

MAXI-PUNCH

TN OR TiCN COATED PUNCHES
CAN GIVE YOU UP TO SEVEN TIMES
NORMAL LIFE EXPECTANCY OF STANDARD TOOLING



**AUSTRALIA'S LEADING
PRECISION TOOL MANUFACTURER**

CONTENTS

| SECTION 'A' (114 Style Tooling) | Page No. |
|---|-----------------|
| A' Station (up to 12.7mm) | 1 |
| B' Station (up to 25mm) | 2 |
| C' Station (up to 38mm) | 3 |
| D' Station (up to 50mm) | 4 |
| D' Station 112 Style Auto Index | 5 |
| E' Station (up to 64mm) | 6 |
| F' Station (up to 75mm) | 7 |
| G' & H' Station (up to 105mm) | 8 |
| J' Station (up to 120mm) | 9 |
| Tool Holders | 10 |
| SECTION 'B' (Vulcan Tooling) | |
| X' Station (up to 12.7mm) | 12 |
| AB' Station (up to 25mm) | 13 |
| C' Station (up to 38mm) | 13 |
| D' Station (up to 50mm) | 14 |
| EF' Station (up to 75mm) | 14 |
| EF' Station Insertable Parting Tools | 15 |
| GHJ' Station Insertable Parting Tools | 15 |
| GHJ' Station (up to 120mm) | 16 |
| Tool Holders | 17 |
| SECTION 'C' (H.D. Nibbling & Vari Tooling) | |
| B' Station (up to 25mm) | 19 |
| C' Station (up to 38mm) | 20 |
| D' Station (up to 50mm) | 21 |
| EF' Station (up to 75mm) | 22 |
| GHJ' Station (up to 101mm) | 23 |
| Tool Holders | 24 |
| Vari Tools | 25 |
| SECTION 'D' (Special Shapes & Technical Information) | |
| Category A, B & C Shapes | 27, 28, 29, 30 |
| Technical Information | 31, 32 |
| Handy Hints | 33 |

Section 'A'

114 style Tooling

Manufactured by

F.M. TOOL & GAUGE PTY. LTD.

A.B.N. 91 008 262 520

CUDLEE CREEK, SOUTH AUSTRALIA, 5232

PH. (08) 8389 2272 FAX. (08) 8389 2309 or (08) 8389 2478

Free Call 1800 882 993 E-mail - sales@fmtool.com.au

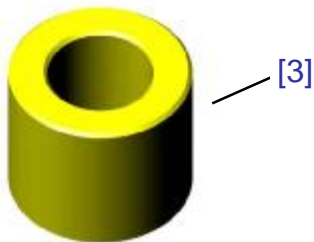
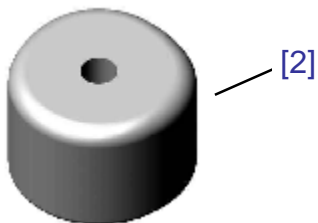
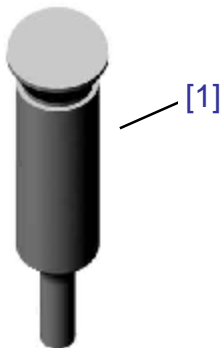
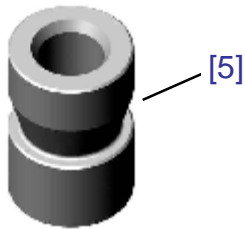
www.fmtool.com.au



WIEDEMANN Style 114

“A” Station

*Unless specified to the contrary all dies
will be cut SLUG FREE Style*



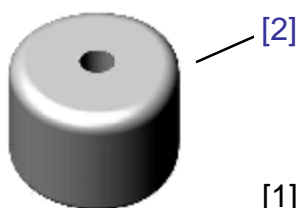
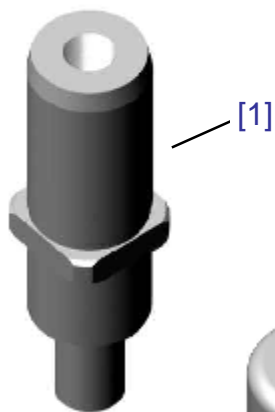
Rounds Only
12.7mm maximum dia

- | | |
|----------------------------|-----------|
| [1] Punch..... | W3000-000 |
| [2] Die | W3006-000 |
| [3] Urethane Stripper..... | W3003-000 |
| [4] Adaptor Packer | W2998-000 |
| [5] Punch Adaptor | W2999-000 |

WIEDEMANN Style 114

“B” Station

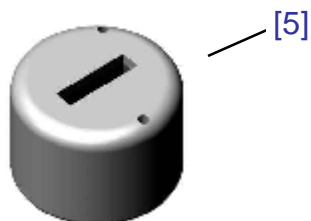
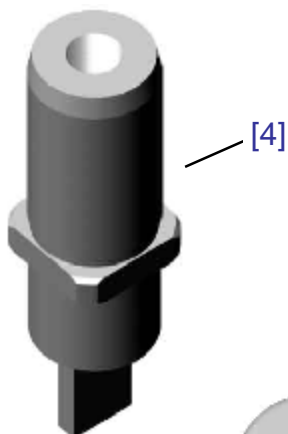
Unless specified to the contrary all dies will be cut SLUG FREE Style



Rounds

25mm maximum dia

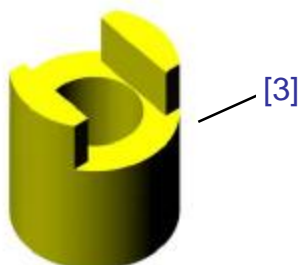
- [1] PunchW3150-000
- [2] DieW3006-000
- [3] Urethane StripperW3103-000



Shapes

To 23mm maximum dia

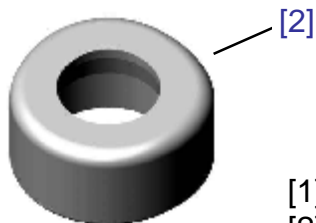
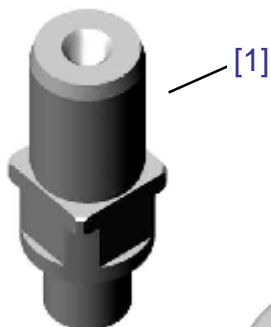
- [4] PunchW3100-XXX
- [5] DieW3106-XXX
- [3] Urethane StripperW3103-000



WIEDEMANN
Style 114

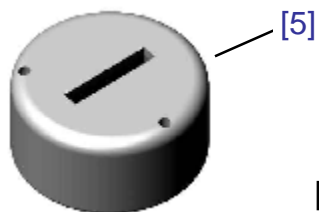
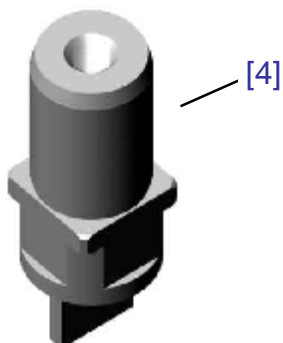
“C” Station

Unless specified to the contrary all dies will be cut SLUG FREE Style



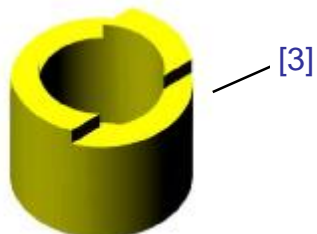
Rounds
38mm maximum dia

- [1] Punch W3250-000
- [2] Die W3256-000
- [3] Urethane Stripper W3203-000



Shapes
To 32mm maximum dia

- [4] Punch W3200-XXX
- [5] Die W3206-XXX
- [3] Urethane Stripper W3203-000

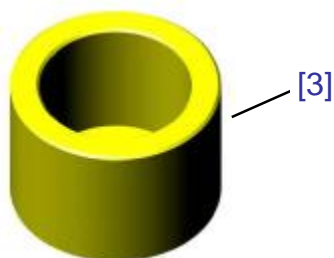
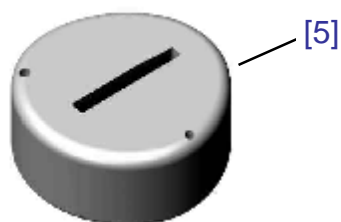
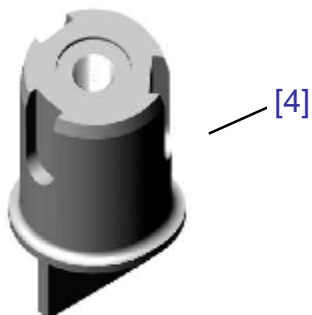
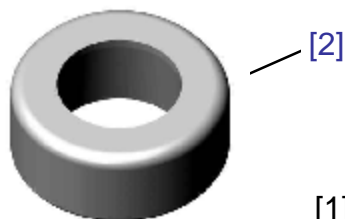
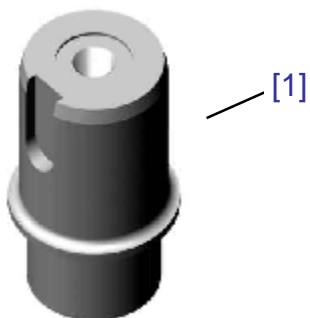


