

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

FM TOOLING

	Page No.
'A' Station Easy Adjustment Tooling	1
'B' Station Easy Adjustment Tooling	2
'B' Station Heavy Duty Tooling—Punching Unit.....	3
'B' Station Heavy Duty Tooling—Nibbling Unit.....	4
'C' Station Punching, Parting & Notching Assembly	5
'D' Station Punching, Parting & Notching Assembly	6
'E' Station Punching, Parting & Notching Assembly	7
'C', 'D' & 'E' Station Parting Tool Systems	8
'D' Station High Performance Parting Tools.....	9
'E' Station High Performance Parting Tools	10
High Precision Line Up Tools / Adaptor Sleeves	11

AMADA STYLE TOOLING

'A' Station Tooling	13
'B' Station Tooling	14
'C' Station Tooling	15
'C' Station Push Button & Standard Guide Assemblies	16
'D' Station Tooling	17
'D' Station Push Button & Standard Guide Assemblies	18
'E' Station Tooling	19
'E' Station Push Button & Standard Guide Assemblies	20

WILSON STYLE TOOLING

20' Station Multi Tools	22
'A' Station Series 90 Tooling & Assemblies	23
'B' Station Series 90 Tooling & Assemblies	24
'C', 'D' & 'E' Station Series 90 Tooling	25
'C', 'D' & 'E' Station Series 90 Push Button Adjustable Guide Assemblies	26
'A' Station Series 80 Tooling	27
'B' Station Series 80 Tooling	28
'C', 'D' & 'E' Station Series 80 Tooling	29

MATE ULTRA STYLE TOOLING

'A' & 'B' Station Adjustable Spigot Punch, Die & Stripper Sets.....	31
'C', 'D' & 'E' Station Tooling.....	32
20', 10' & 6' Station Multi Tools	33

SPECIAL SHAPES & TECHNICAL INFORMATION

Category A, B & C Shapes.....	35, 36, 37, 38
Technical Information	39, 40
Handy Hints	41

F M

Tooling

Manufactured by

F.M. TOOL & GAUGE PTY. LTD.

A.B.N. 91 008 262 520

CUDLEE CREEK, SOUTH AUSTRALIA, 5232

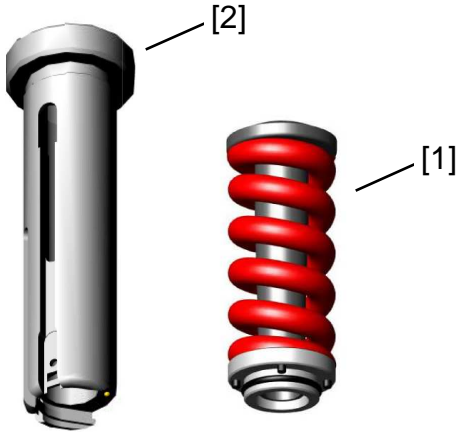
PH. (08) 8389 2272 FAX. (08) 8389 2309 or (08) 8389 2478

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

www.fmtool.com.au

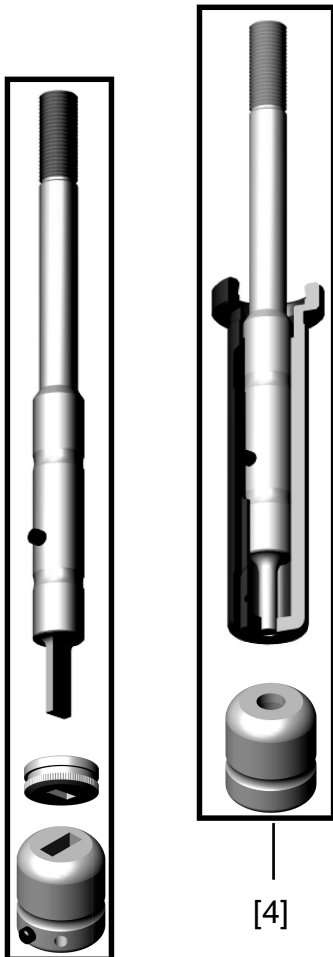


'A' STATION E.A. TOOLING
 (Easy Adjustment)
 (up to 1/2" or 12.7mm dia)



**USES STANDARD AMADA STYLE
'A' STATION PUNCHES**

- [1] Spring Pack (complete)..... EA180-000
- [2] Open Guide AA182-001
 (keyed @ 0, 135, 225 deg)
- [2] Open Guide AA182-002
 (keyed @ 0, 90, 180, 270 deg)



-
- [3]**
 - Punch, Die & Str. Set Round..... EA100-000
 (used with open guides [2])
 - Punch, Die & Str. Set Shaped..... EA100-XXX
 (used with open guides [2])
 - Stripper Button Round/Shaped AA185-000/XXX
 - Punch Only Round/Shaped AA101-000/XXX
 - Die Round..... AA206-000
 - Die Shaped..... AA106-XXX

-
- [4]**
 - Punch, Die & Guide Set Round..... EA110-000
 - Punch, Die & Guide Set Shaped..... EA110-XXX
 - Guide Only Round/Shaped AA112-000/XXX
 - Punch Only Round/Shaped AA101-000/XXX
 - Die Round..... AA206-000
 - Die Shaped..... AA106-XXX

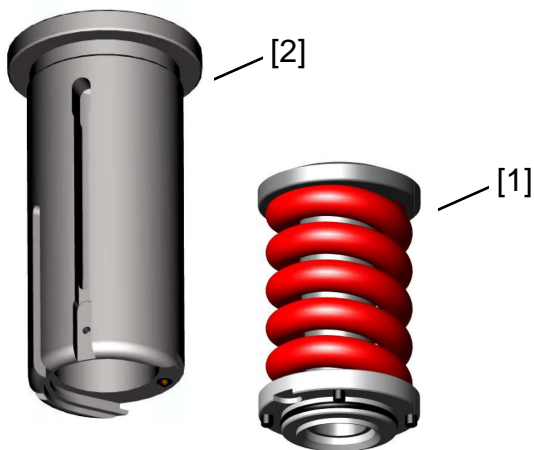
- Die Shims ea. AA206-SHIM(0.5,1.0 & 1.5mm)

'B' STATION E.A. TOOLING

(Easy Adjustment)

(up to 1 ¼" or 31.75mm dia)

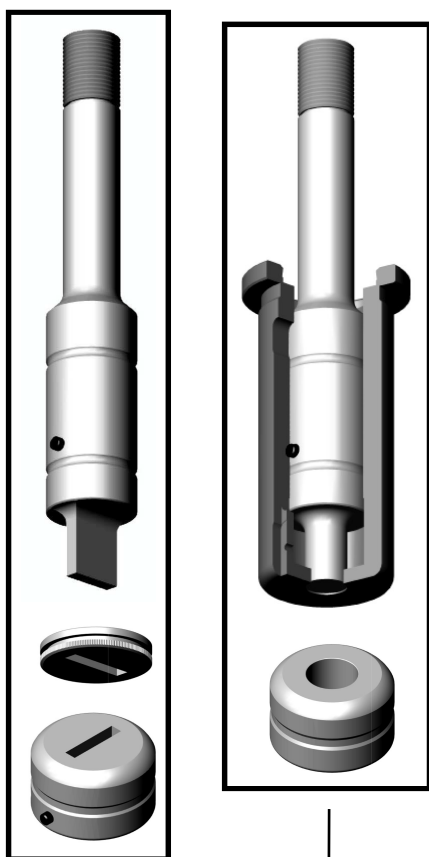
USES STANDARD AMADA STYLE 'B' STATION PUNCHES



[1] Spring Pack (complete)EA380-000

[2] Open GuideAA382-001
(keyed @ 0, 45, 90, 135 deg)

[2] Open GuideAA382-002
(keyed @ 0, 90, 180, 270 deg)



[3]

[4]

[3]

Punch, Die & Str. Set RoundEA300-000
(used with open guides [2])

Punch, Die & Str. Set ShapedEA300-XXX
(used with open guides [2])

Stripper Button Round/ShapedAA385-000/XXX

Punch Only Round/ShapedAA301-000/XXX

Die RoundAA406-000

Die ShapedAA306-XXX

[4]

Punch, Die & Guide Set RoundEA310-000

Punch, Die & Guide Set ShapedEA310-XXX

Guide Only Round/ShapedAW302-000/XXX

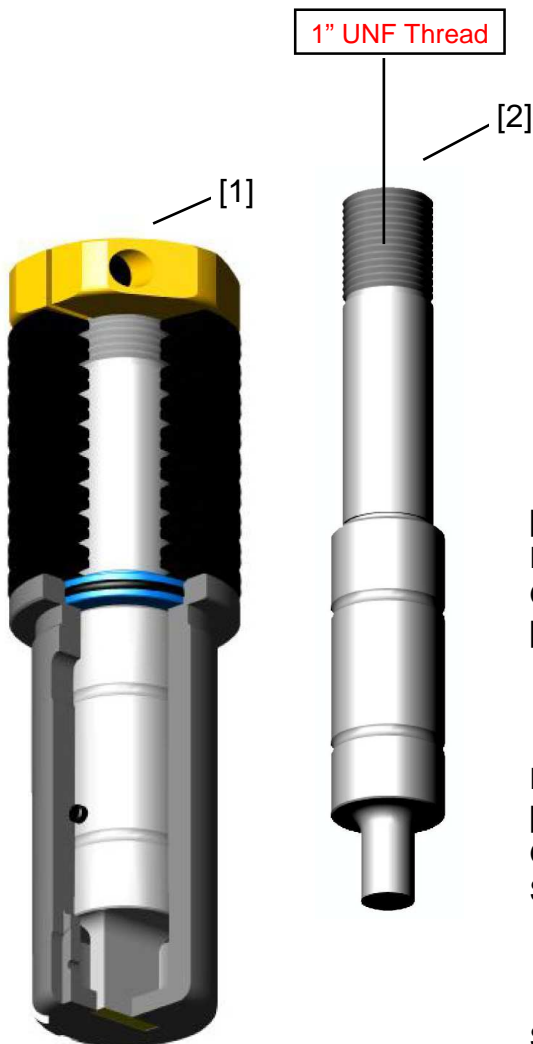
Punch Only Round/ShapedAA301-000/XXX

Die RoundAA406-000

Die ShapedAA306-XXX

Die Shims eaAA406-SHIM(0.5,1.0 & 1.5mm)

**'B' STATION HEAVY DUTY
PUNCHING TOOLS**
(up to 1 ¼" or 31.75mm dia)



High speed stripping & extra punch travel for punching heavy gauge material

Shapes

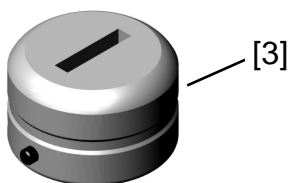
- [1] Punch & Guide AssemblyAW360-XXX
- Punch Only.....AW301-XXX
- Guide Only (hardened).....AW322-XXX
- [3] Solid Precision DieAA306-XXXHD

Rounds

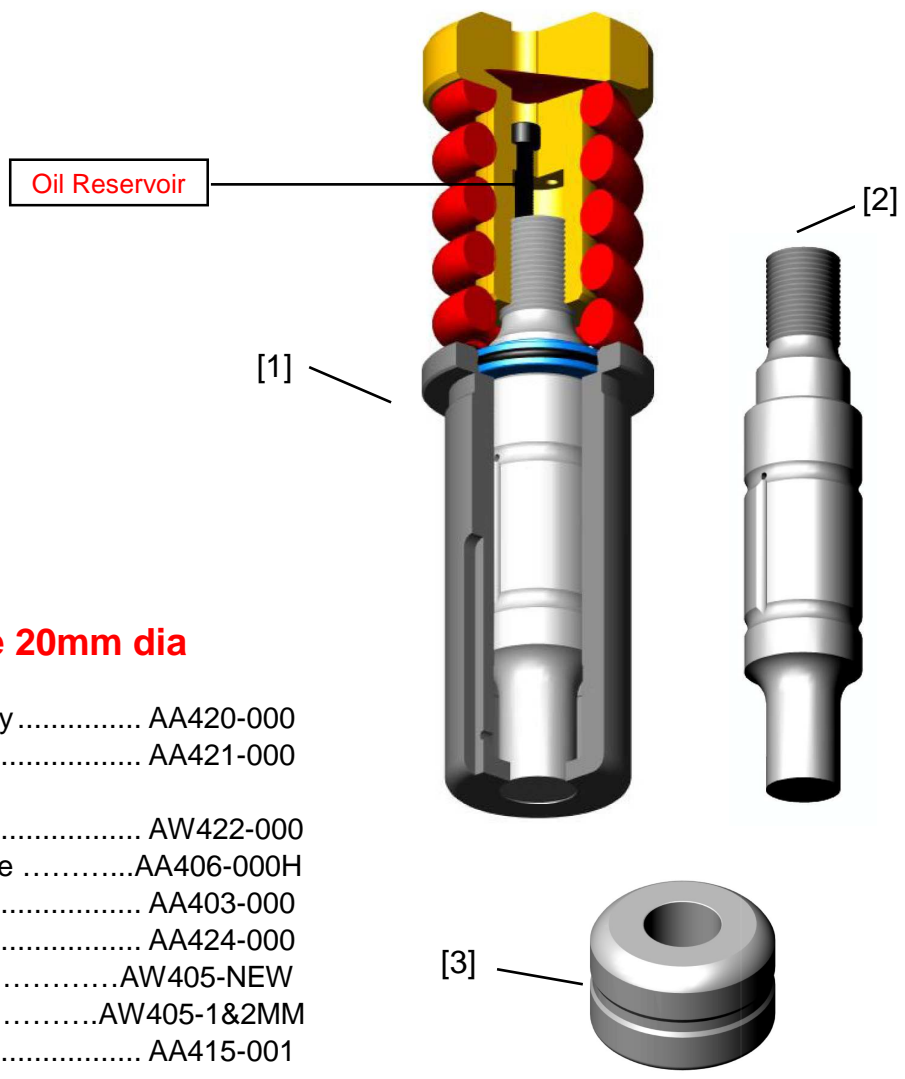
- Punch & Guide AssemblyAW360-000
- [2] Punch Only.....AW401-000
- Guide Only (hardened).....AW422-000
- Solid Precision DieAA406-000HD

