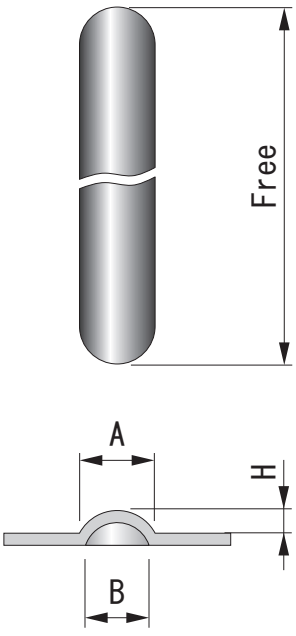


Forming process to form U-groove for a printed circuit board.

BEADING

FORMING UP



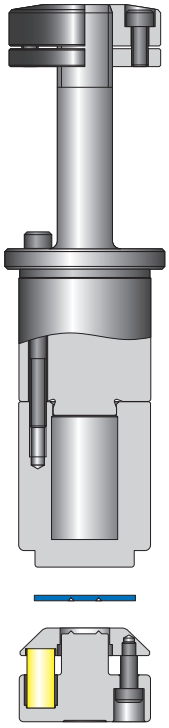


Forming process of embossing that can hit continuously along the sheet.
Used for strengthening, nonslip or decoration.

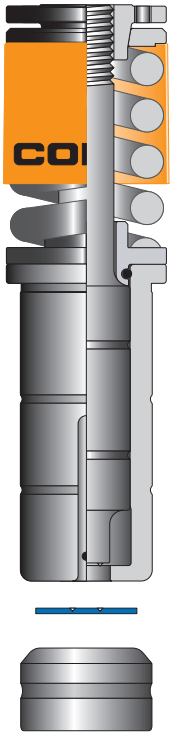
FORMING TOOLS

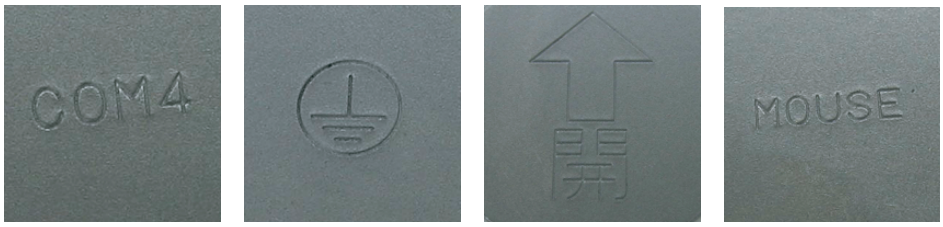
MARKING (STAMPING)

FORMING UP



FORMING DOWN





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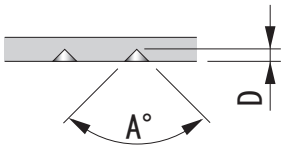

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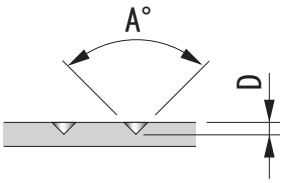
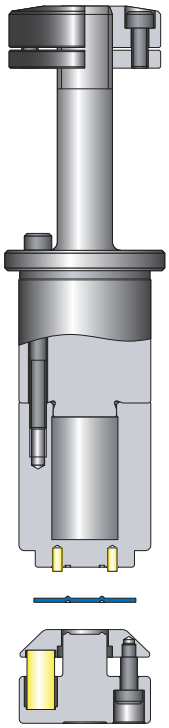


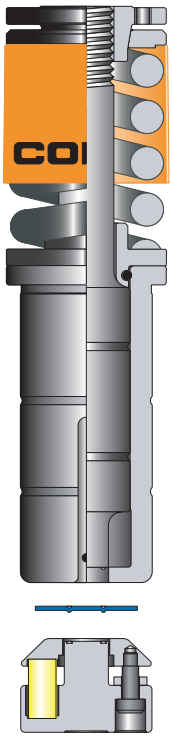
Forming process of stamping the character or logo etc.