WIEDEMANN

Style 114

“D” Station

Unless specified to the contrary all dies will be cut SLUG FREE Style



Rounds

50mm maximum dia

- [1] Punch W3350-000
- [2] Die W3356-000
- [3] Urethane Stripper W3303-000

Shapes

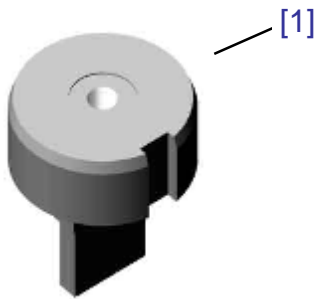
To 46mm maximum dia

- [4] Punch W3300-XXX
- [5] Die W3306-XXX
- [3] Urethane Stripper W3303-000

WIEDEMANN
Style 112

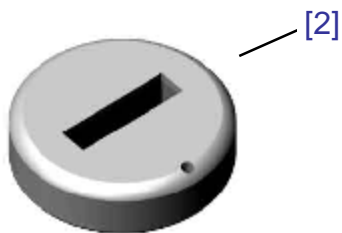
“D” Station
Auto Index

***Unless specified to the contrary all dies
will be cut SLUG FREE Style***



Shapes Only
To 46mm maximum dia

[1] Punch W3330-XXX
[2] Die W3336-XXX

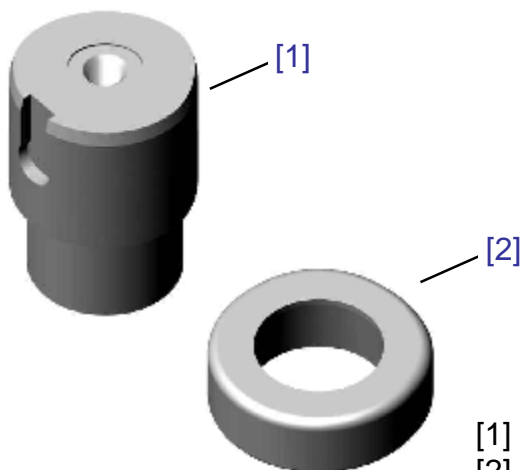


WIEDEMANN

Style 114

“E” Station

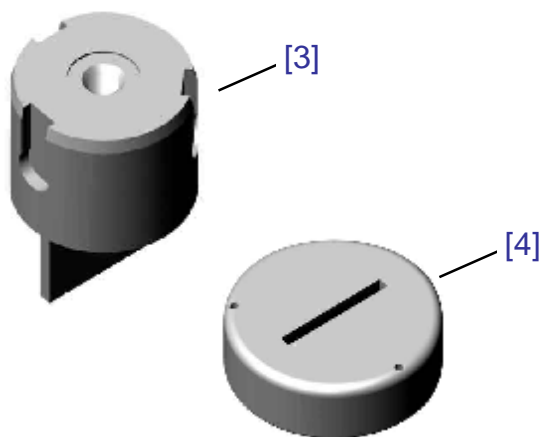
Unless specified to the contrary all dies will be cut SLUG FREE Style



Rounds

64mm maximum dia

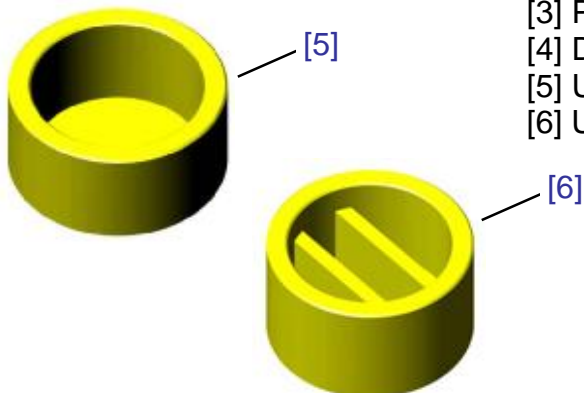
- [1] Punch W3450-000
- [2] Die W3456-000
- [5] Urethane Stripper W3403-000



Shapes

To 57mm maximum dia

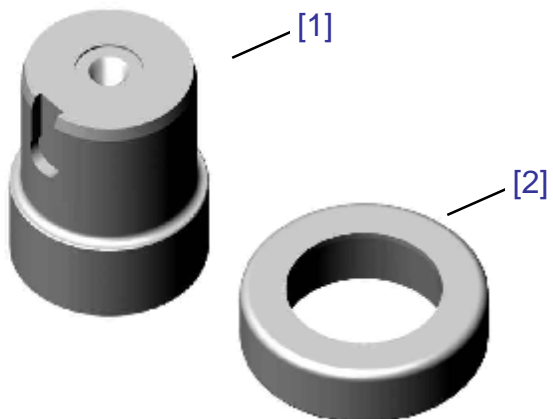
- [3] Punch W3400-XXX
- [4] Die W3406-XXX
- [5] Urethane Stripper W3403-000
- [6] Urethane Stripper Ribbed W3403-RIB



WIEDEMANN Style 114

“F” Station

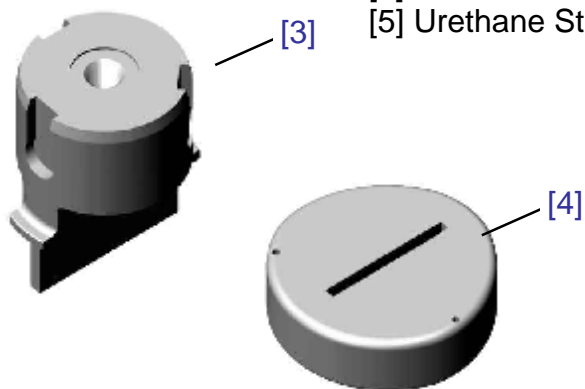
*Unless specified to the contrary all dies
will be cut SLUG FREE Style*



Rounds

75mm maximum dia

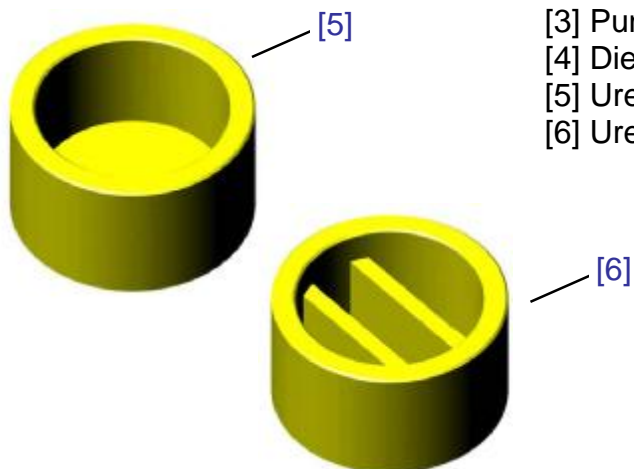
- [1] Punch W3550-000
- [2] Die W3556-000
- [5] Urethane Stripper W3503-000



Shapes

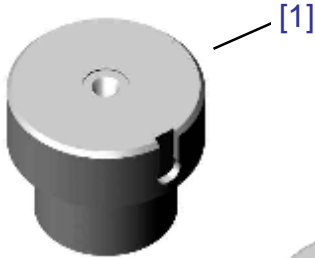
To 71mm maximum dia

- [3] Punch W3500-XXX
- [4] Die W3506-XXX
- [5] Urethane Stripper W3503-000
- [6] Urethane Stripper Supported W3503-RIB



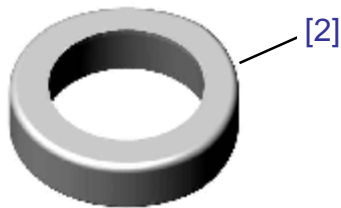
WIEDEMANN
Style 114

“G” & “H” Station



[1]

Unless specified to the contrary all dies will be cut SLUG FREE Style

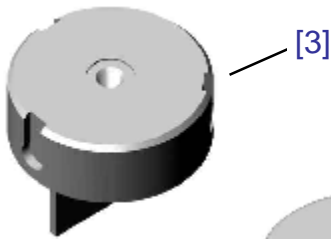


[2]

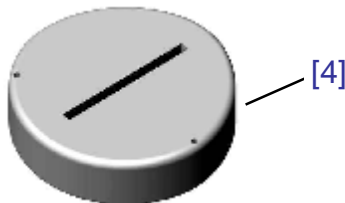
Rounds

105mm maximum dia

- [1] GH' Punch..... W3650-000
- [2] G' Die (89mm max. dia.) W3656-000
- [2] H' Die (105mm max. dia.)..... W3756-000
- [5] G' Urethane Stripper W3603-000
- [5] H' Urethane Stripper..... W3703-000