Assembly Parts

- Super Locking HeadAW414-000H
- Disc Spring ea (18 required).....AW463-000
- 0mm Punch Shim Collar (for new punch)..AW464-NEW
- 1mm Punch Shim CollarAW464-1MM
- 2mm Punch Shim CollarAW464-2MM
- 3mm Punch Shim CollarAW464-3MM
- O'Rings for CollarsAA415-001
- Die Shims eaAA406-SHIM(0.5,1.0 & 1.5mm)



**'B' STATION HEAVY DUTY
NIBBLING TOOLS**
(up to 1 ¼" or 31.75mm dia)



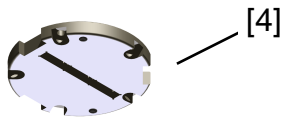
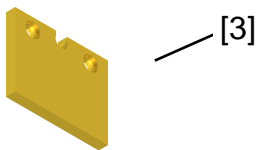
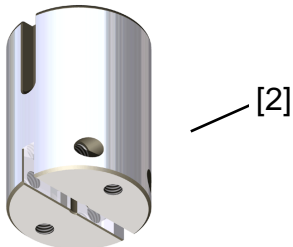
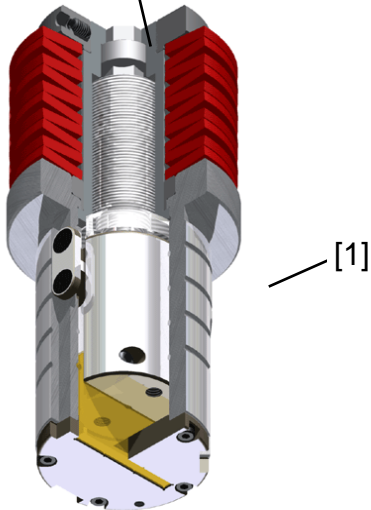
Stock Size 20mm dia

- [1] Complete Punch Assembly AA420-000
- [2] Punch Only AA421-000
- Hardened Precision
- Ground Guide AW422-000
- [3] Solid Precision Ground Die AA406-000H
- Stripping Spring AA403-000
- Punch Head (complete) AA424-000
- 0 to 3mm Punch Shim Collar AW405-NEW
- 1 to 2mm Punch Shim Collar AW405-1&2MM
- O'Rings for Collars..... AA415-001

- Die Shims ea. AA406-SHIM(0.5,1.0 & 1.5mm)

FM TOOL

Features Through The Tool Lubrication



HIGH PERFORMANCE, ECONOMICAL HEAVY DUTY PUNCHING, PARTING & NOTCHING TOOLS

'C' Station

PUSH BUTTON ADJUSTABLE

Features Through-The-Tool Lubrication

NO SHIMS REQUIRED Up to 10mm Adjustment

[1] Guide Assembly AA560-SLIT
(does not include punch & stripper plate)

GUIDE COMPONENTS

Guide BodyAA560-001S
Adjustable Punch Driver SpigotAA560-002
Spring Housing Spigot.....AA560-003
Spring Retaining Ring.....AA560-004
Spring Retaining HeadAA560-005
Disc Spring (ea)AA554-001
Guide Body Punch Locating KeyAA950-001
T' Handle.....AA962-000

TOOLING

Punch, Die & Stripper Set (as ordered)...AA500HD-XXX
Punch (as ordered).....AA501-XXX
Stripper (as ordered)AA565-XXX
Die (as ordered)AA503-XXX

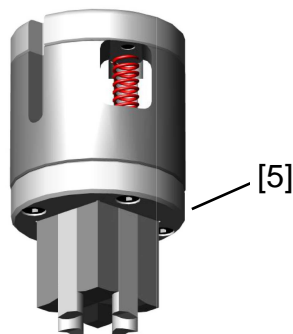
PARTING TOOLS

(refer to page 8)

NOTCHING

(Stock Size 25 x 25mm)

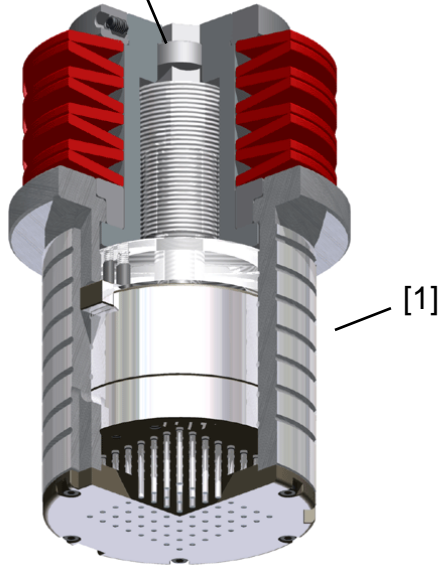
[5] Punch (Shear Proof).....AA501-200S
Stripper.....AA565-200



FM TOOL

HIGH PERFORMANCE, ECONOMICAL HEAVY DUTY PUNCHING, PARTING & NOTCHING TOOLS

Features Through The
Tool Lubrication



'D' Station

PUSH BUTTON ADJUSTABLE

Features Through-The-Tool Lubrication

NO SHIMS REQUIRED Up to 10mm Adjustment

[1] Guide AssemblyAA860HD-000
(does not include punch & stripper plate)

GUIDE COMPONENTS

Guide BodyAA860HD-001
Adjustable Punch Driver SpigotAA860-002
Spring Housing Spigot.....AA860-003
Spring Retaining Ring.....AA860-004
Spring Retaining HeadAA860-005
Disc Spring (ea)AA1052-000
T' Handle.....AA962-000

TOOLING

Punch, Die & Stripper Set (as ordered)...AA700HD-XXX
[2] Punch (as ordered).....AA701-XXX
[3] Stripper Plate (as ordered)AA752-XXX
Die (as ordered)AA703-XXX

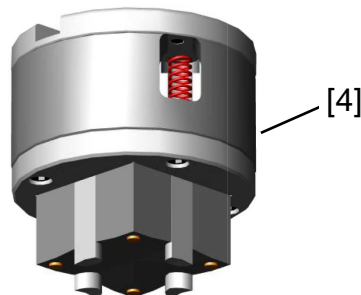
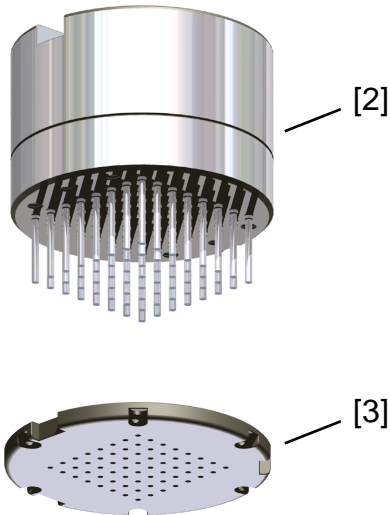
PARTING TOOLS

(refer to page 8)

NOTCHING

(Stock Size 50 x 50mm)

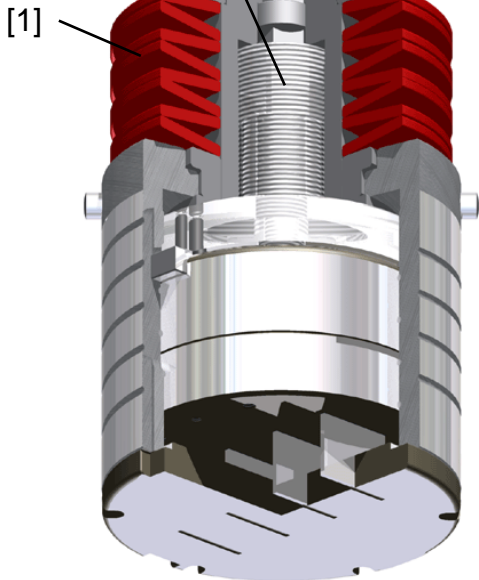
[4] Punch (Shear Proof).....AA701-200S
Stripper.....AA752-200



FM TOOL

HIGH PERFORMANCE, ECONOMICAL HEAVY DUTY PUNCHING, PARTING & NOTCHING TOOLS

Features Through The
Tool Lubrication



'E' Station

PUSH BUTTON ADJUSTABLE

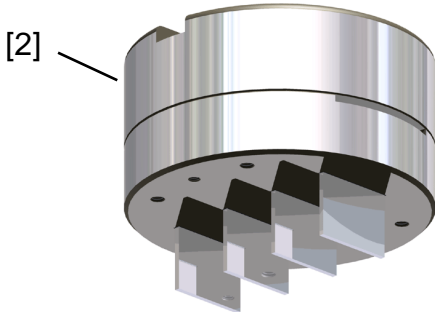
Features Through-The-Tool Lubrication

NO SHIMS REQUIRED Up to 10mm Adjustment

[1] Guide Assembly AA1060HD-000
(does not include punch & stripper plate)

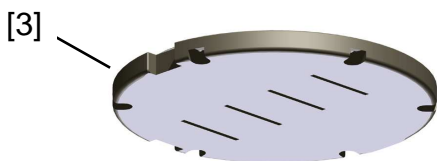
GUIDE COMPONENTS

Guide Body	AA1060HD-001
Adjustable Punch Driver Spigot	AA1060-002
Spring Housing Spigot.....	AA860-003
Spring Retaining Ring	AA860-004
Spring Retaining Head	AA860-005
Disc Spring (ea)	AA1052-000
T' Handle.....	AA962-000



TOOLING

Punch, Die & Stripper Set (as ordered) ..	AA900HD-XXX
[2] Punch (as ordered).....	AA901-XXX
[3] Stripper (as ordered)	AA952-XXX
Die (as ordered)	AA903-XXX



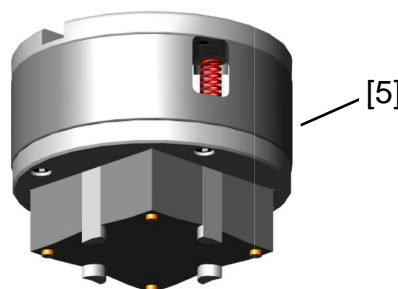
PARTING TOOLS

(refer to page 8)

NOTCHING

(Stock Size 70 x 70mm)

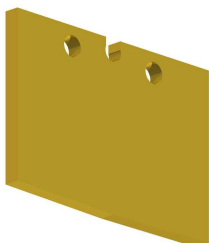
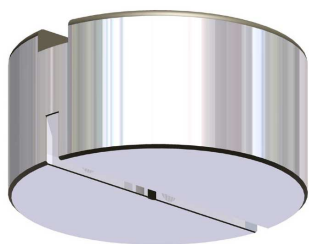
[5] Punch (Shear Proof).....	AA901-200S
Stripper	AA952-200



**‘C’, ‘D’ & ‘E’ STATION
PARTING TOOL SYSTEMS**

Econo Style Parting Tools

For AA560-SLIT, AA860HD-000 & AA1060HD-000
Assemblies
5 x 50, 5 x 80, 5 x 110mm Held in Stock

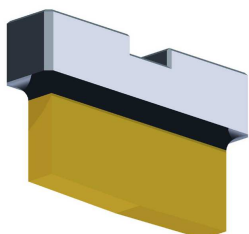
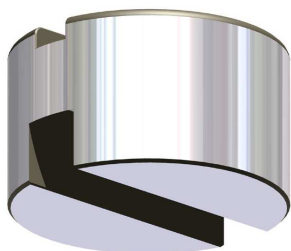
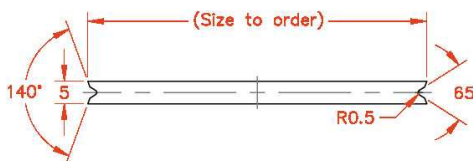