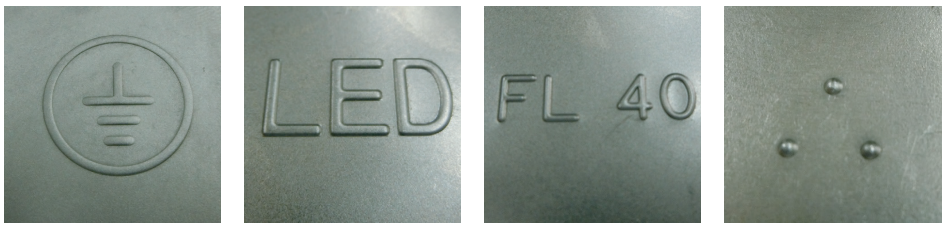
MARKING (EMBOSS)

FORMING UP

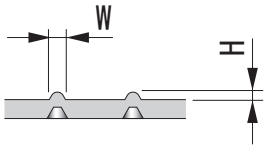


FORMING DOWN

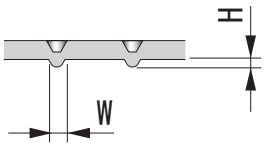




FORMING UP



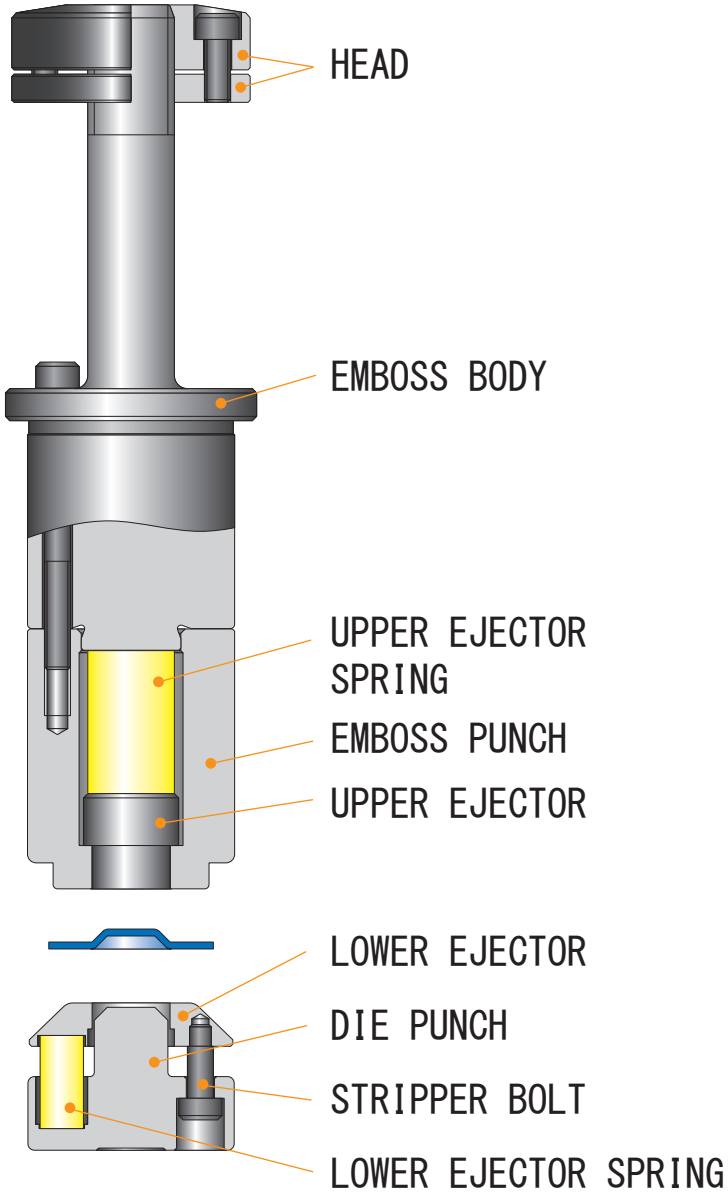
FORMING DOWN



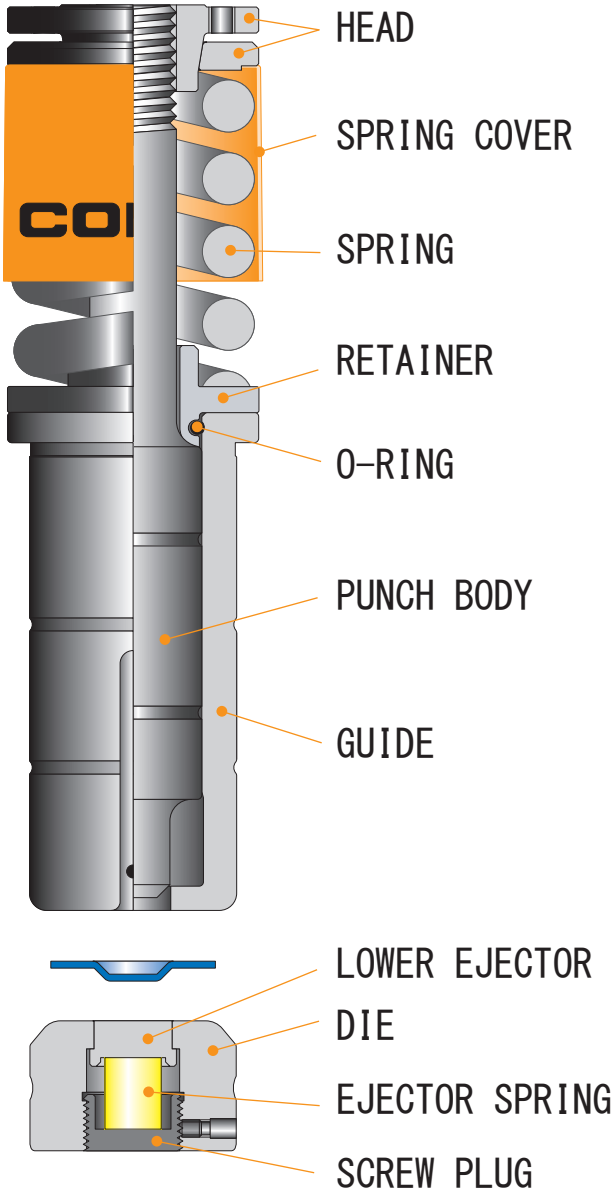
Forming process of embossing the character or logo etc.

FORMING TOOLS

FORMING UP



FORMING DOWN



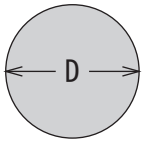
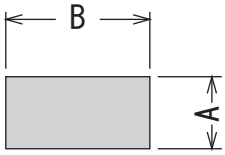
TECHNICAL INFORMATION

CALCULATE PUNCHING FORCE (TONNAGE)

Tonnage capacity is different depending on machines.
Use the calculation formula below to prevent from over tonnage.

$$\text{Tonnage (ton)} = \frac{\text{Circumference (mm)} \times \text{Material thickness (mm)} \times \text{Shear resistance (kg/mm}^2\text{)}}{1000}$$