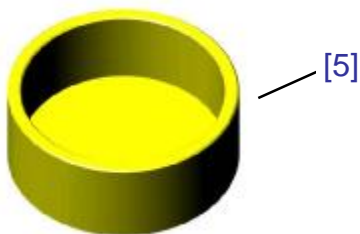
[3]



[4]

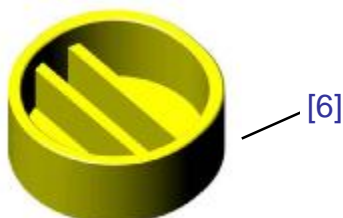
Shapes

To 99mm maximum dia



[5]

- [3] GH' Punch..... W3600-XXX
- [4] G' Die (85mm max. dia.) W3606-XXX
- [4] H' Die (99mm max. dia.)..... W3706-XXX
- [5] G' Urethane Stripper W3603-000
- [5] H' Urethane Stripper..... W3703-000
- [6] G' Urethane Stripper Ribbed W3603-RIB
- [6] H' Urethane Stripper Ribbed W3703-RIB

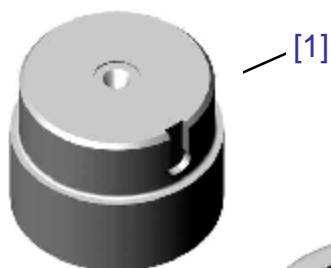


[6]

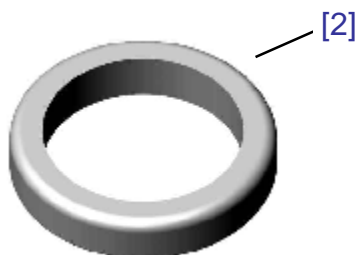
WIEDEMANN

Style 114

“J” Station



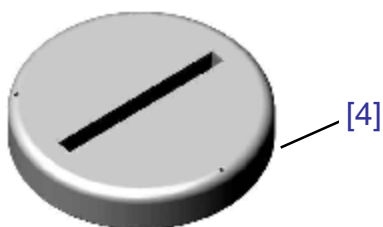
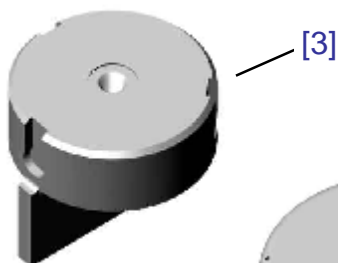
Unless specified to the contrary all dies will be cut SLUG FREE Style



Rounds

120mm maximum dia

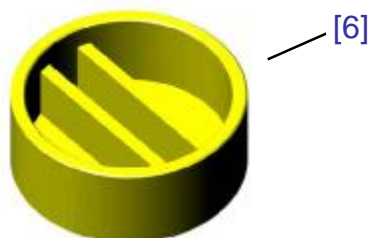
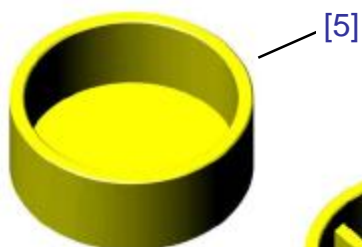
- [1] Punch W3850-000
- [2] Die W3856-000
- [5] Urethane Stripper W3803-000



Shapes

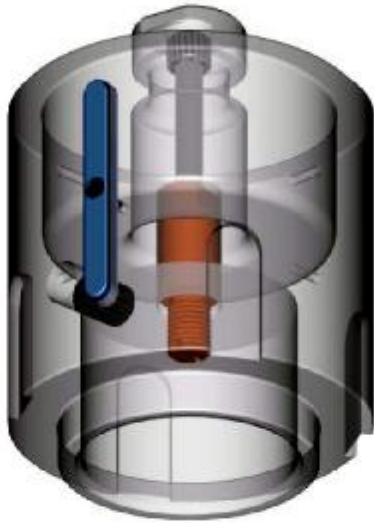
To 114mm maximum dia

- [3] Punch W3800-XXX
- [4] Die W3806-XXX
- [5] Urethane Stripper W3803-000
- [6] Urethane Stripper Ribbed W3803-RIB

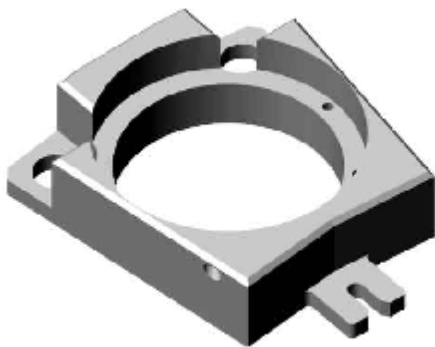


WIEDEMANN
Style 114

Standard Tool Holders



PUNCH HOLDERS



DIE HOLDERS

*When requesting information on holders,
please indicate the Machine model. Serial
number and the station required*

Section 'B'

Vulcan Tooling

Manufactured by

F.M. TOOL & GAUGE PTY. LTD.

A.B.N. 91 008 262 520

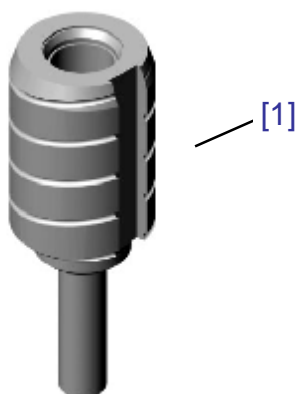
CUDLEE CREEK, SOUTH AUSTRALIA, 5232

PH. (08) 8389 2272 FAX. (08) 8389 2309 or (08) 8389 2478

Free Call 1800 882 993 E-mail - sales@fmtool.com.au

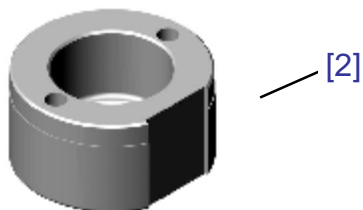
www.fmtool.com.au





Rounds Only
12.7mm maximum dia

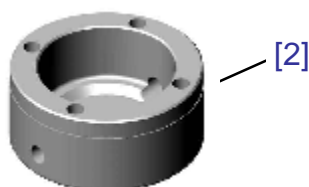
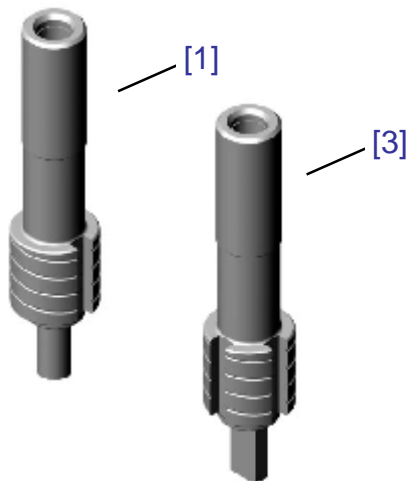
- [1] Punch WV3000-000
- [2] Metal Stripper WV3003-000



***For Standard 114 Style Dies
see page 2
For H.D. Nibbling Dies
see page 19***

WIEDEMANN
Vulcan Tooling

“AB” Station



Rounds

25mm maximum dia

- [1] Punch WV3100-000
- [2] Metal Stripper WV3123-000

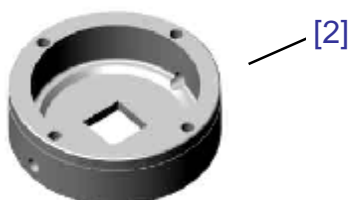
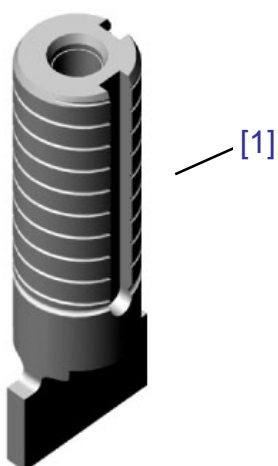
Shapes

To 23mm maximum dia

- [3] Punch WV3100-XXX
- [2] Metal Stripper WV3123-XXX

*For Standard 114 Style Dies
see page 2
For H.D. Nibbling Dies
see page 19*

“C” Station



Rounds

38mm maximum dia

- [1] Punch WV3200-000
- [2] Metal Stripper WV3223-000

Shapes

To 32mm maximum dia

- [1] Punch WV3200-XXX
- [2] Metal Stripper WV3223-XXX

*For Standard 114 Style Dies
see page 3
For H.D. Nibbling Dies
see page 20*

“D” Station

Rounds

50mm maximum dia

- [1] Punch..... WV3300-000
- [2] Metal Stripper..... WV3323-000

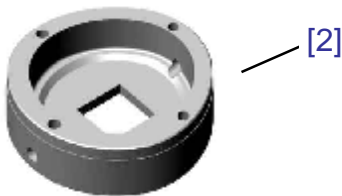
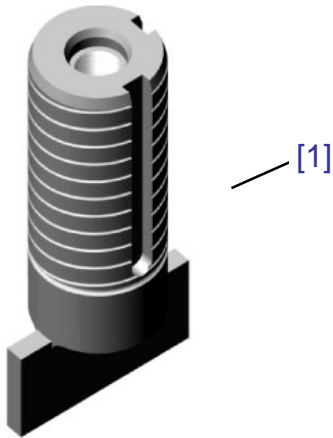
Shapes