HOLDERS

“C” Station	AA561-000
“D” Station	AA740-000
“E” Station	AA940-000

INSERTS

“C” Station Punch Insert (5 x 50mm Stock Size).....	AA562-300
“C” Station Punch Insert (Micro Joint).....	AA562-605
“D” Station Punch Insert (5 x 80mm Stock Size).....	AA741-300
“D” Station Punch Insert (Micro Joint).....	AA741-605
“E” Station Punch Insert (5 x 110mm Stock Size)	AA941-300
“E” Station Punch Insert (Micro Joint)	AA941-605



Heavy Duty Holders & Inserts

For 5 x 80, 10 x 80, 5 x 110 & 10 x 110mm stock sizes

HOLDERS

“D” Station (16mm locating pin).....	AA730-000
“E” Station (16mm locating pin).....	AA930-000

INSERTS

“D” Station (16mm locating key)	AA731-300
“E” Station (16mm locating key)	AA931-300

WILSON DESIGN INSERTS

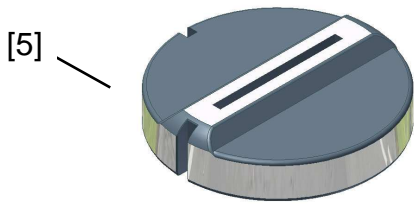
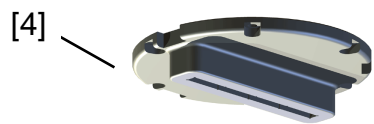
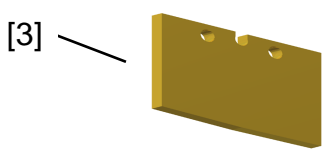
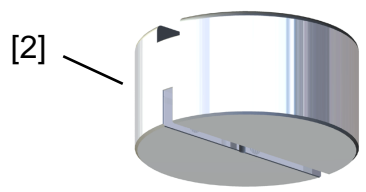
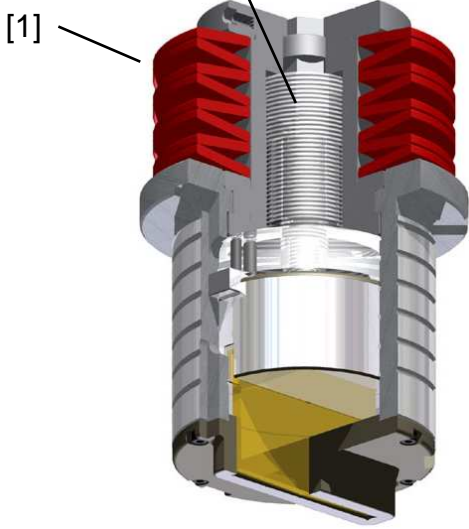
(only suitable for Wilson Design Holders)

“D” Station (1/4” locating key)	AW731-300
“E” Station (1/4” locating key)	AW931-300

FM TOOL

HIGH PERFORMANCE, ECONOMICAL, CLOSE-TO-CLAMP, PARTING TOOLS

Features Through The
Tool Lubrication



'D' Station

PUSH BUTTON ADJUSTABLE

Features Through-The-Tool Lubrication
NO SHIMS REQUIRED Up to 10mm Adjustment

PARTING

(Stock Size 5 x 80mm Rectangle)
(Other Sizes & Shapes may incur a surcharge)

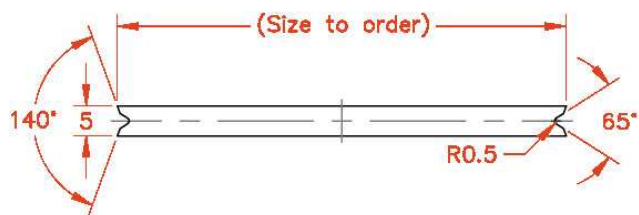
[1] Guide AssemblyAA860-SLIT
(does not include punch & stripper plate)

GUIDE COMPONENTS

- Guide Body AA860-001S
- Adjustable Punch Driver Spigot..... AA860-002
- Spring Housing Spigot AA860-003
- Spring Retaining Ring AA860-004
- Spring Retaining Head..... AA860-005
- Disc Spring (ea) AA1052-000
- Punch Locating Key AA950-000
- Punch Holding Stud AA952-001
- Octagonal Indexing Button..... AA952-002
- T' Handle AA962-000

TOOLING

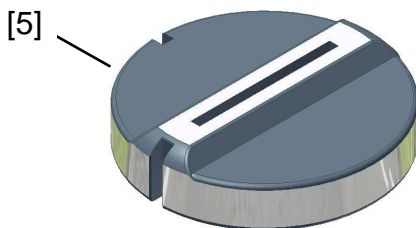
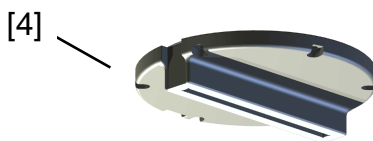
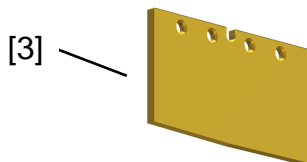
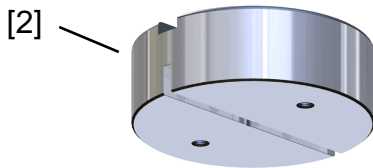
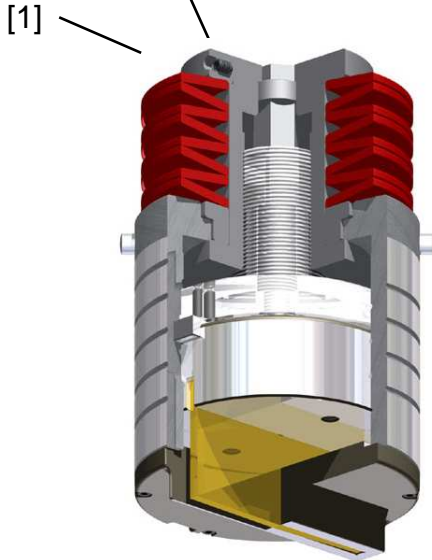
- [2] Holder for Insert AA861-000
- [3] Punch Insert (Rectangle)..... AA862-300
- [4] Stripper (Rectangle) AA865-300
- Punch Insert (Micro Joint) AA862-605
- Stripper (Micro Joint)..... AA865-605
- [5] Die (Rectangle) AA703CC-300
- Die (Micro Joint)..... AA703CC-605



FM TOOL

HIGH PERFORMANCE, ECONOMICAL, CLOSE-TO-CLAMP, PARTING TOOLS

Features Through The
Tool Lubrication



'E' Station

PUSH BUTTON ADJUSTABLE

Features Through-The-Tool Lubrication
NO SHIMS REQUIRED Up to 10mm Adjustment

PARTING

(Stock Size 5 x 110mm Rectangle)

(Other Sizes & Shapes may incur a surcharge)

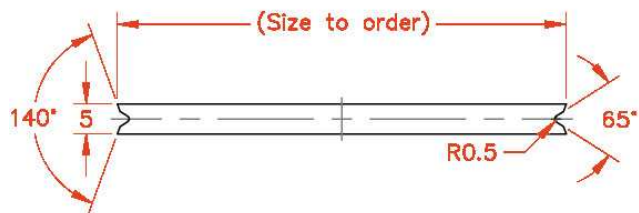
[1] Guide AssemblyAA1060-SLIT
(does not include punch & stripper plate)

GUIDE COMPONENTS

Guide Body	AA1060-001S
Adjustable Punch Driver Spigot	AA1060-002
Spring Housing Spigot	AA860-003
Spring Retaining Ring	AA860-004
Spring Retaining Head	AA860-005
Disc Spring (ea)	AA1052-000
Punch Locating Key	AA950-000
Punch Holding Stud	AA952-001
Octagonal Indexing Button	AA952-002
T' Handle	AA962-000

TOOLING

[2] Holder for Insert	AA1061-000
[3] Punch Insert (Rectangle).....	AA1062-300
[4] Stripper (Rectangle).....	AA1065-300
Punch Insert (Micro Joint)	AA1062-605
Stripper (Micro Joint).....	AA1065-605
[5] Die (Rectangle)	AA903CC-300
Die (Micro Joint).....	AA903CC-605



FM TOOL

HIGH PRECISION LINE-UP TOOLS (WILL ALIGN CONCENTRICITY & KEYING)

AVAILABLE FOR SALE & HIRE



- 'A' StationAA100-888
- 'B' StationAA300-888
- 'C' StationAA500-888
- 'D' StationAA700-888
- 'E' StationAA900-888

ADAPTOR SLEEVES



- A to B stat GuideAA175-000
- A to B stat Die.....AA176-000
- B to D stat GuideAA775-000
- B to D stat DieAA776-000

other station adaptors available on request

AMADA

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

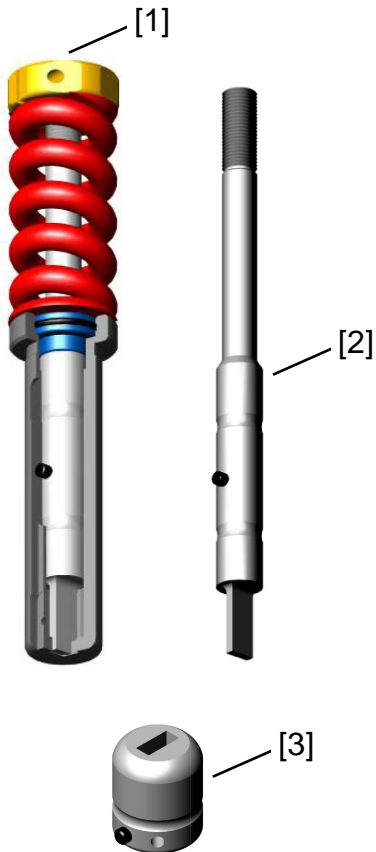
Free Call 1800 882 993 E-mail - sales@fmtool.com.au

www.fmtool.com.au



AMADA STYLE

1/2" OR 'A' STATION
(up to 1/2" or 12.7mm dia)



Shapes

[1] Punch & Guide Assembly	AA100-XXX
[2] Punch Only.....	AA101-XXX
Guide Only	AA112-XXX
[3] Die	AA106-XXX

Rounds

Punch & Guide Assembly	AA200-000
Punch Only.....	AA201-000
Guide Only	AA212-000
Die	AA206-000

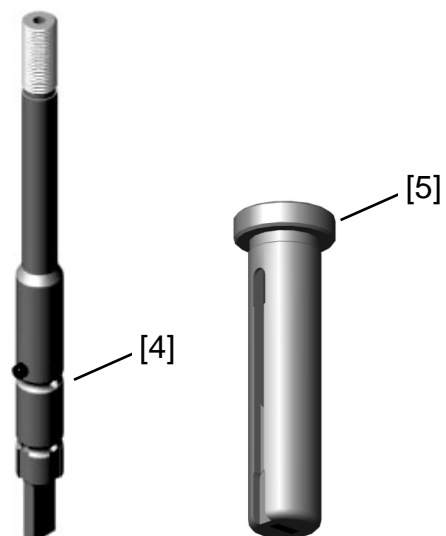
Assembly Parts

Super Locking Head.....	AA214-000
Stripping Spring.....	AA203-000
0 to 3mm Punch Shim Collar	AA215-NEW
1 to 2mm Punch Shim Collar	AA215-1&2MM
O'Ring for Collars.....	AA215-001

Die Shims ea.....AA206-SHIM(0.5,1.0 & 1.5mm)

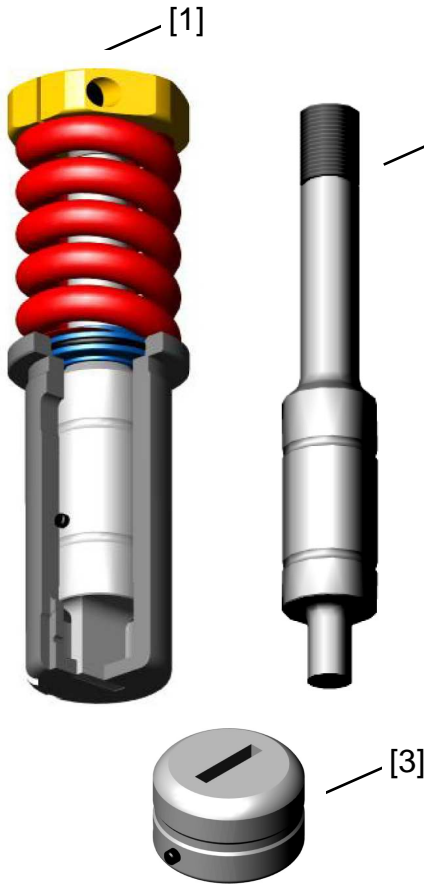
Air Blow Punches & Guides

[4] Shaped Punch	AA171-XXX
Round Punch	AA271-000
[5] Shaped Guides	AA172-XXX
Round Guides	AA272-000



AMADA STYLE

1 1/4" OR 'B' STATION
(up to 1 1/4" or 31.75mm dia)



Shapes

[1] Punch & Guide Assembly	AA300-XXX
Punch Only	AA301-XXX
Guide Only	AW302-XXX
[3] Die	AA306-XXX