Circumference

Round	Shaped
Diameter x 3.14	(Length dimension + Width dimension) x 2
	
Circumference = D x 3.14	Circumference = (A + B) x 2

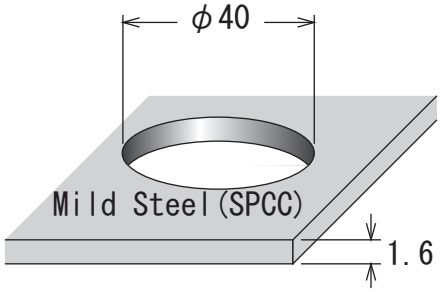
Shear resistance by material

Material	Shear resistance (kg/mm^2)
Mild Steel	26～35
SS400	33～42
Stainless Steel	52～56
Aluminum	7～16
Copper	18～30
Brass	22～40

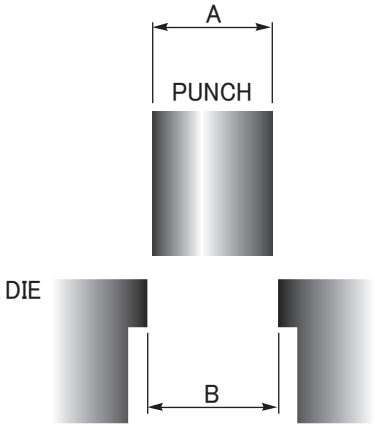
<Calculation example>

The tonnage when piercing Φ40 to Mild Steel T=1.6mm.

$$\frac{\underset{\text{Circumference}}{40 \times 3.14} \times \underset{\text{Material thickness}}{1.6} \times \underset{\text{Shear resistance}}{35}}{1000} = 7 \text{ (ton)}$$



DIE CLEARANCE



■ DIE CLERANCE IS ・・・

Die clearance is difference between punch diameter and die diameter.