To 46mm maximum dia

- [1] Punch..... WV3300-XXX
- [2] Metal Stripper..... WV3323-XXX

*For Standard 114 Style Dies
 see page 4*

*For H.D. Nibbling Dies
 see page 21*



“EF” Station

Rounds

75mm maximum dia

- [1] Punch..... WV3500-000
- [2] Metal Stripper..... WV3523-000

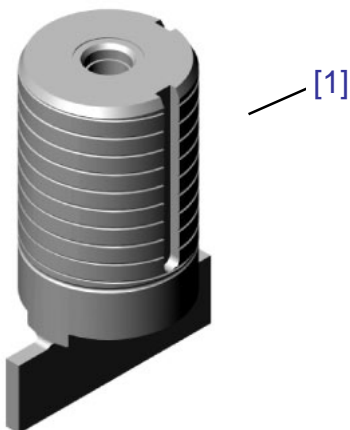
Shapes

To 71mm maximum dia

- [1] Punch..... WV3500-XXX
- [2] Metal Stripper..... WV3523-XXX

*For Standard 114 Style Dies
 see pages 6 & 7*

*For H.D. Nibbling Dies
 see page 22*



WIEDEMANN
Vulcan Tooling

“EF” Station
Insertable Parting Tools



INSERTABLE PUNCH HOLDER

(Insert not included)

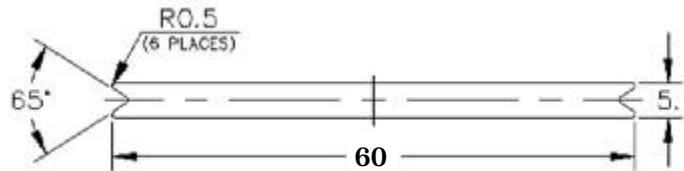
WV3510-SLIT

INSERT

WV3511-XXX

(STOCK SIZE: 5 X 60MM Rectangle)
(With Roof Top Shear)

Micro Joint -605



“GHJ” Station
Insertable Parting Tools



INSERTABLE PUNCH HOLDER

(Insert not included)

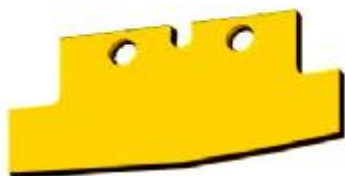
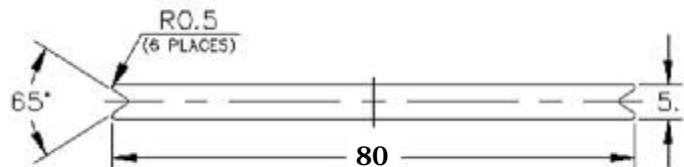
WV3610-SLIT

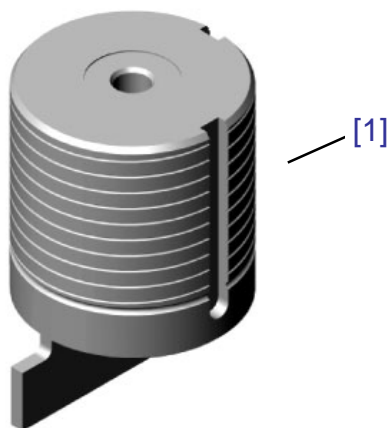
INSERT

WV3611-XXX

(STOCK SIZE: 5 X 80MM Rectangle)
(With Roof Top Shear)

Micro Joint -605





Rounds

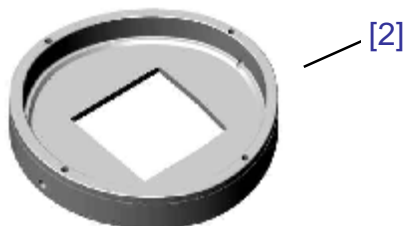
120mm maximum dia

- [1] Punch..... WV3600-000
- [2] Metal Stripper..... WV3623-000

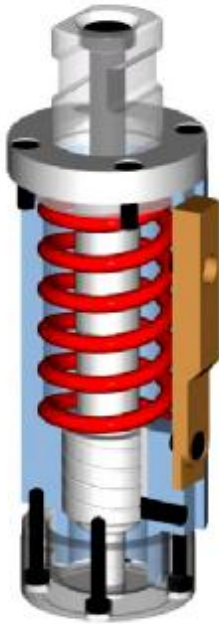
Shapes

To 113mm maximum dia

- [1] Punch..... WV3600-XXX
- [2] Metal Stripper..... WV3623-XXX

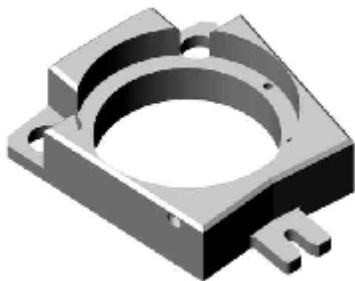


**For Standard 114 Style Dies
see pages 8 & 9
For H.D. Nibbling Dies
see page 23**



PUNCH HOLDERS

DIE HOLDERS



*When requesting information on holders,
please indicate the Machine model. Serial
number and the station required*

Section 'C'

H.D. Nibbling &
Vari Tooling

Manufactured by

F.M. TOOL & GAUGE PTY. LTD.

A.B.N. 91 008 262 520

CUDLEE CREEK, SOUTH AUSTRALIA, 5232

PH. (08) 8389 2272 FAX. (08) 8389 2309 or (08) 8389 2478

Free Call 1800 882 993 E-mail - sales@fmtool.com.au

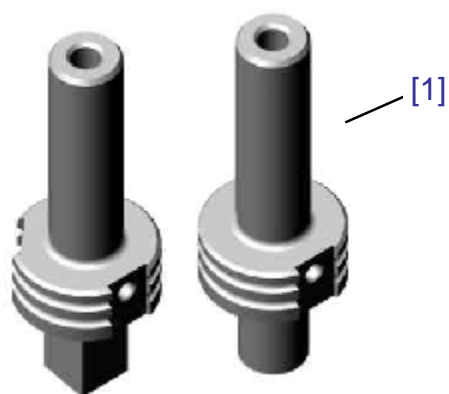
www.fmtool.com.au



WIEDEMANN
H.D. Nibbling &
Punching

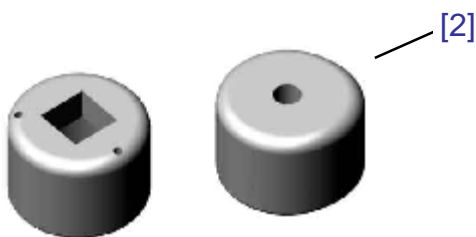
“B” Station
 Punches & Dies
 Manufactured in ‘HSS’

Unless specified to the contrary all dies will be cut SLUG FREE Style



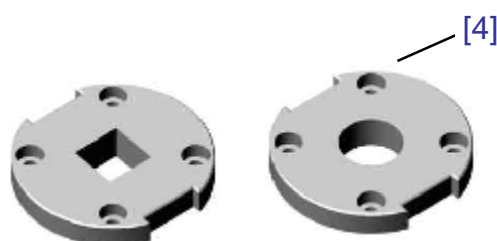
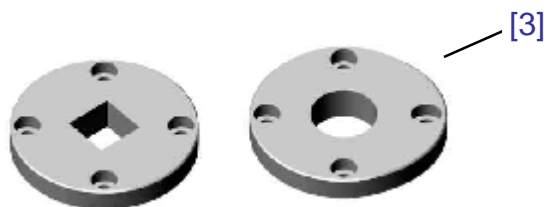
Rounds
25mm maximum dia

- [1] Punch..... WN3100-000
- [2] Die WN3106-000
- [3] C2 Series Metal Stripper WN31C2-000
- [4] C3 Series Metal Stripper WN31C3-000



Shapes
To 23mm maximum dia

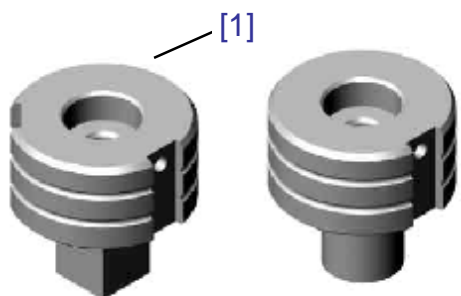
- [1] Punch..... WN3100-XXX
- [2] Die WN3106-XXX
- [3] C2 Series Metal Stripper WN31C2-XXX
- [4] C3 Series Metal Stripper WN31C3-XXX