Rounds

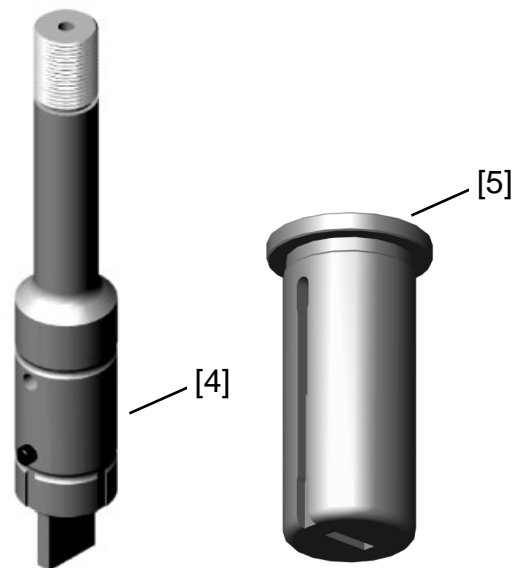
Punch & Guide Assembly	AA400-000
[2] Punch Only	AA401-000
Guide Only	AW402-000
Die	AA406-000

Assembly Parts

Super Locking Head	AA414-000
Stripping Spring	AA403-000
0 to 3mm Punch Shim Collar	AA415-NEW
1 to 2mm Punch Shim Collar	AA415-1&2MM
O'Ring for Collars	AA415-001
Die Shims ea.	AA406-SHIM(0.5,1.0 & 1.5mm)

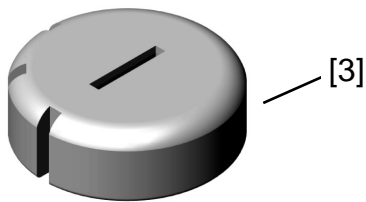
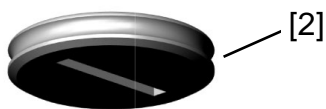
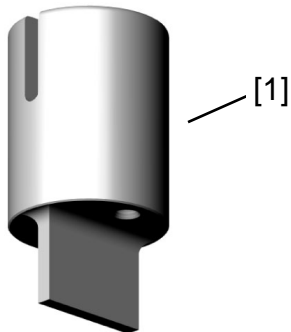
Air Blow Punches & Guides

[4] Shaped Punch	AA371-XXX
Round Punch	AA471-000
[5] Shaped Guide	AW372-XXX
Round Guide	AW472-000



AMADA STYLE

2" OR 'C' STATION (up to 2" or 50.8mm dia)



Shapes

Punch, Die & Stripper Set.....	AA500-XXX
[1] Punch Only.....	AA501-XXX
[2] Stripper.....	AA502-XXX
[3] Die.....	AA503-XXX

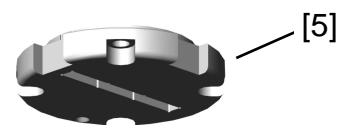
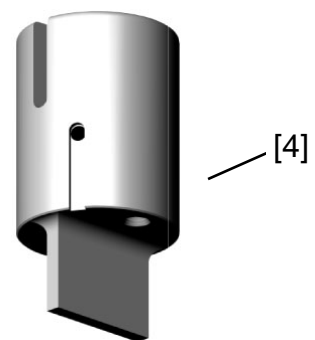
Rounds

Punch, Die & Stripper Set.....	AA600-000
Punch Only.....	AA601-000
Stripper	AA602-000
Die	AA603-000

Die Shims ea.....AA503-SHIM(0.5,1.0 & 1.5mm)

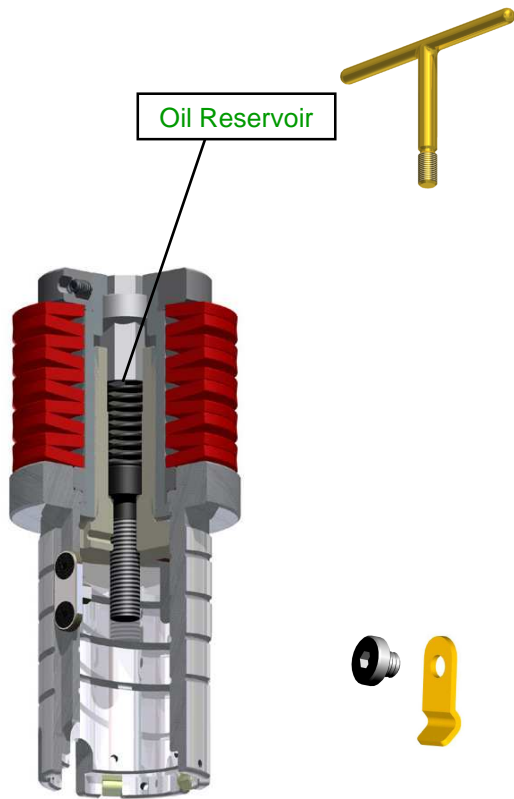
Air Blow Punches & Strippers

[4] Punch Shaped.....	AA571-XXX
Punch Round	AA671-000
[5] Stripper Shaped	AA572-XXX
Stripper Round.....	AA672-000



AMADA STYLE

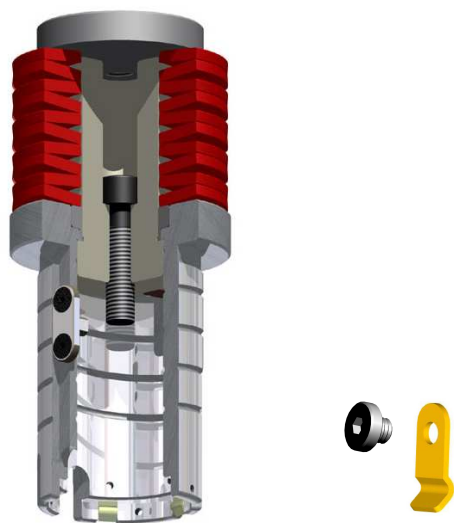
'C' STATION GUIDE ASSEMBLIES



PUSH BUTTON ADJUSTABLE
Features Through-The-Tool Lubrication
 (NO SHIMS REQUIRED)
 Up to 10mm adjustment

Complete Guide Assembly.....	AA560-000
Guide Body.....	AA560-001
Adjustable Punch Driver Spigot.....	AA560-002
Spring Housing Spigot.....	AA560-003
Spring Retaining Ring.....	AA560-004
Spring Retaining Head.....	AA560-005
Disc Spring (ea)(45mm I.D.).....	AA554-001
Punch Locating Key.....	AA950-001
Punch Holding Stud.....	AA952-001
Octagonal Indexing Button.....	AA952-002
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000

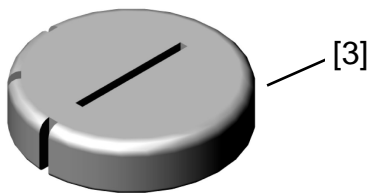
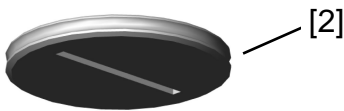
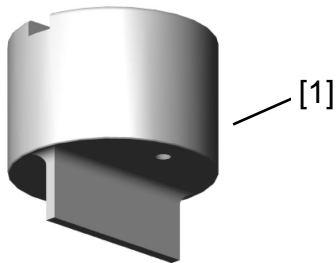
STANDARD ASSEMBLY (Original Amada Style) (HEAVY PUNCHING) (SHIMS REQUIRED)



Complete Guide Assembly.....	AA550-000
Head.....	AA551-000
Spigot.....	AA552-000
Guide Body.....	AA553-000
Disc Spring (ea)(40mm I.D.).....	AA554-000
Punch Locating Key.....	AA950-001
Punch Holding Stud.....	AA952-000
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000
Punch Adjusting Shims.....	AA501-SHIM (1, 2, & 3mm)

AMADA STYLE

3 1/2" OR 'D' STATION
(up to 3 1/2" or 88.9mm dia)



Shapes

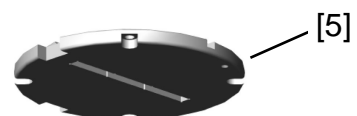
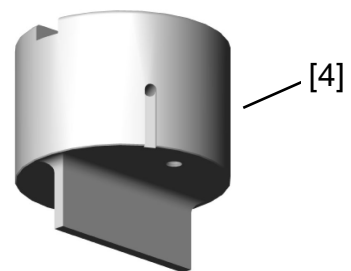
Punch, Die & Stripper Set.....	AA700-XXX
[1] Punch Only.....	AA701-XXX
[2] Stripper.....	AA702-XXX
[3] Die.....	AA703-XXX

Rounds

Punch, Die & Stripper Set.....	AA800-000
Punch Only.....	AA801-000
Stripper	AA802-000
Die	AA803-000
Die Shims ea.....	AA703-SHIM(0.5,1.0 & 1.5mm)

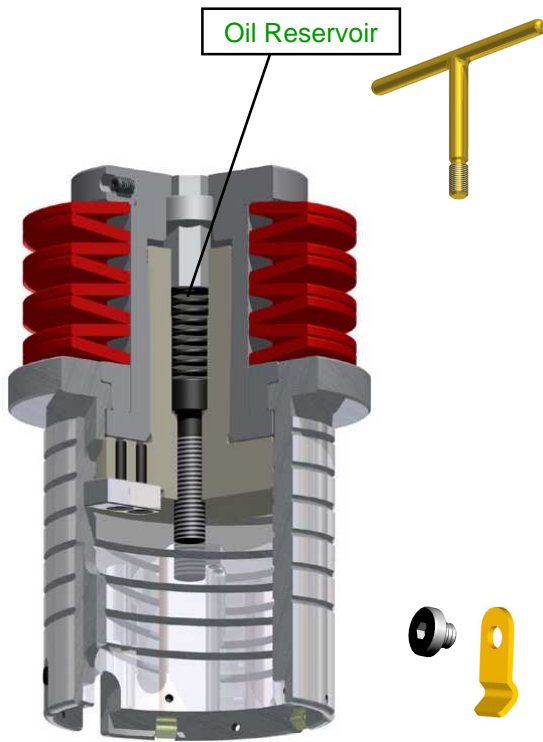
Air Blow Punches & Strippers

[4] Punch Shaped.....	AA771-XXX
Punch Round	AA871-000
[5] Stripper Shaped	AA772-XXX
Stripper Round.....	AA872-000



AMADA STYLE

'D' STATION GUIDE ASSEMBLIES



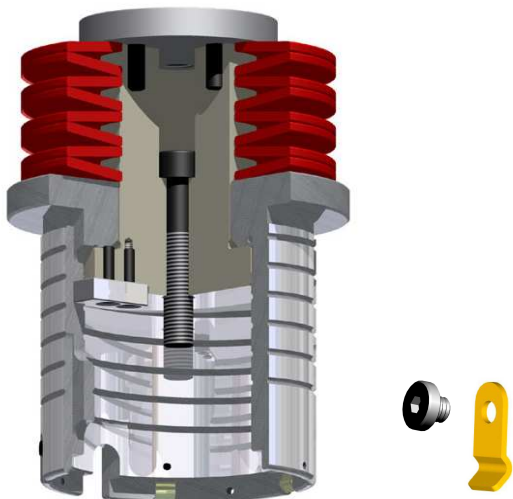
PUSH BUTTON ADJUSTABLE *Features Through-The-Tool Lubrication*

(NO SHIMS REQUIRED)
Up to 10mm Adjustment

Complete Guide Assembly.....	AA860-000
Guide Body.....	AA860-001
Adjustable Punch Driver Spigot.....	AA860-002
Spring Housing Spigot.....	AA860-003
Spring Retaining Ring.....	AA860-004
Spring Retaining Head.....	AA860-005
Disc Spring (ea).....	AA1052-000
Punch Locating Key.....	AA950-000
Punch Holding Stud.....	AA952-001
Octagonal Indexing Button.....	AA952-002
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000

STANDARD ASSEMBLY (Original Amada Style)

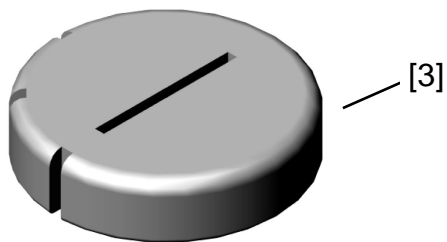
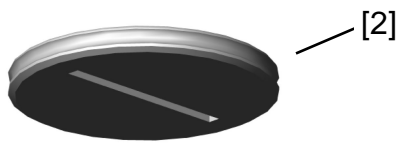
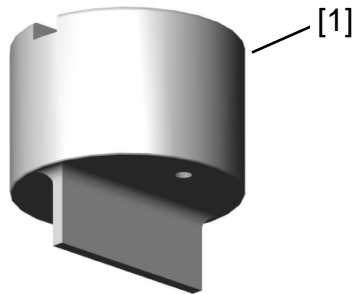
(HEAVY PUNCHING)
(SHIMS REQUIRED)



