



**SEMI-CONDUCTOR  
TOOLING**

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**959 Transport Way**  
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## **OUR COMMITMENT TO YOU**

DeWeyl Tool Co, Inc. manufactures the finest quality bonding wedges for the microelectronic industry. These wedges are designed for the placing and bonding of fine aluminum and gold wires during the assembly of integrated circuits. Our product is used throughout the semiconductor, microwave, disk drive and hybrid electronic industries. We have been offering quality products and services since 1969. DeWeyl has always placed high priority on satisfying the customer's requirements. In fact, it is this dedication to customer satisfaction that allows us to stand apart from our competitors. DeWeyl offers application specific bonding wedges for both gold and aluminum wire. Our products are specifically designed for both thermo-compression and thermo-sonic wedge bonding applications. We also offer low or no heat bonding tool solutions. DeWeyl specializes in wedge technology and as a result we offer extensive product variation. Our product may be found worldwide in some of the most demanding applications. DeWeyl supports an extremely specialized field and takes great pride in offering very specialized solutions.

DeWeyl applies 30 years of manufacturing experience to insure customer satisfaction. Extensive efforts are made to insure our promise to you. Throughout the manufacturing process, a total of eighteen independent inspections are performed using laser digital micrometers, optical comparators at 250x magnification, optical inspection stations at 500x magnification and the latest in digital camera technology. Our last and final inspection is cosmetic to insure that the product placed in the shipping container is in perfect condition. The tool is encapsulated immediately following the final inspection and then no further handling happens to the tool. Our manufacturing results are constantly analyzed and evaluated to maintain the highest quality product. Bonding tools are our primary focus and customer satisfaction is our main goal.

Our commitment is to meet and exceed your application requirements.



### Contact Information:

**Web Site:** [www.deweyl.com](http://www.deweyl.com)

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To contact DeWeyl Tool, Inc. please complete our online request information form  
or call us at the above numbers (Mon-Fri 8:00 a.m. - 4:30 p.m. PST).  
We look forward to assisting you with your tool needs.

**Sales/Customer Service:**

E-mail: [sales@deweyl.com](mailto:sales@deweyl.com)

Everything we do at DeWeyl Tool is in loving memory  
of our founder Richard D. Cline, 1928-1999.

### ISO 9001 CERTIFIED ORGANISATION



United Registrar of Systems Cert No.97230

Revised: July 2026



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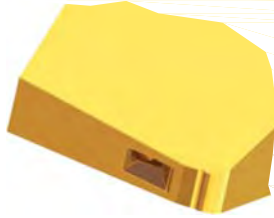
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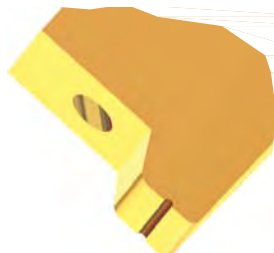
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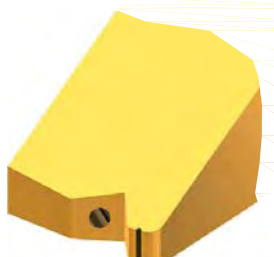
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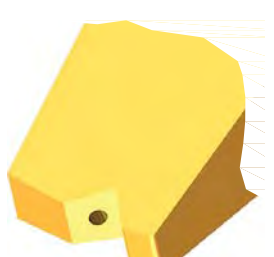
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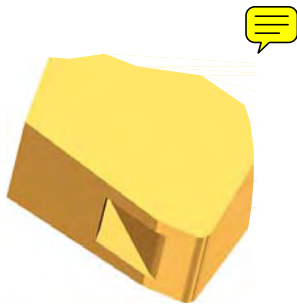


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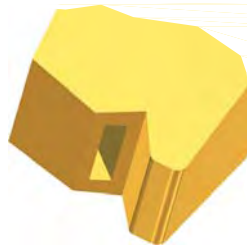