WIEDEMANN
H.D. Nibbling &
Punching

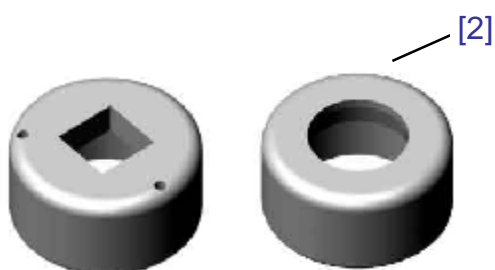
“C” Station
 Punches & Dies
 Manufactured in ‘HSS’

Unless specified to the contrary all dies will be cut SLUG FREE Style



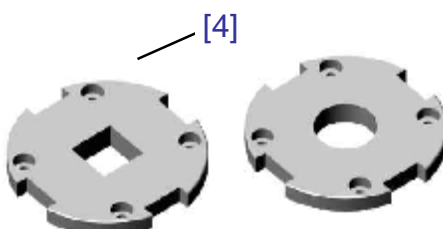
Rounds
38mm maximum dia

- [1] Punch WN3200-000
- [2] Die WN3206-000
- [3] C2 Series Metal Stripper WN32C2-000
- [4] C3 Series Metal Stripper WN32C3-000



Shapes
To 33mm maximum dia

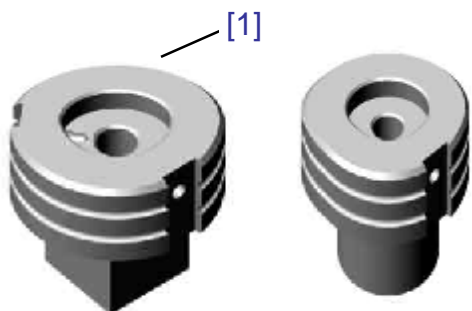
- [1] Punch WN3200-XXX
- [2] Die WN3206-XXX
- [3] C2 Series Metal Stripper WN32C2-XXX
- [4] C3 Series Metal Stripper WN32C3-XXX



WIEDEMANN
**H.D. Nibbling &
 Punching**

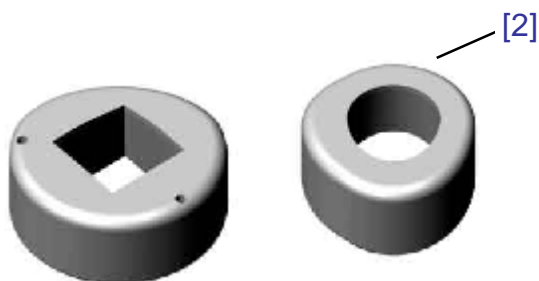
“D” Station
 Punches & Dies
 Manufactured in ‘HSS’

**Unless specified to the contrary all dies
 will be cut SLUG FREE Style**



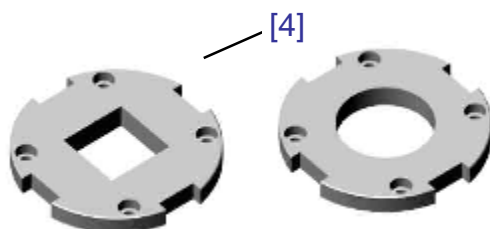
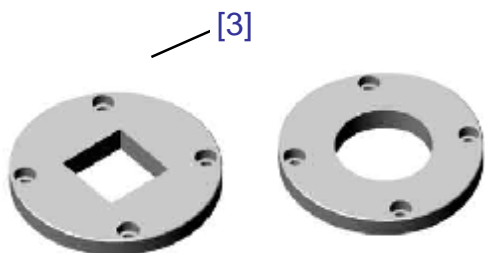
Rounds
50mm maximum dia

- [1] Punch WN3300-000
- [2] Die WN3306-000
- [3] C2 Series Metal Stripper WN33C2-000
- [4] C3 Series Metal Stripper WN33C3-000

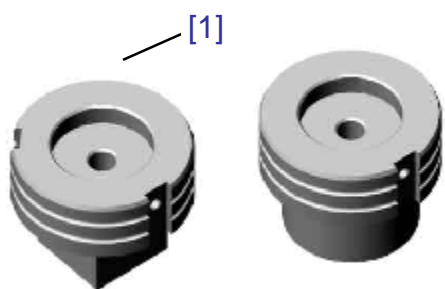


Shapes
To 46mm maximum dia

- [1] Punch WN3300-XXX
- [2] Die WN3306-XXX
- [3] C2 Series Metal Stripper WN33C2-XXX
- [4] C3 Series Metal Stripper WN33C3-XXX

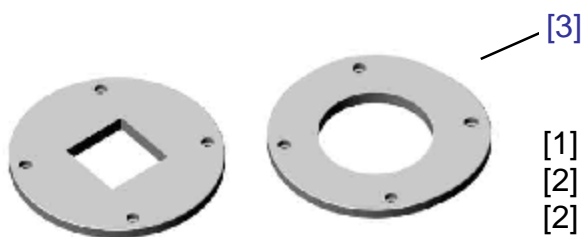
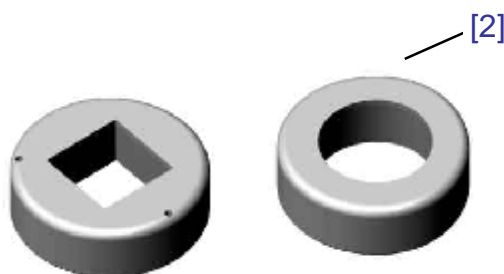


Unless specified to the contrary all dies will be cut SLUG FREE Style



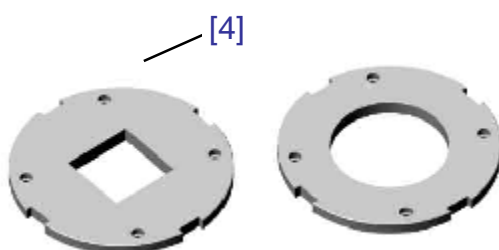
Rounds
75mm maximum dia

- [1] EF' Punch.....WN3400-000
- [2] E' Die (64mm max. dia.).....WN3406-000
- [2] F' Die (75mm max. dia.).....WN3506-000
- [3] EF' C2 Series Metal Stripper.....WN35C2-000
- [4] EF' C3 Series Metal Stripper.....WN35C3-000



Shapes
To 71mm maximum dia

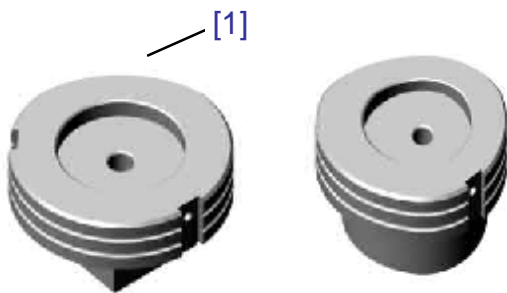
- [1] EF' Punch.....WN3400-XXX
- [2] E' Die (57mm max. dia.).....WN3406-XXX
- [2] F' Die (71mm max. dia.).....WN3506-XXX
- [3] EF' C2 Series Metal Stripper.....WN35C2-XXX
- [4] EF' C3 Series Metal Stripper.....WN35C3-XXX



WIEDEMANN
Nibbling & H.D.
Punching

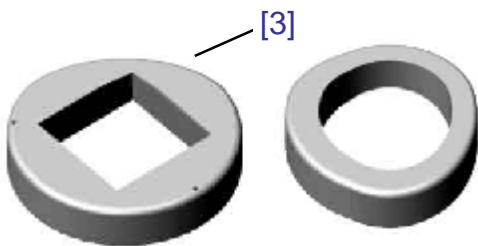
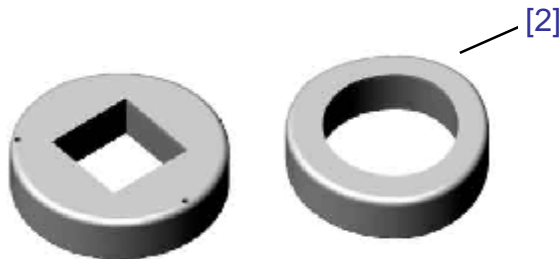
“GHJ” Station
 Punches & Dies
 Manufactured in ‘HSS’

Unless specified to the contrary all dies will be cut SLUG FREE Style



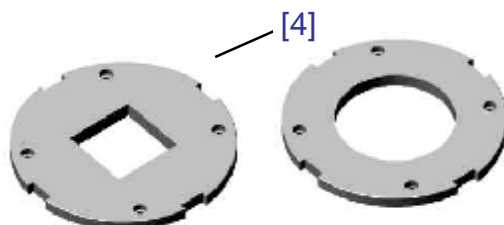
Rounds
101mm maximum dia

- [1] GHJ' Punch WN3600-000
- [2] G' Die (89mm max. dia.) WN3606-000
- [3] H' Die (101mm max. dia.) WN3706-000
- [3] J' Die (101mm max. dia.) WN3806-000
- [4] GHJ' C3 Series Metal Stripper WN38C3-000