Complete Guide Assembly.....	AA850-000
Head.....	AA851-000
Spigot.....	AA853-000
Guide Body.....	AA854-000
Disc Spring (ea).....	AA1052-000
Punch Locating Key.....	AA950-000
Punch Holding Stud.....	AA951-000
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000
Punch Adjusting Shims.....	AA701-SHIM (1, 2, & 3mm)

AMADA STYLE

4 1/2" OR 'E' STATION
(up to 4 1/2" or 114.3mm dia)



Shapes

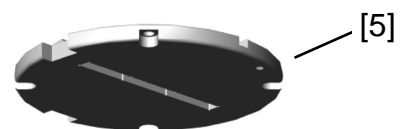
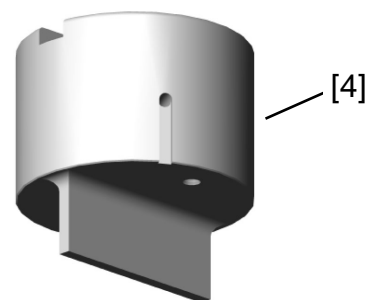
Punch, Die & Stripper Set.....	AA900-XXX
[1] Punch Only.....	AA901-XXX
[2] Stripper.....	AA902-XXX
[3] Die.....	AA903-XXX

Rounds

Punch, Die & Stripper Set.....	AA1000-000
Punch Only.....	AA1001-000
Stripper	AA1002-000
Die	AA1003-000
Die Shims ea.....	AA903-SHIM(0.5, 1.0 & 1.5mm)

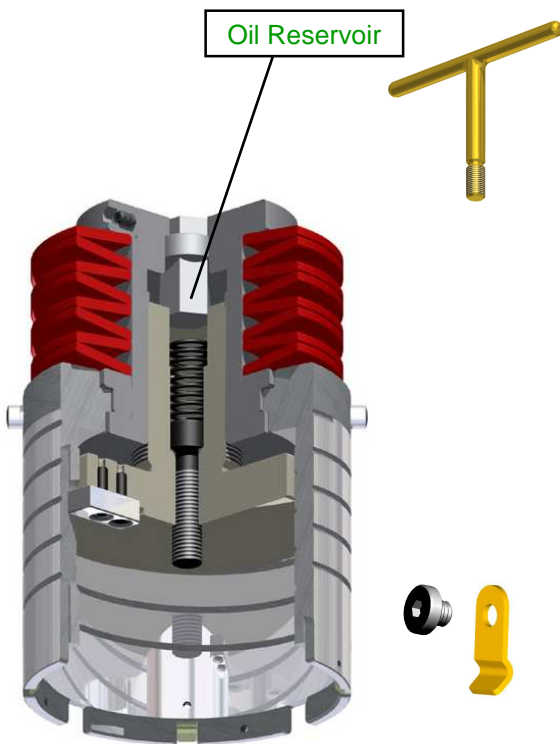
Air Blow Punches & Strippers

[4] Punch Shaped	AA971-XXX
Punch Round	AA1071-000
[5] Stripper Shaped	AA972-XXX
Stripper Round.....	AA1072-000



AMADA STYLE

'E' STATION GUIDE ASSEMBLIES



PUSH BUTTON ADJUSTABLE

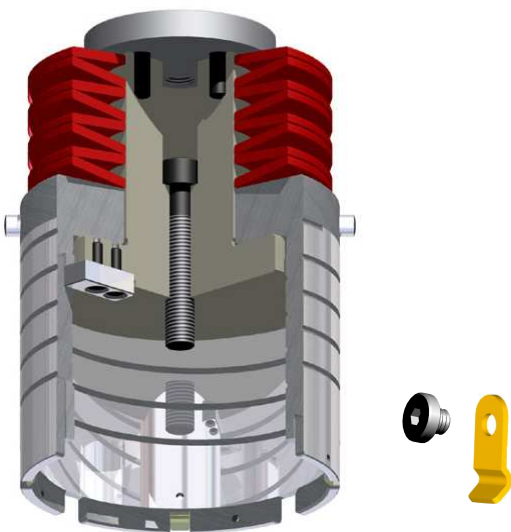
Features Through-The-Tool Lubrication

(NO SHIMS REQUIRED)
Up to 10mm Adjustment

Complete Guide Assembly	AA1060-000
Guide Body	AA1060-001
Adjustable Punch Driver Spigot	AA1060-002
Spring Housing Spigot	AA860-003
Spring Retaining Ring	AA860-004
Spring Retaining Head	AA860-005
Disc Spring (ea)	AA1052-000
Punch Locating Key	AA950-000
Punch Holding Stud	AA952-001
Octagonal Indexing Button	AA952-002
Stripper Holding Clips (ea)	AA960-000
Stripper Holding Clip Screws (ea)	AA961-000
T' Handle	AA962-000

STANDARD ASSEMBLY (Original Amada Style)

(HEAVY PUNCHING)
(SHIMS REQUIRED)



Complete Guide Assembly	AA1050-000
Head	AA1051-000
Spigot	AA1053-000
Guide Body	AA1054-000
Disc Spring (ea)	AA1052-000
Punch Locating Key	AA950-000
Punch Holding Stud	AA951-000
Stripper Holding Clips (ea)	AA960-000
Stripper Holding Clip Screws (ea)	AA961-000
T' Handle	AA962-000
Punch Adjusting Shims	AA901-SHIM (1, 2, & 3mm)

WILSON

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

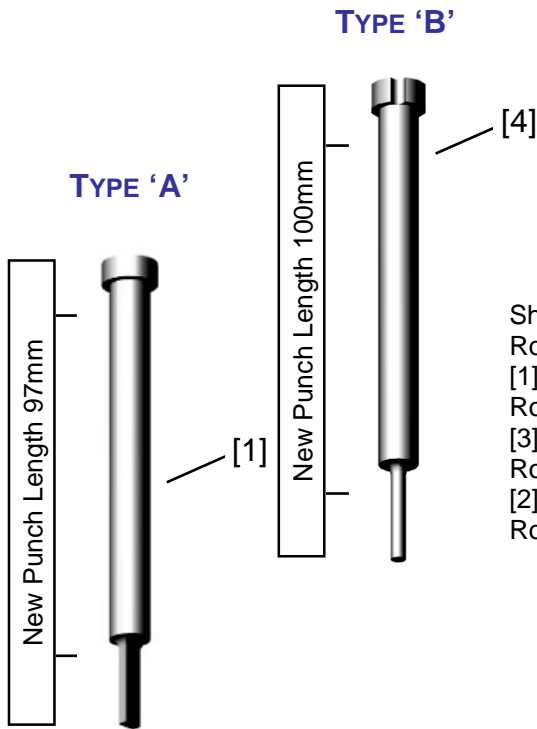
Free Call 1800 882 993 E-mail - sales@fmtool.com.au

www.fmtool.com.au



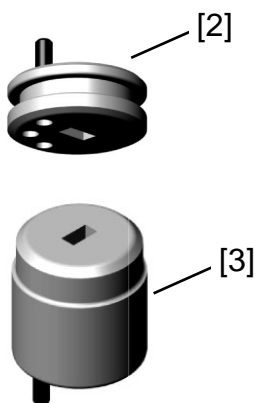
WILSON STYLE

'20' STATION MULTI TOOLS



Up to 8mm Dia Type 'A'

Shaped Punch, Die & Stripper Set	AWT20-0-XXX
Round Punch, Die & Stripper Set	AWT20-0-000
[1] Shaped Punch Only	AWT20-1-XXX
Round Punch Only	AWT20-1-000
[3] Shaped Die	AMT20-2-XXX
Round Die	AMT20-2-000
[2] Shaped Stripper	AMT20-3-XXX
Round Stripper	AMT20-3-000



Type 'B'

Shaped Punch, Die & Stripper Set	AWT20A-0-XXX
Round Punch, Die & Stripper Set	AWT20A-0-000
Shaped Punch Only	AWT20A-1-XXX
[4] Round Punch Only	AWT20A-1-000
[3] Shaped Die	AMT20-2-XXX
Round Die	AMT20-2-000
[2] Shaped Stripper	AMT20-3-XXX
Round Stripper	AMT20-3-000
Die Shims ea.	AMT20-2-SHIM(0.5,1.0 & 1.5mm)

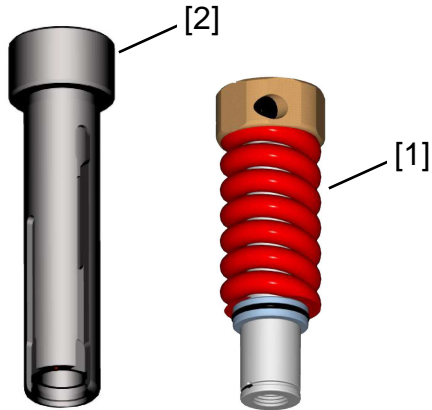
WILSON Series 90 STYLE

1/2" OR 'A' STATION
(up to 1/2" or 12.7mm dia)

**Features Through The
Tool Lubrication**

OPEN GUIDE & STRIPPING UNIT

HARDENED AND PRECISION GROUND
Suitable for all 1/2" Stations



- [1] Stripping Unit AW180-000
- [2] Open Guide AW182-001
(keyed at 0, 135, 225 deg.)
- [2] Open Guide AW182-002
(keyed at 0, 90, 180, 270 deg.)

Accessories

- Stripping Spring AW203-000
- Punch Head AW204-000
- Collar AW205-NEW
- Spigot AW292-000
- Wire Circlip AW293-000

ADJUSTABLE PUNCH, DIE & GUIDE SETS

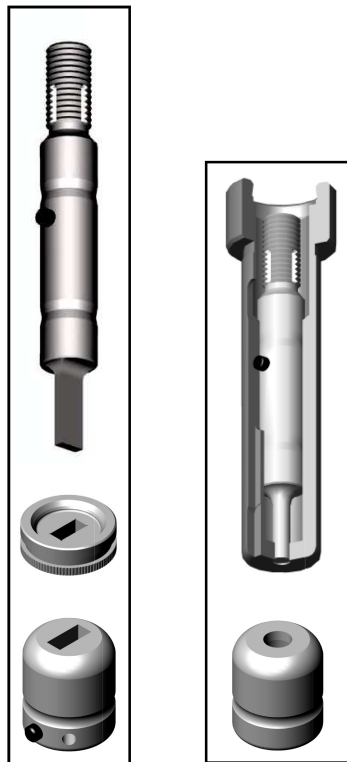
Shapes

- [3] Punch, Die & Stripper Set AW190-XXX
- [4] Punch, Die & Guide Set AW196-XXX
- Punch AW191-XXX
- Guide AW102-XXX
- Stripper (to suit open guide) AA185-XXX
- Die AA106-XXX

Rounds

- [3] Punch, Die & Stripper Set AW290-000
- [4] Punch, Die & Guide Set AW296-000
- Punch AW291-000
- Guide AW202-000
- Stripper (to suit open guide) AA185-000
- Die AA206-000

Die Shims ea. AA206-SHIM(0.5,1.0 & 1.5mm)



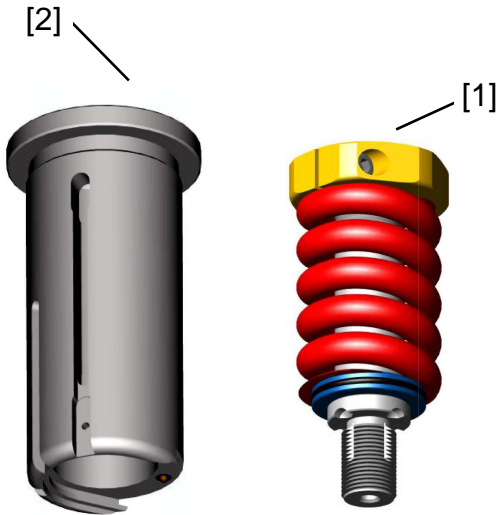
[3]

[4]

WILSON Series 90 STYLE

1 1/4" OR 'B' STATION
(up to 1 1/4" or 31.75mm dia)

Features Through The Tool Lubrication



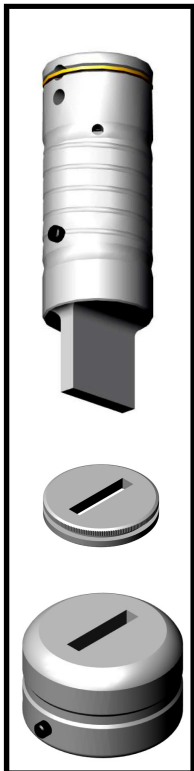
OPEN GUIDE & STRIPPING UNIT

HARDENED AND PRECISION GROUND
Suitable for all 1 1/4" Stations

- [1] Stripping Unit AA380-000
- [2] Open Guide AA382-001
(keyed at 0, 45, 90, 135 deg.)
- [2] Open Guide AA382-002
(keyed at 0, 90, 180, 270 deg.)