Die clearance = B − A

■ RECOMMENDED DIE CLERANCE

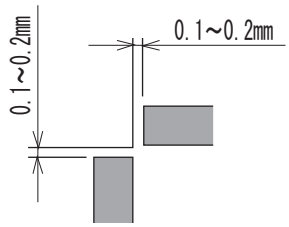
Die clearance = Material thickness x Clearance Ratio

Material	Clearance Ratio	Material thickness					
		0.5～1.0	1.2	1.5	2.0	2.3	3.2
Mild steel	0.15	0.15	0.2	0.25	0.3	0.4	0.5
Stainless steel	0.2	0.2	0.25	0.3	0.4	0.5	0.6
Aluminum	0.1	0.15	0.15	0.15	0.2	0.25	0.35
Copper	0.1	0.15	0.15	0.15	0.2	0.25	0.35

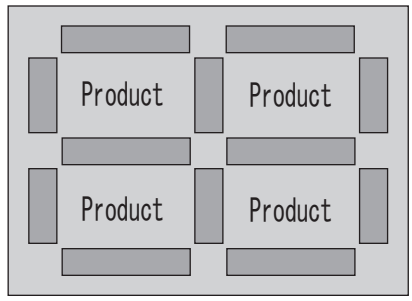
TECHNICAL INFORMATION

JOINT METHOD

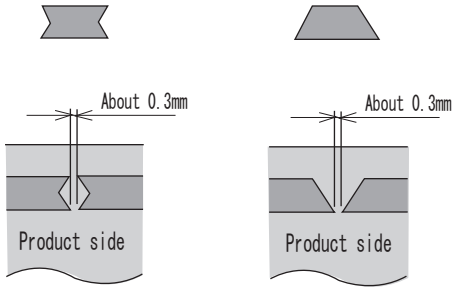
CORNER JOINT



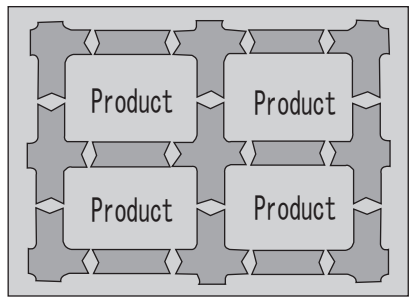
Joint of corner part



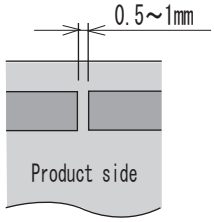
MICRO JOINT



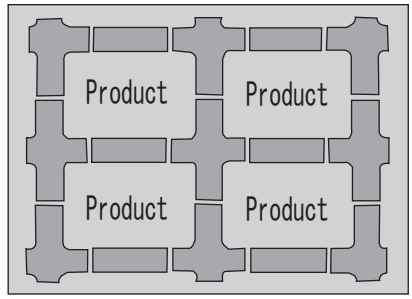
Joint of straight part



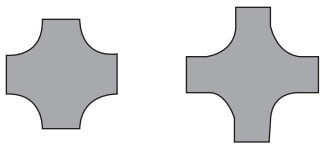
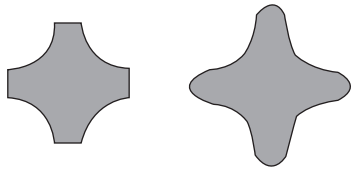
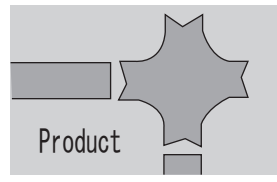
WIRE JOINT



Joint of straight part



CORNER ROUNDING

Standard Corner rounding tool	Corner rounding tool with tangent line	Corner rounding tool with joint
		

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- Trumpf type tooling

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