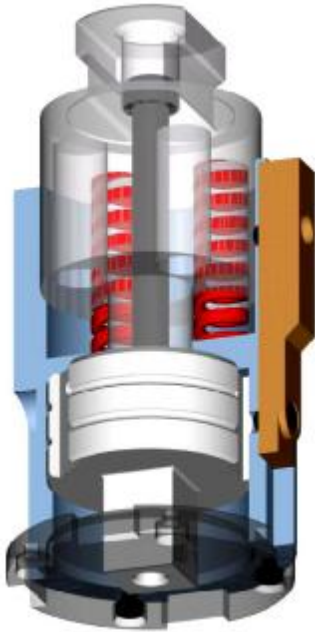
Shapes
To 101mm maximum dia

- [1] GHJ' Punch WN3600-XXX
- [2] G' Die (89mm max. dia.) WN3606-XXX
- [3] H' Die (98mm max. dia.) WN3706-XXX
- [3] J' Die (101mm max. dia.) WN3806-XXX
- [4] GHJ' C3 Series Metal Stripper WN38C3-XXX



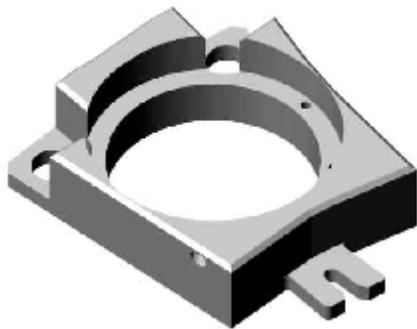
WIEDEMANN
Nibbling & H.D.
Punching

Tool Holders
(For Metal Strippers)



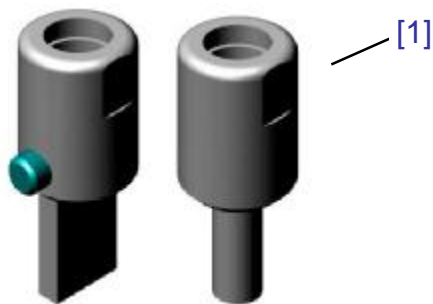
PUNCH HOLDERS

DIE HOLDERS



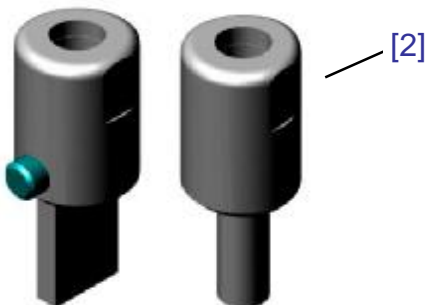
*When requesting information on holders,
please indicate the Machine model. Serial
number and the station required*

Unless specified to the contrary all dies will be cut SLUG FREE Style



Rounds **12.7mm maximum dia**

- [1] Round Punch (M8 Thread)..... W4000-000
- [2] Round Punch (1/4" UNF Thread) W5000-000
- [3] Round Die W4006-000



Shapes **To 11.5mm maximum dia**

- [1] Shaped Punch (M8 Thread) W4000-XXX
- [2] Shaped Punch (1/4" UNF Thread) ... W5000-XXX
- [3] Shaped Die W4006-XXX

Note: Murata Style Punches have an 8mm metric internal thread

Mate Style Punches have a 1/4" UNF internal thread



Section 'D'

*Special Shapes &
Technical Information*





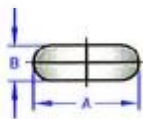
F.M. Tool & Gauge Pty. Ltd.

Category 'A' Tool Selection Guide

- 000



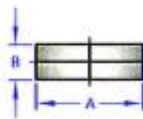
- 100



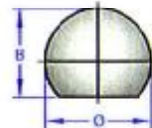
- 200



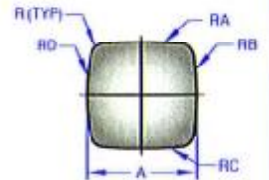
- 300



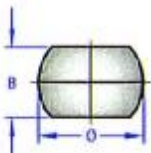
- 400



- 412



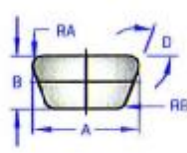
- 500



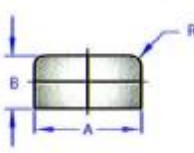
- 501



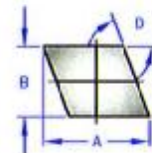
- 502



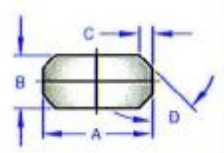
- 513



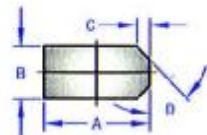
- 514



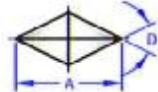
- 515



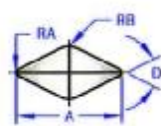
- 516



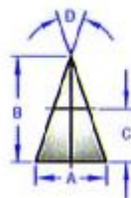
- 517



- 518



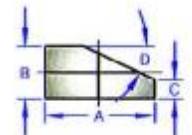
- 519



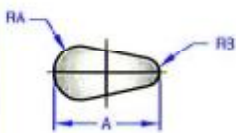
- 520



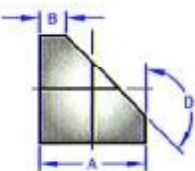
- 521



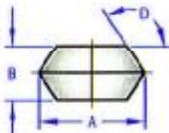
- 522



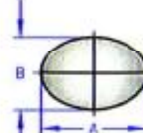
- 538



- 539



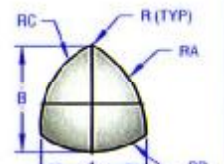
- 540



- 545



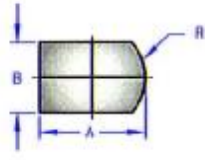
- 607



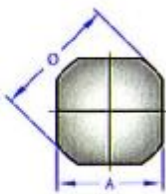
- 650



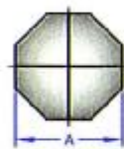
- 660



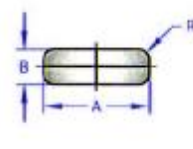
- 665



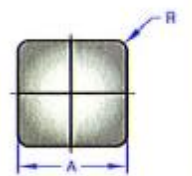
- 670



- 850



- 860

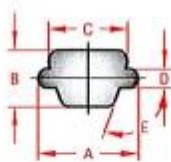




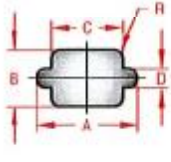
F.M. Tool & Gauge Pty. Ltd.

Category 'B' Tool Selection Guide

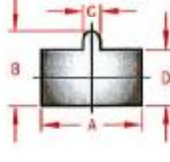
- 505



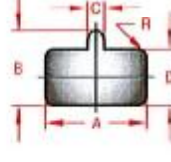
- 506



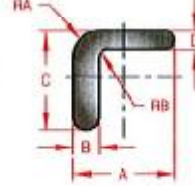
- 507



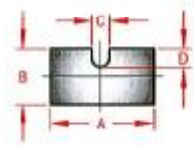
- 508



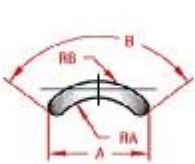
- 509



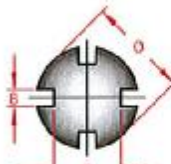
- 510



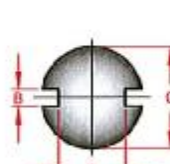
- 512



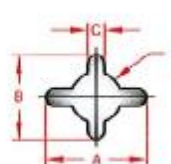
- 523



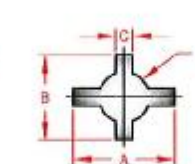
- 524



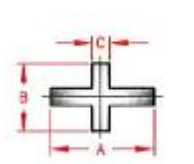
- 525



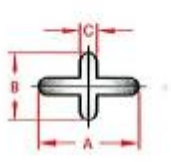
- 526



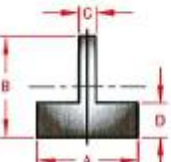
- 527



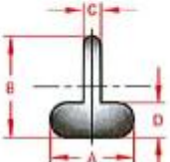
- 528



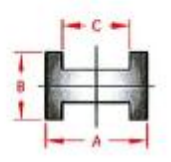
- 529



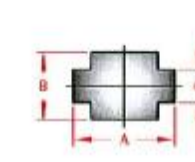
- 530



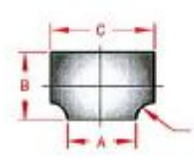
- 531



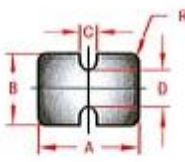
- 532



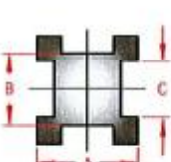
- 533



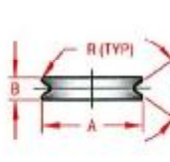
- 534



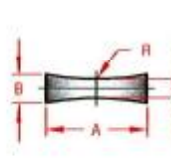
- 536



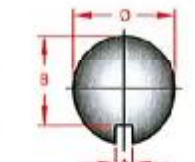
- 605



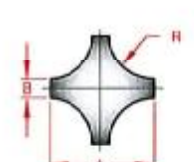
- 606



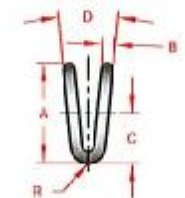
- 690



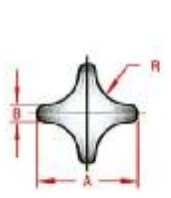
- 700



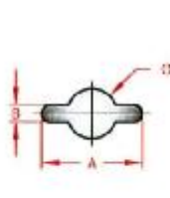
- 710



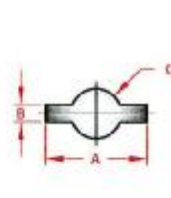
- 720



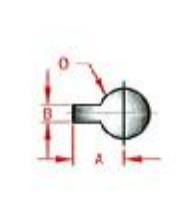
- 760



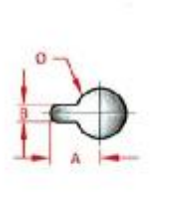
- 770



- 780



- 790

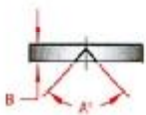




F.M. Tool & Gauge Pty. Ltd.