Accessories

- Stripping Spring AA403-000
- Punch Head AW414-000
- Collar AW405-NEW
- Spigot AA407-000
- Wire Circlip AA393-000
- Wind-inCirclip AA393-001
- Plunger AA393-002



[3]



[4]

ADJUSTABLE PUNCH, DIE & GUIDE SETS

Shapes

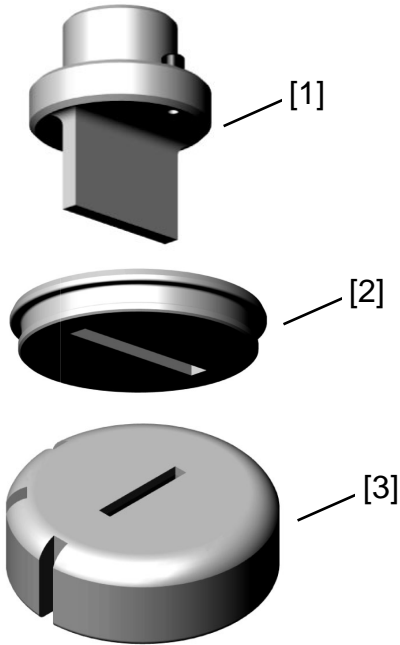
- [3] Punch, Die & Stripper Set AA390-XXX
- [4] Punch, Die & Guide Set AA396-XXX
- Punch AA381-XXX
- Guide AW302-XXX
- Stripper (to suit open guide) AA385-XXX
- Die AA306-XXX

Rounds

- [3] Punch, Die & Stripper Set AA490-000
- [4] Punch, Die & Guide Set AA496-000
- Spigot Punch AA481-000
- Guide AW402-000
- Stripper (to suit open guide) AA385-000
- Die AA406-000

Die Shims ea. AA406-SHIM(0.5, 1.0 & 1.5mm)

**'C' Station
(up to 2" or 50.8mm dia)**



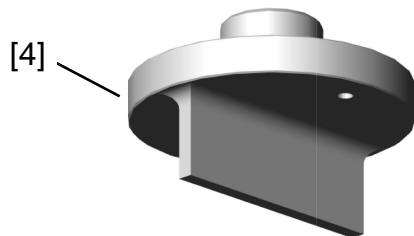
Shapes

Punch, Die & Stripper Set.....	AA580-XXX
[1] Punch Only	AA581-XXX
Stripper	AA502-XXX
[2] Wilson Style Stripper.....	AW502-XXX
[3] Die	AA503-XXX

Rounds

Punch, Die & Stripper Set.....	AA680-000
Punch Only	AA681-000
Stripper	AA602-000
Wilson Style Stripper.....	AW602-000
Die	AA603-000
Die Shims ea.	AA503-SHIM(0.5,1.0 & 1.5mm)

**'D' Station
(up to 3 1/2" or 88.9mm dia)**



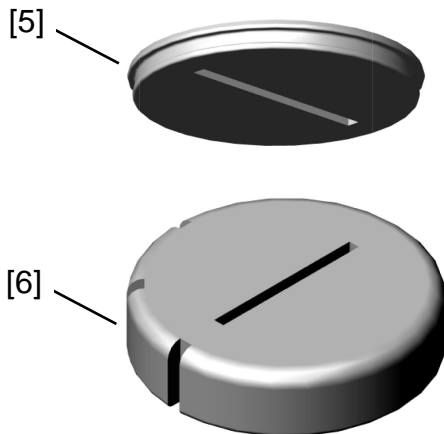
Shapes

Punch, Die & Stripper Set.....	AA780-XXX
[4] Punch Only	AA781-XXX
Stripper	AA702-XXX
[5] Wilson Style Stripper.....	AW702-XXX
[6] Die	AA703-XXX

Rounds

Punch, Die & Stripper Set.....	AA880-000
Punch Only	AA881-000
Stripper	AA802-000
Wilson Style Stripper.....	AW802-000
Die	AA803-000
Die Shims ea.	AA703-SHIM(0.5,1.0 & 1.5mm)

**'E' Station
(up to 4 1/2" or 114.3mm dia)**



Shapes

Punch, Die & Stripper Set.....	AA980-XXX
[4] Punch Only	AA981-XXX
Stripper	AA902-XXX
[5] Wilson Style Stripper.....	AW902-XXX
[6] Die	AA903-XXX

Rounds

Punch, Die & Stripper Set.....	AA1080-000
Punch Only	AA1081-000
Stripper	AA1002-000
Wilson Style Stripper.....	AW1002-000
Die	AA1003-000
Die Shims ea.	AA903-SHIM(0.5,1.0 & 1.5mm)

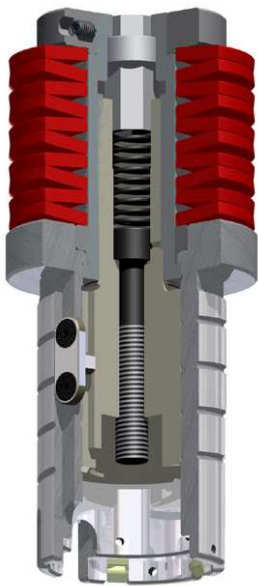
WILSON Series 90 STYLE

PUSH BUTTON ADJUSTABLE GUIDE ASSEMBLY

**Features Through The
Tool Lubrication**



(NO SHIMS REQUIRED)
10mm Adjustment
(For Use With Spigot Punches)
(Will Accept Wilson Series 90 Tooling)



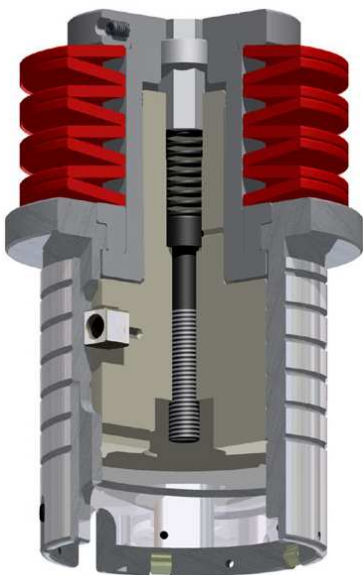
'C' Station (up to 2" or 50.8mm dia)

Complete Guide Assembly	AA510-000
Adjustable Punch Driver Spigot	AA511-000
Spigot Location Key	AA512-000
Punch Holding Stud	AA513-000
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000



'D' Station (up to 3 1/2" or 88.9mm dia)

Complete Guide Assembly	AA710-000
Adjustable Punch Driver Spigot	AA711-000
Spigot Location Key	AA712-000
Punch Holding Stud	AA713-000
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000



'E' Station (up to 4 1/2" or 114.3mm dia)

Complete Guide Assembly	AA910-000
Adjustable Punch Driver Spigot	AA911-000
Spigot Location Key	AA912-000
Punch Holding Stud	AA913-000
Stripper Holding Clips (ea).....	AA960-000
Stripper Holding Clip Screws (ea).....	AA961-000
T' Handle.....	AA962-000

WILSON Series 80 STYLE
(Econoline)

1/2" OR 'A' STATION
(up to 1/2" or 12.7mm dia)



Shapes

[1] Punch & Guide Assembly	AW100-XXX
Punch Only	AW101-XXX
Guide Only	AW102-XXX
[3] Die	AA106-XXX

Rounds

Punch & Guide Assembly.....	AW200-000
[2] Punch Only.....	AW201-000
Guide Only	AW202-000
Die	AA206-000

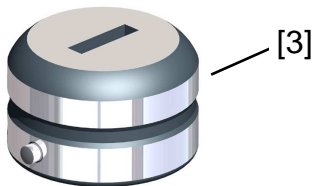
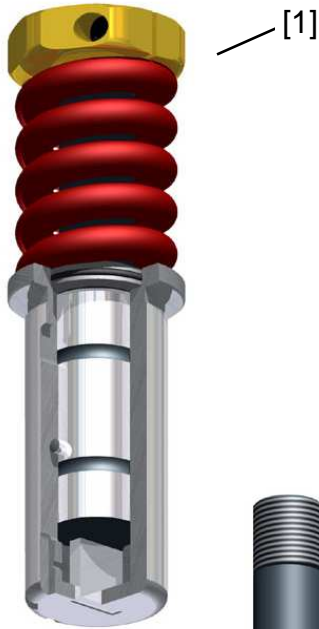
Assembly Parts

Punch Head.....	AW204-000
Stripping Spring.....	AW203-000
Punch Collar (new).....	AW205-NEW
1mm Shim Collar.....	AW205-1MM
2mm Shim Collar.....	AW205-2MM
3mm Shim Collar.....	AW205-3MM
O'Ring for Collars.....	AA215-001

Die Shims ea..... AA206-SHIM(0.5,1.0 & 1.5mm)

WILSON Series 80 STYLE
(Econoline)

1 1/4" OR 'B' STATION
(up to 1 1/4" or 31.75mm dia)



Shapes

[1] Punch & Guide Assembly	AW300-XXX
Punch Only	AW301-XXX
Guide Only	AW302-XXX
[3] Die	AA306-XXX

Rounds

Punch & Guide Assembly	AW400-000
[2] Punch Only	AW401-000
Guide Only	AW402-000
Die.....	AA406-000

Assembly Parts

Super Locking Head	AW414-000
Stripping Spring	AA403-000
0 to 3mm Punch Shim Collar	AW405-NEW
1 to 2mm Punch Shim Collar	AW405-1&2MM
O'Rings for Collars.....	AA415-001

Die Shims ea.AA406-SHIM(0.5,1.0 & 1.5mm)

WILSON Series 80 STYLE (Econoline)

'C' 'D' & 'E' STATION TOOLING

**For Guide Assemblies see pages
16, 18 & 20 in Amada Section**

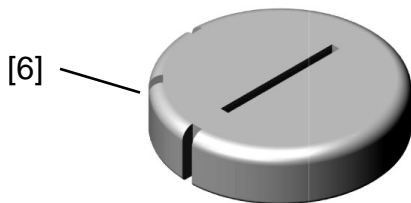
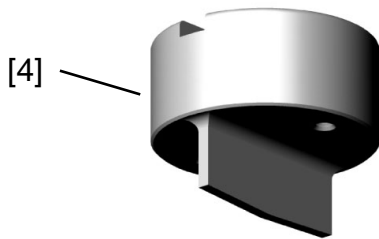
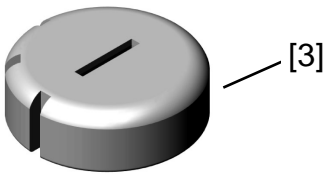
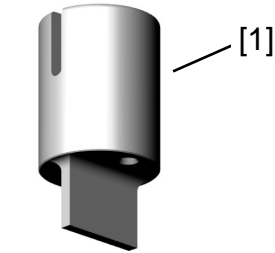
2" or 'C' station (up to 2" or 50.8mm dia)

Shapes

Punch, Die & Stripper Set	AW500-XXX
[1] Punch Only.....	AA501-XXX
[2] Stripper.....	AW502-XXX
[3] Die.....	AA503-XXX

Rounds

Punch, Die & Stripper Set	AW600-000
Punch Only.....	AA601-000
Stripper.....	AW602-000
Die.....	AA603-000
Die Shims ea.....	AA503-SHIM(0.5,1.0 & 1.5mm)



3½" or 'D' station (up to 3½" or 88.9mm dia)

Shapes

Punch, Die & Stripper Set	AW700-XXX
[4] Punch Only.....	AA701-XXX
[5] Stripper.....	AW702-XXX
[6] Die.....	AA703-XXX

Rounds

Punch, Die & Stripper Set	AW800-000
Punch Only.....	AA801-000
Stripper.....	AW802-000
Die.....	AA803-000
Die Shims ea.....	AA703-SHIM(0.5,1.0 & 1.5mm)

4½" or 'E' station (up to 4½" or 114.3mm dia)

Shapes

Punch, Die & Stripper Set	AW900-XXX
[4] Punch Only.....	AA901-XXX
[5] Stripper.....	AW902-XXX
[6] Die.....	AA903-XXX

Rounds

Punch, Die & Stripper Set	AW1000-000
Punch Only.....	AA1001-000
Stripper.....	AW1002-000
Die.....	AA1003-000
Die Shims ea.....	AA903-SHIM(0.5,1.0 & 1.5mm)

MATE

Ultra

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

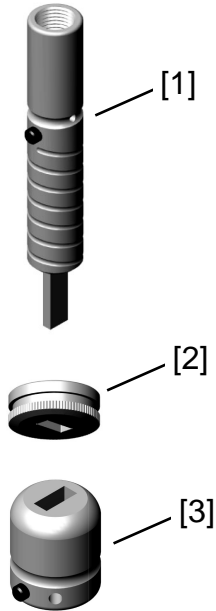
Free Call 1800 882 993 E-mail - sales@fmtool.com.au

www.fmtool.com.au



MATE ULTRA STYLE

ADJUSTABLE SPIGOT PUNCH, DIE & STRIPPER SETS



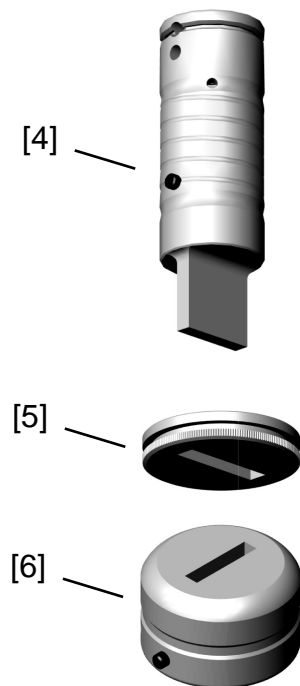
'A' Station
(Used in Mate Ultra Holders)
(up to 1/2" or 12.7mm dia)