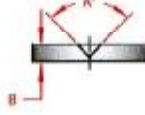
Category 'C' Tool Selection Guide

- 240



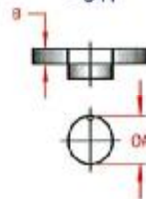
Centre Punch Up

- 241



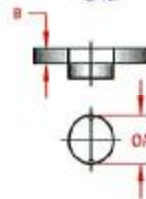
Centre Punch Down

- 541



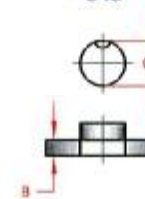
1 Tap K/Out Down

- 542



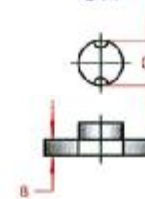
2 Tap K/Out Down

- 543



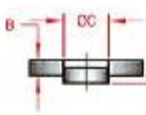
1 Tap K/Out Up

- 544



2 Tap K/Out Up

- 562



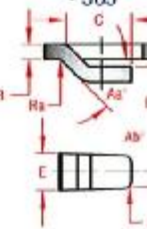
Part Shear Down

- 563



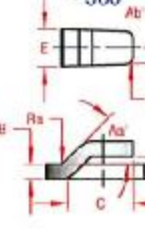
Part Shear Up

- 565



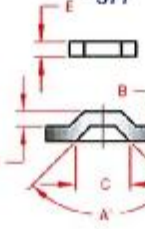
Lance & Form Down

- 566



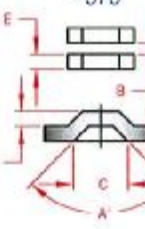
Lance & Form Up

- 577



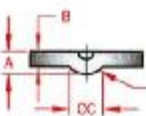
Bridge Tool Up

- 578



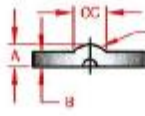
Twin Bridge Tool Up

- 645



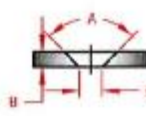
Dimple Down

- 646



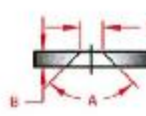
Dimple Up

- 653



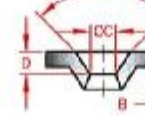
Coined C/Sink Down

- 654



Coined C/Sink Up

- 655



Formed C/Sink Down

- 656



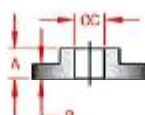
Formed C/Sink Up

- 675



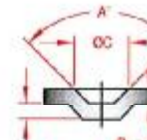
Extrusion Down

- 676



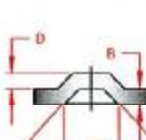
Extrusion Up

- 755



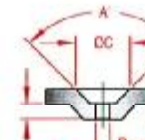
Emboss Down

- 756



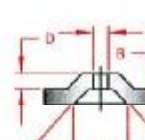
Emboss Up

- 757



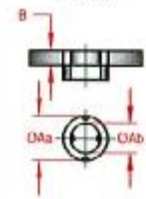
Pierced Emboss Down

- 758



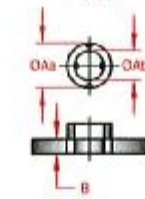
Pierced Emboss Up

- 775



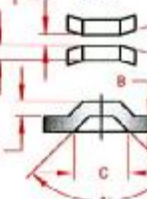
Double K/Out Down

- 776



Double K/Out Up

- 812



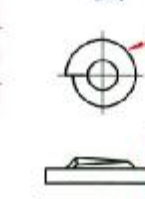
Card Holder Tool Up

- 910



Edge Fix Tool

- 920



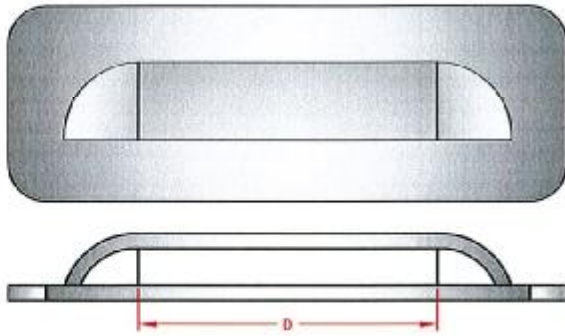
Thread Form

*A = Thread Form & Pitch

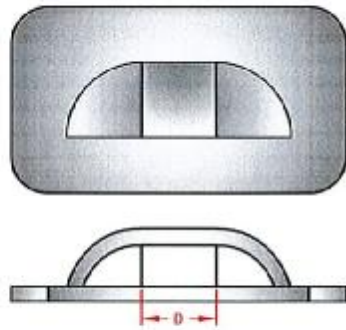
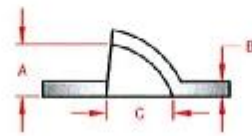


F.M. Tool & Gauge Pty. Ltd.

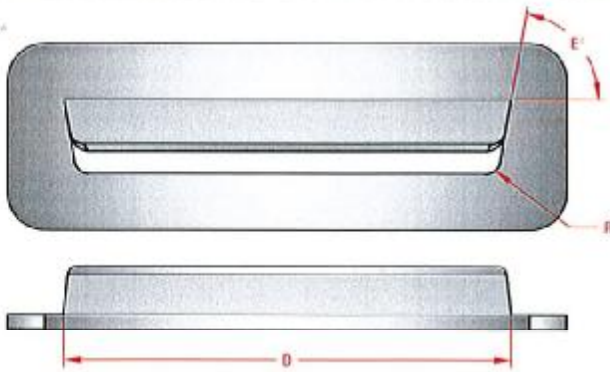
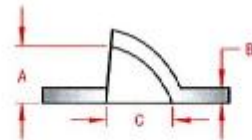
Category 'C' Tool Selection Guide



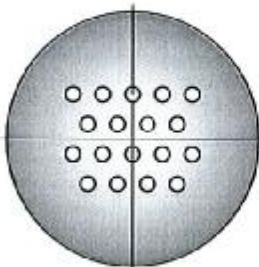
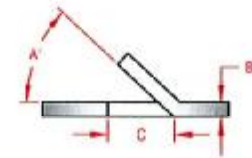
Louvre Tool Up
-999



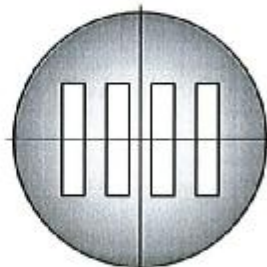
Nibble Louvre Tool Up
-995



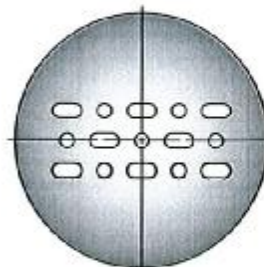
Air Louvre Tool Up
-997



Pin Hole Cluster



Shaped Cluster



Multi Shaped Cluster



Special Shaped Cluster

Material Multiplication Factor (F)

| Material Description | Multiplier (F) | Material Description | Multiplier (F) |
|------------------------|----------------|-------------------------|----------------|
| Aluminium - Soft Sheet | 0.30 | Steel - Mild | 1.00 |
| Aluminium - Half Hard | 0.38 | Steel - ASTM-A36 | 1.20 |
| Aluminium - Hard | 0.50 | Steel - 50 Carbon | 1.40 |
| Brass - Soft Sheet | 0.60 | Steel - Cold Drawn | 1.20 |
| Brass - Half Hard | 0.70 | Steel - Stainless | 1.40 |
| Copper - Rolled | 0.57 | Spring Steel (Tempered) | 4.00 |

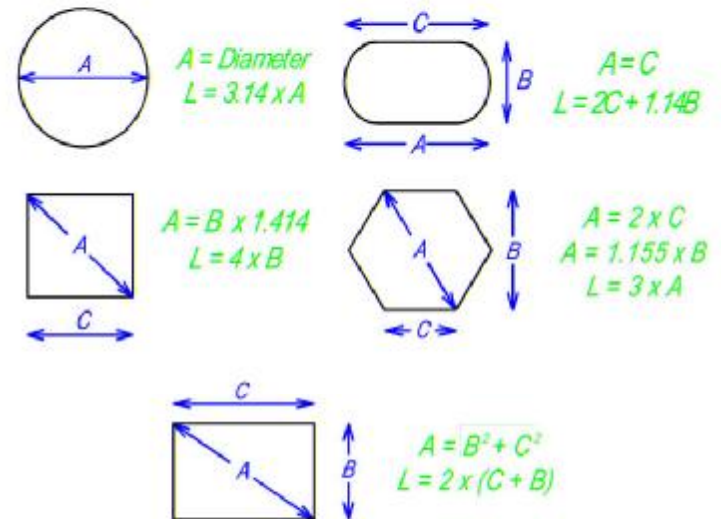
Based on Mild Steel Shear Strength of 50,000 P.S.I.
(345 MPa)

Total Cutting Edge

In order to calculate the tonnage required to cut out a shape, it is necessary to work out the total length of the cutting edge, ("L").

ie. The perimeter of the shape to be cut.