Shapes

Punch, Die & Stripper Set	AM180-XXX
[1] Punch only.....	AM181-XXX
[2] Stripper	AA185-XXX
[3] Die	AA106-XXX

Rounds

Punch, Die & Stripper Set	AM180-000
Punch only.....	AM181-000
Stripper	AA185-000
Die	AA206-000
Die Shims ea.	AA206-SHIM(0.5,1.0 & 1.5mm)



'B' Station
(Used in Mate Ultra & Euromac 4 st Multi Tool Holders)
(up to 1 1/4" or 31.75mm dia)

Shapes

Punch, Die & Stripper Set	AM380-XXX
[4] Punch only.....	AM381-XXX
[5] Stripper	AA385-XXX
[6] Die	AA306-XXX

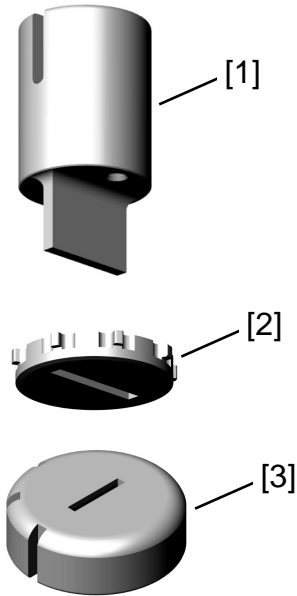
Rounds

Punch, Die & Stripper Set	AM380-000
Punch only.....	AM381-000
Stripper	AA385-000
Die	AA406-000
Die Shims ea.	AA406-SHIM(0.5,1.0 & 1.5mm)

MATE ULTRA STYLE

'C' 'D' & 'E' STATION TOOLING

2" or 'C' station (up to 2" or 50.8mm dia)



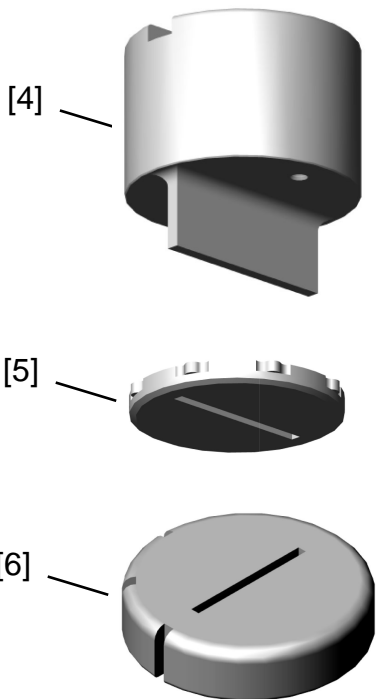
Shapes

Punch, Die & Stripper Set	AM500-XXX
[1] Punch Only.....	AA501-XXX
[2] Stripper.....	AM502-XXX
[3] Die.....	AA503-XXX

Rounds

Punch, Die & Stripper Set	AM600-000
Punch Only.....	AA601-000
Stripper.....	AM602-000
Die.....	AA603-000
Die Shims ea.....	AA503-SHIM(0.5,1.0 & 1.5mm)

3 1/2" or 'D' station (up to 3 1/2" or 88.9mm dia)



Shapes

Punch, Die & Stripper Set	AM700-XXX
[4] Punch Only.....	AA701-XXX
[5] Stripper.....	AM702-XXX
[6] Die.....	AA703-XXX

Rounds

Punch, Die & Stripper Set	AM800-000
Punch Only.....	AA801-000
Stripper.....	AM802-000
Die.....	AA803-000
Die Shims ea.....	AA703-SHIM(0.5,1.0 & 1.5mm)

4 1/2" or 'E' station (up to 4 1/2" or 114.3mm dia)

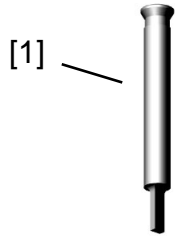
Shapes

Punch, Die & Stripper Set	AM900-XXX
[4] Punch Only.....	AA901-XXX
[5] Stripper.....	AM902-XXX
[6] Die.....	AA903-XXX

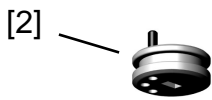
Rounds

Punch, Die & Stripper Set	AM1000-000
Punch Only.....	AA1001-000
Stripper.....	AM1002-000
Die.....	AA1003-000
Die Shims ea.....	AA903-SHIM(0.5,1.0 & 1.5mm)

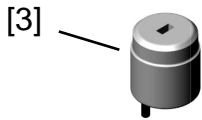
'20 Station' (up to 8mm dia)



Shaped Punch, Die & Stripper Set.....	AMT20-0-XXX
Round Punch, Die & Stripper Set.....	AMT20-0-000
[1] Shaped Punch Only	AMT20-1-XXX
Round Punch Only	AMT20-1-000
[2] Shaped Stripper	AMT20-3-XXX
Round Stripper	AMT20-3-000
[3] Shaped Die	AMT20-2-XXX
Round Die	AMT20-2-000
Die Shims ea.....	AMT20-2-SHIM(0.5,1.0 & 1.5mm)



'10 Station' (up to 16mm dia)



Shaped Punch, Die & Stripper Set.....	AMT10-0-XXX
Round Punch, Die & Stripper Set.....	AMT10-0-000
[4] Shaped Punch Only	AMT10-1-XXX
Round Punch Only	AMT10-1-000
[5] Shaped Stripper	AMT10-3-XXX
Round Stripper	AMT10-3-000
[6] Shaped Die	AMT10-2-XXX
Round Die	AMT10-2-000
Die Shims ea.....	AMT10-2-SHIM(0.5,1.0 & 1.5mm)



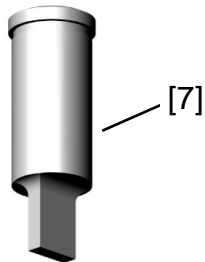
[5]



[6]

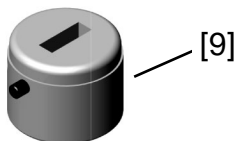


'6 Station' (up to 24mm dia) Short Series - 70.5mm Punch



Shaped Punch, Die & Stripper Set.....	AMT8-0-XXX
Round Punch, Die & Stripper Set.....	AMT8-0-000
[7] Shaped Punch Only	AMT8-1-XXX
Round Punch Only	AMT8-1-000
[8] Shaped Stripper	AMT8-3-XXX
Round Stripper.....	AMT8-3-000
[9] Shaped Die	AMT8-2-XXX
Round Die	AMT8-2-000

Long Series - 100mm Punch



Euromac Only

Shaped Punch, Die & Stripper Set.....	AMT6-0-XXX
Round Punch, Die & Stripper Set.....	AMT6-0-000
[10] Shaped Punch Only	AMT6-1-XXX
Round Punch Only	AMT6-1-000
[8] Shaped Stripper	AMT6-3-XXX
Round Stripper.....	AMT6-3-000
[9] Shaped Die	AMT8-2-XXX
Round Die	AMT8-2-000
Die Shims ea.....	AMT8-2-SHIM(0.5,1.0 & 1.5mm)

Special Shapes

&

Technical Information

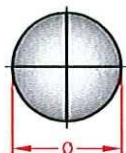




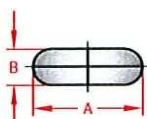
F.M. Tool & Gauge Pty. Ltd.

Category 'A' Tool Selection Guide

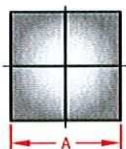
- 000



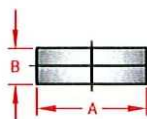
- 100



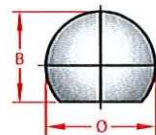
- 200



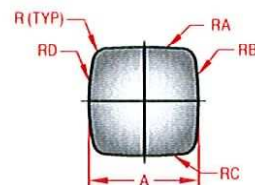
- 300



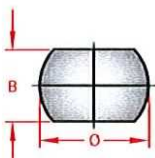
- 400



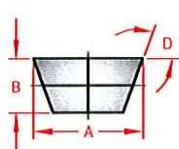
- 412



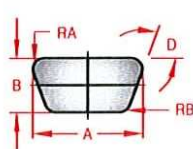
- 500



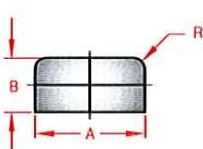
- 501



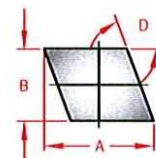
- 502



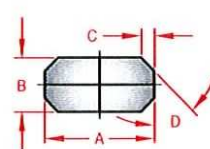
- 513



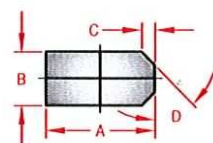
- 514



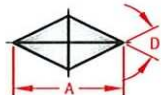
- 515



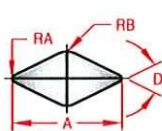
- 516



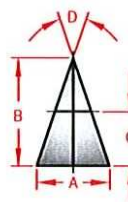
- 517



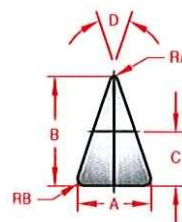
- 518



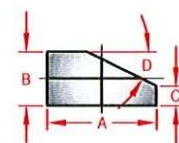
- 519



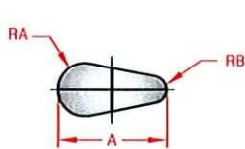
- 520



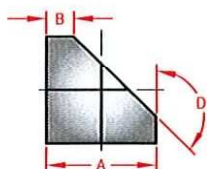
- 521



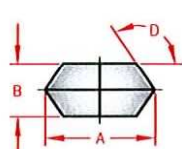
- 522



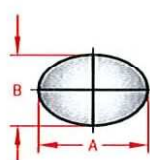
- 538



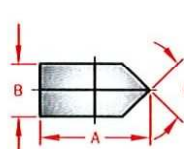
- 539



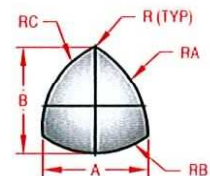
- 540



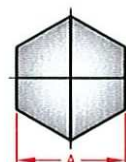
- 545



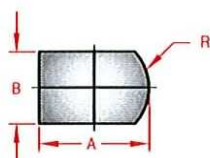
- 607



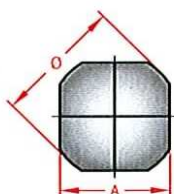
- 650



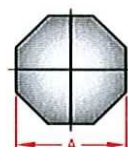
- 660



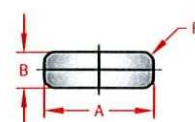
- 665



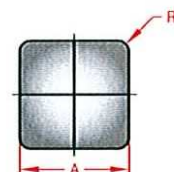
- 670



- 850



- 860

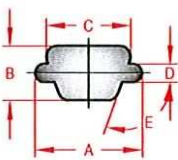




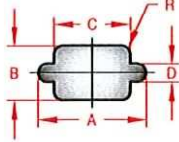
F.M. Tool & Gauge Pty. Ltd.

Category 'B' Tool Selection Guide

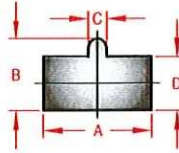
- 505



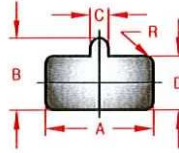
- 506



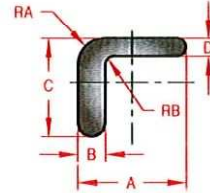
- 507



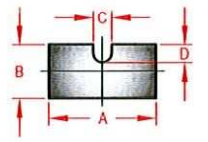
- 508



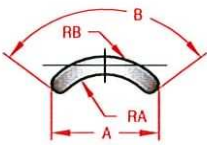
- 509



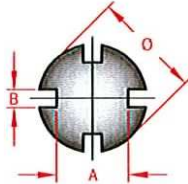
- 510



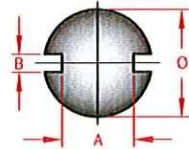
- 512



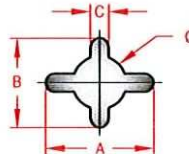
- 523



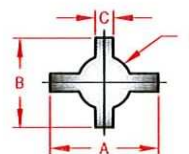
- 524



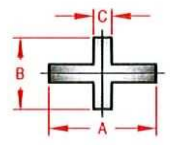
- 525



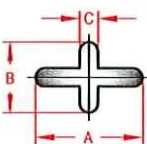
- 526



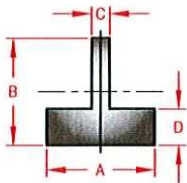
- 527



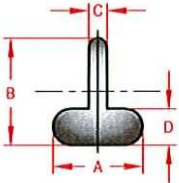
- 528



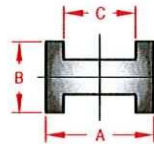
- 529



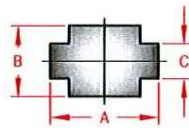
- 530



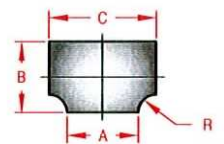
- 531



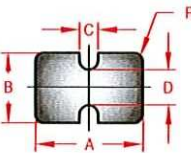
- 532



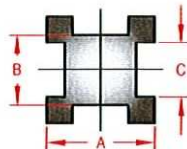
- 533



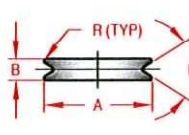
- 534



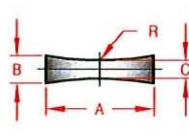
- 536



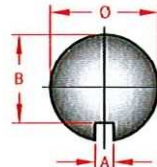
- 605



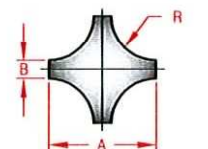
- 606



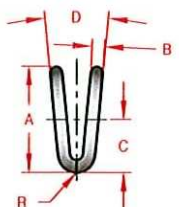
- 690



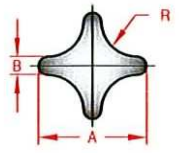
- 700



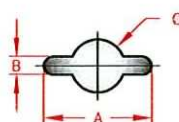
- 710



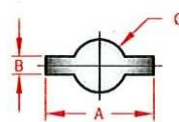
- 720



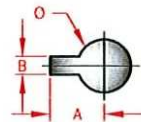
- 760



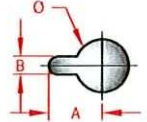
- 770



- 780



- 790





F.M. Tool & Gauge Pty. Ltd.

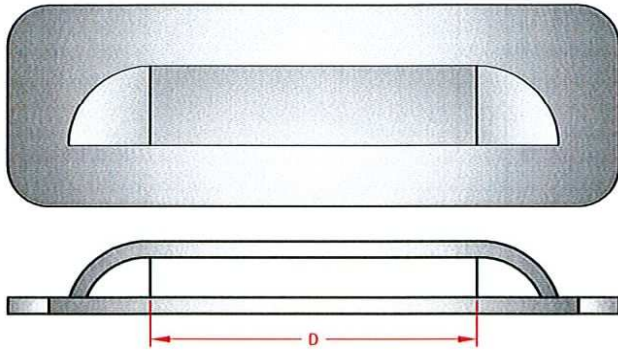
Category 'C' Tool Selection Guide

<p>- 240</p> <p>Centre Punch Up</p>	<p>- 241</p> <p>Centre Punch Down</p>	<p>- 541</p> <p>1 Tap K/Out Down</p>	<p>- 542</p> <p>2 Tap K/Out Down</p>	<p>- 543</p> <p>1 Tap K/Out Up</p>	<p>- 544</p> <p>2 Tap K/Out Up</p>
<p>- 562</p> <p>Part Shear Down</p>	<p>- 563</p> <p>Part Shear Up</p>	<p>- 565</p> <p>Lance & Form Down</p>	<p>- 566</p> <p>Lance & Form Up</p>	<p>- 577</p> <p>Bridge Tool Up</p>	<p>- 578</p> <p>Twin Bridge Tool Up</p>
<p>- 645</p> <p>Dimple Down</p>	<p>- 646</p> <p>Dimple Up</p>	<p>- 653</p> <p>Coined C/Sink Down</p>	<p>- 654</p> <p>Coined C/Sink Up</p>	<p>- 655</p> <p>Formed C/Sink Down</p>	<p>- 656</p> <p>Formed C/Sink Up</p>
<p>- 675</p> <p>Extrusion Down</p>	<p>- 676</p> <p>Extrusion Up</p>	<p>- 755</p> <p>Emboss Down</p>	<p>- 756</p> <p>Emboss Up</p>	<p>- 757</p> <p>Pierced Emboss Down</p>	<p>- 758</p> <p>Pierced Emboss Up</p>
<p>- 775</p> <p>Double K/Out Down</p>	<p>- 776</p> <p>Double K/Out Up</p>	<p>- 812</p> <p>Card Holder Tool Up</p>	<p>- 910</p> <p>Edge Fix Tool</p>	<p>- 920</p> <p>Thread Form</p>	<p>*A = Thread Form & Pitch</p>

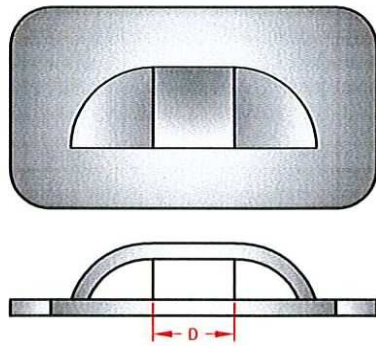
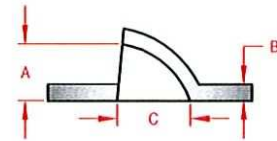


F.M. Tool & Gauge Pty. Ltd.

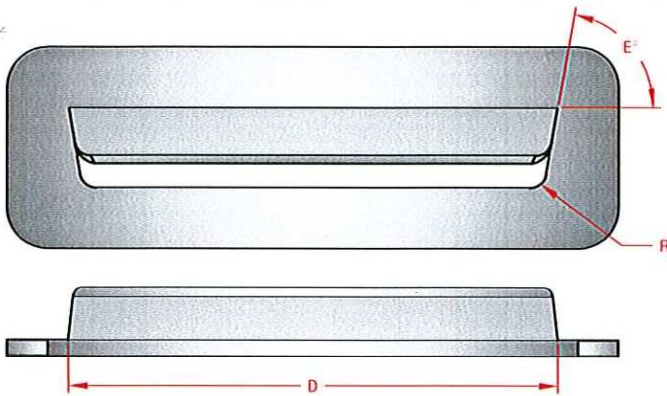
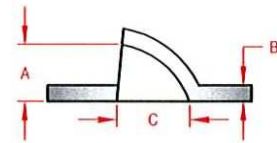
Category 'C' Tool Selection Guide



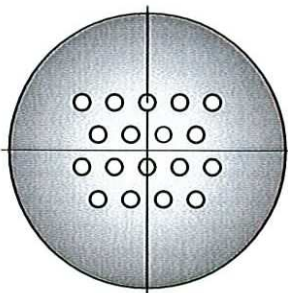
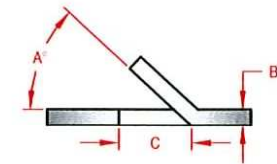
Louvre Tool Up
-999



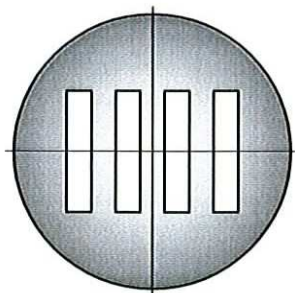
Nibble Louvre Tool Up
-995



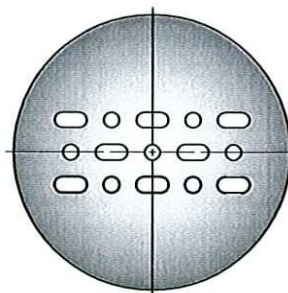
Air Louvre Tool Up
-997



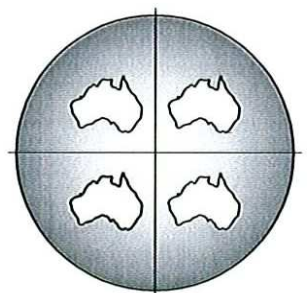
Pin Hole Cluster



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 - Mila	1.00
Aluminium - Half Hara	0.38	Steel - ASTM-A36	1.20
Aluminium - Hara	0.50	Steel - 50 Carbon	1.40
Brass - Soft Sheet	0.60	Steel - Cold Drawn	1.20
Brass - Half Hara	0.70	Steel - Stainless	1.40
Copper - Rolled	0.57	Spring Steel (Tempered)	4.00

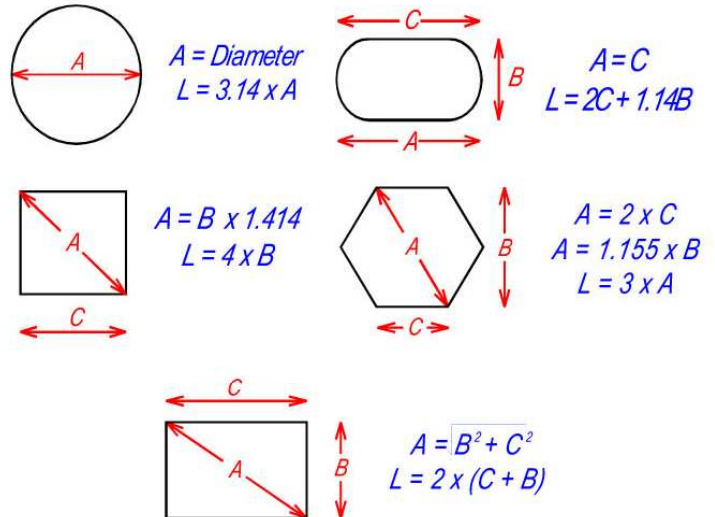
Based on Mild Steel Shear Strength of 50,000 P.S.I (345 MPa)

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

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

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')

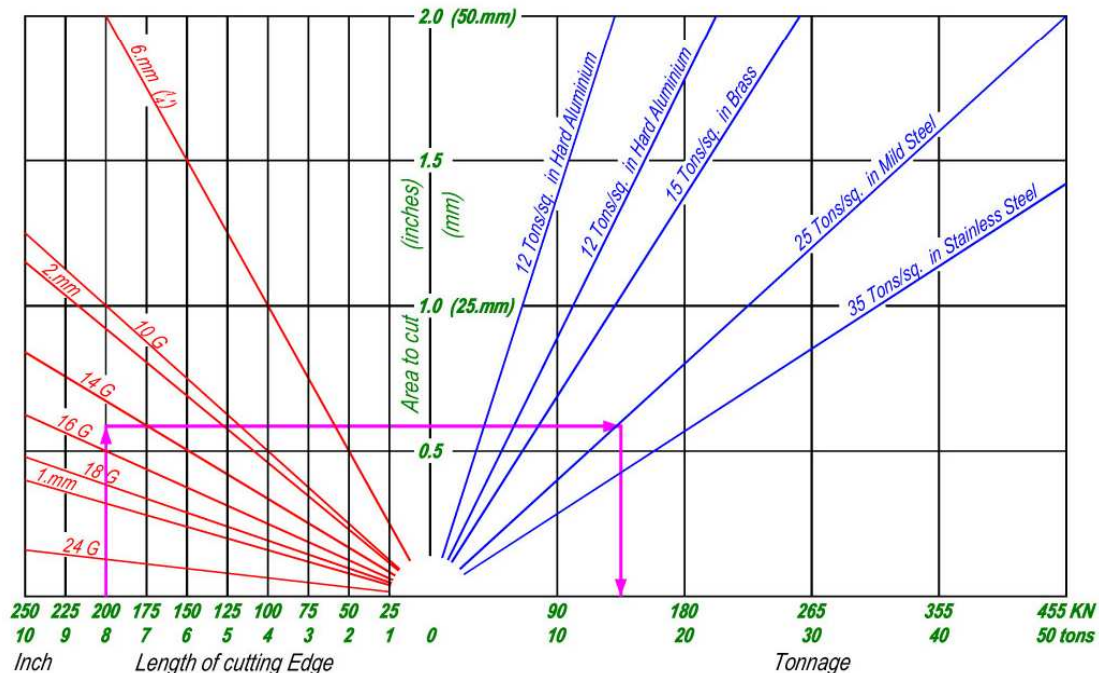
Example 2: For a 3/8" x 3" Slitting Tool with 3/16" Shear Cutting 1/4" Hard Aluminium

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

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

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%)

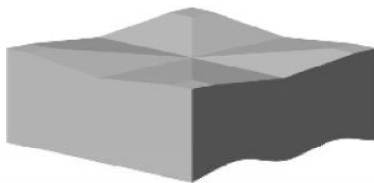


Inverted Rooftop:

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

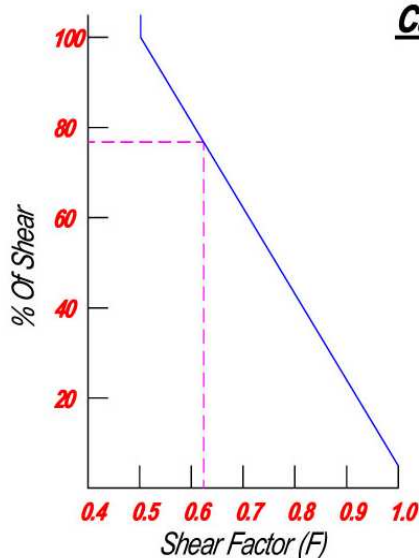
Concave:

- 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)