Example:



Tonnage Calculation

The tonnage required for punching any shape hole in a material is given by the following formula:

Required Tonnage = $L \times G \times S$ where:-

"L" is the total length of the cutting edge

"G" is the material thickness

"S" is the shear strength of the material

Hence required tonnage.

Example 1: For a 50 mm square in 2 mm mild steel

$$L = 50 \times 4 = 200 \quad G = 2 \quad S = 0.345$$

Hence required tonnage.

$$T = 200 \times 2 \times 0.345 = 137.95 \text{ KN}$$

Punches with Shear

The tonnage required for punching with shear is given by the formula:- $T = L \times G \times S \times F$

Where "F" is the shear factor (see 'Calculating the effect of shear')

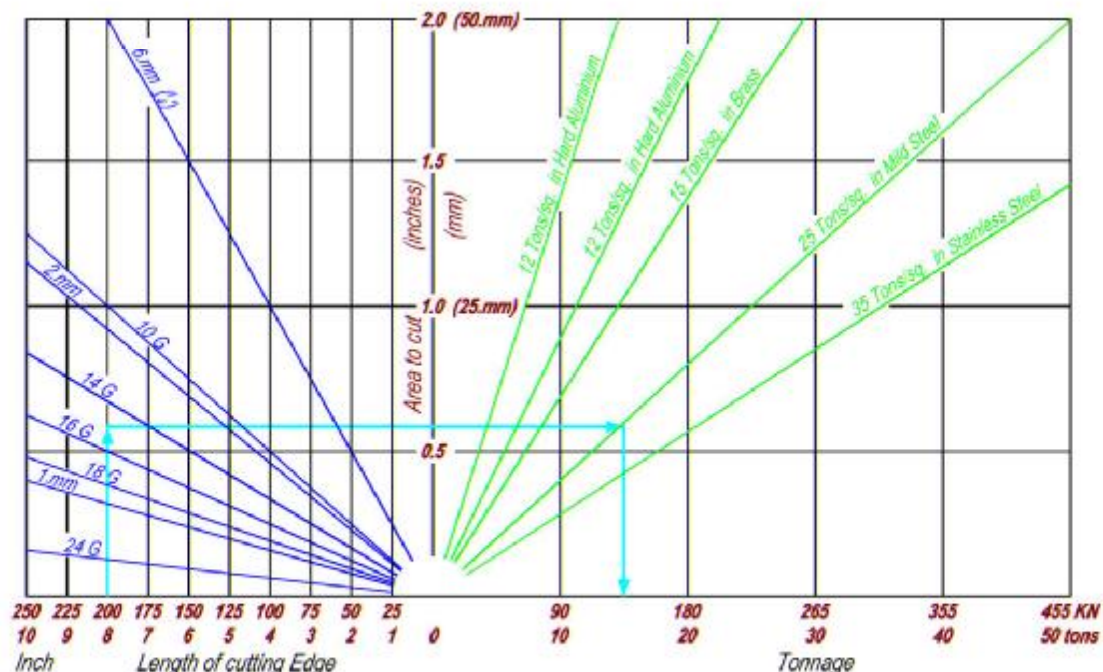
Example 2: For a 3/8" x 3" Slitting Tool with 3/16" Shear Cutting 1/4" Hard Aluminium

$$F = 0.63 \text{ (from graph below)}$$

$$L = 2 \text{ (} 3/8 \times 3 \text{)} = 2.25 \quad G = 0.25 \quad S = 12 \quad F = 0.63$$

Hence required tonnage:

$$T = 2.25 \times 0.25 \times 12 \times 0.63 = 4.25 \text{ ton}$$



Recommended Clearances

Total Clearance Calculated

| Material | % of Material Thickness | Material Thickness | | | | | |
|-----------------|-------------------------|--------------------|------------|------------|------------|------------|-----------|
| | | 20G 0.9 | 18G 1.2 | 16G 1.6 | 14G 2.0 | 10G 3.0 | ¼' 6.0 |
| Aluminium | 15% | 0.14 | 0.18 | 0.24 | 0.3 | 0.45 | 0.9 |
| Mild Steel | 20% | 0.18 | 0.24 | 0.32 | 0.4 | 0.6 | 1.2 |
| Stainless Steel | 25% | 0.23 | 0.3 | 0.4 | 0.5 | 0.75 | 1.5 |

Please Note Measurements in mm

This is a recommended guide. If any problems or queries arise please contact F.M. Tool & Gauge for our expert advice.

Shear is used on punches to reduce tonnage and noise whilst punching.
A full shear can reduce the tonnages by up to 50%.

Rooftop Shear:

- Ideal when punching at high loads
- Avoid excessive side loading by Taking large cuts (over 75%)

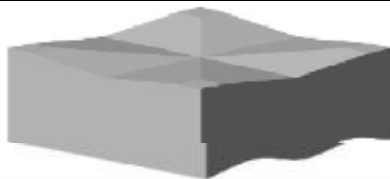


Inverted Rooftop:

- Very effective
- Easy to produce and regrind
- Avoid sharp corner in the centre, as this provides a stress point, making the tool more susceptible

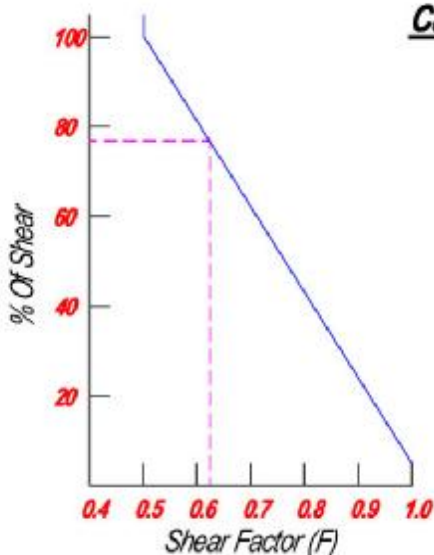
Concave:

- Best for nibbling
- More difficult to regrind Than inverted rooftop



Four Way Shear:

- Ideal for large squares
- always avoid sharp inside corners, as these encourage breakage



Calculating The Effect Of Shear

$$\text{Shear Factor (F)} = \frac{104 - (\text{Shear \%} \times 0.54)}{100}$$

eg. 75% Shear = 0.63
Shear Factor

$$\% \text{ Of Shear} = \frac{\text{Shear Depth} \times 100}{\text{Material Thickness}}$$

eg. ¼' Material with
3/16' shear on tool

$$= \frac{0.1875 \times 100}{0.250}$$

= 75%

“Handy Hints on Ordering”

- ◆ *When placing orders please give as much information as possible. The greater the information given, the less likely there is of a mistake or problem occurring with the order. (we will query you if we see a possible problem)*
- ◆ *All relevant dimensions are required. A very common problem can occur when requesting a round ended shape. **Eg: 15 x 12mm**. This can mean 1 of several shapes. (see example below)*
- ◆ *Using part numbers helps to eliminate misunderstandings.*
- ◆ *We suggest you advise material and gauge being punched.*
- ◆ *Show keyways and centre lines on special shapes.*
- ◆ *Standard practise is to put clearance on the die. Punch size will give you hole size and die size will give you slug size. (if you require the slug please advise)*
- ◆ *Solid or re-inforced dies can be supplied on request.*
- ◆ *On special shapes we recommend rads on any sharp corner, this will give added strength to your tool.*
- ◆ **TROUBLESHOOTING**:- *for problems such as slug pull please ring and ask, as each situation is different. **Good advise is cheap.***
- ◆ **Don't forget**—*it is extremely easy to place orders direct from the internet—just remember www.fmtool.com.au*
Please Note: First time users need to be registered with a password

Example: (from above)