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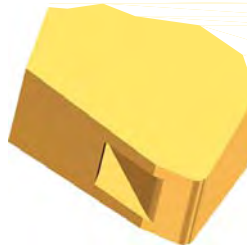
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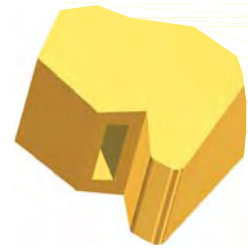
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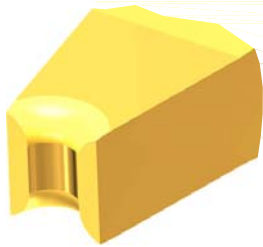
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**DEWEYL**  
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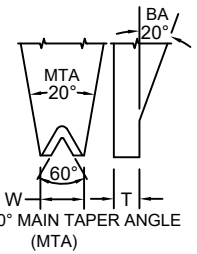
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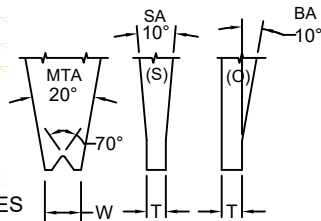
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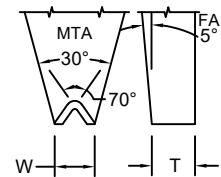
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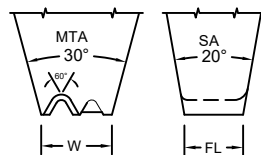
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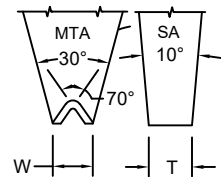
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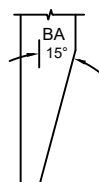
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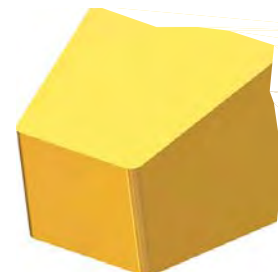
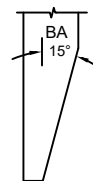
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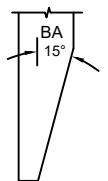
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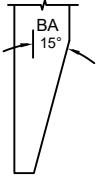
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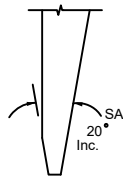
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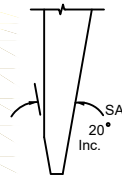
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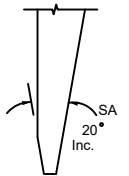
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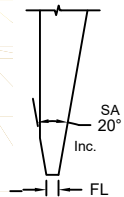
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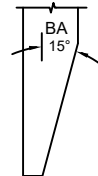
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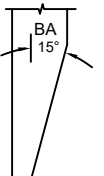
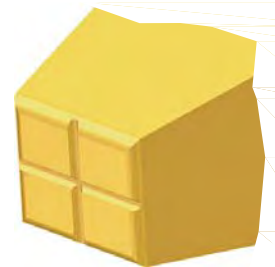
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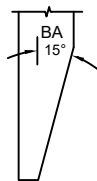
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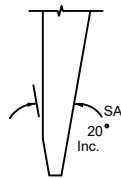
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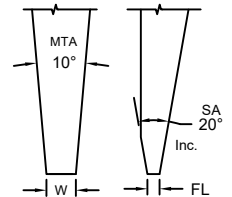
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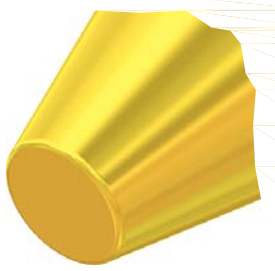
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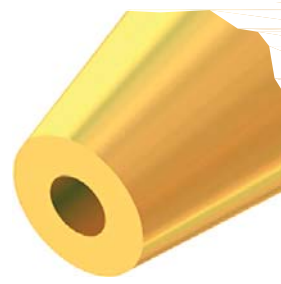
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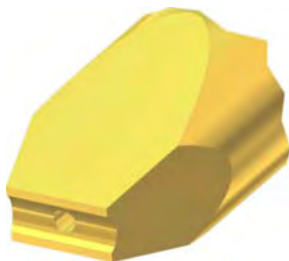
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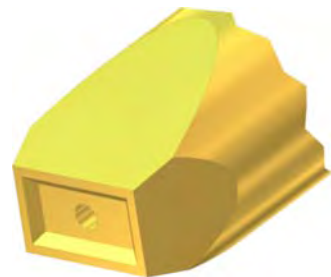
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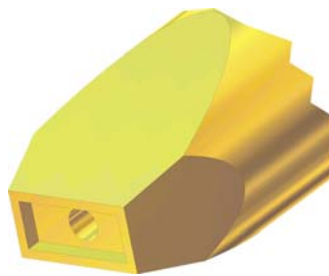
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## Pictorials Heater



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**HEATED CAPILLARY HOLDER**  
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**OPTIONAL:**  
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# Pictorials Heater



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HEATED CAPILLARY HOLDER  
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HEATED CAPILLARY HOLDER  
HCH-90-2.00  
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RADIANT HEATER  
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## Heater Power Supply

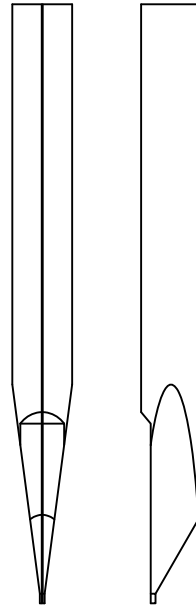


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## RECLAIMING WORN TIPS We rework Worn Tips

Example Tool



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A1 O''PTION  
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A2 OPTION  
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## Pictorials Tool Options



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**Illustrated:**  
C-Series  
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Chamfer on  
Back of Tool  
A13 OPTION



A13 OPTION:  
PAGE: 131

**Illustrated:**  
AL-Series  
with  
Chamfer on  
Front of Tool  
A13 OPTION



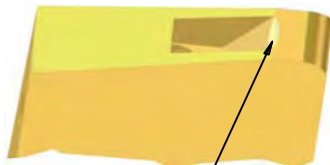
A8D OPTION  
PAGE: 130



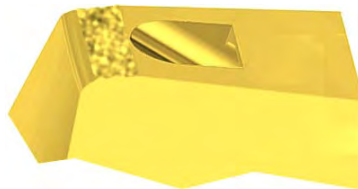
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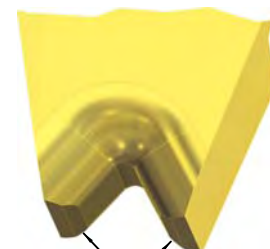
A8D OPTION  
PAGE: 130



EXTRA POLISHED BACK RADIUS  
**XPBR** (ELLIPTICAL BACK RADIUS)  
PAGE: 133



**XCM** SURFACE ILLUSTRATION,  
REFERENCE ONLY  
PAGE: 134



**VGC**= CHAMFER ON VG  
EXTENDED TOOL LIFE  
PAGE: 134

# MATERIAL SELECTION GUIDE

ENTER MATERIAL CODE LETTER IN PART NUMBER



## SOLID TOOLS MATERIALS AVAILABLE:

C=TUNGSTEN CARBIDE WITH 6% COBALT (STANDARD)

Z=ZIRCONIA

N=TITANIUM NICKEL

R=ROCTEC

F=COBALT FREE TUNGSTEN CARBIDE

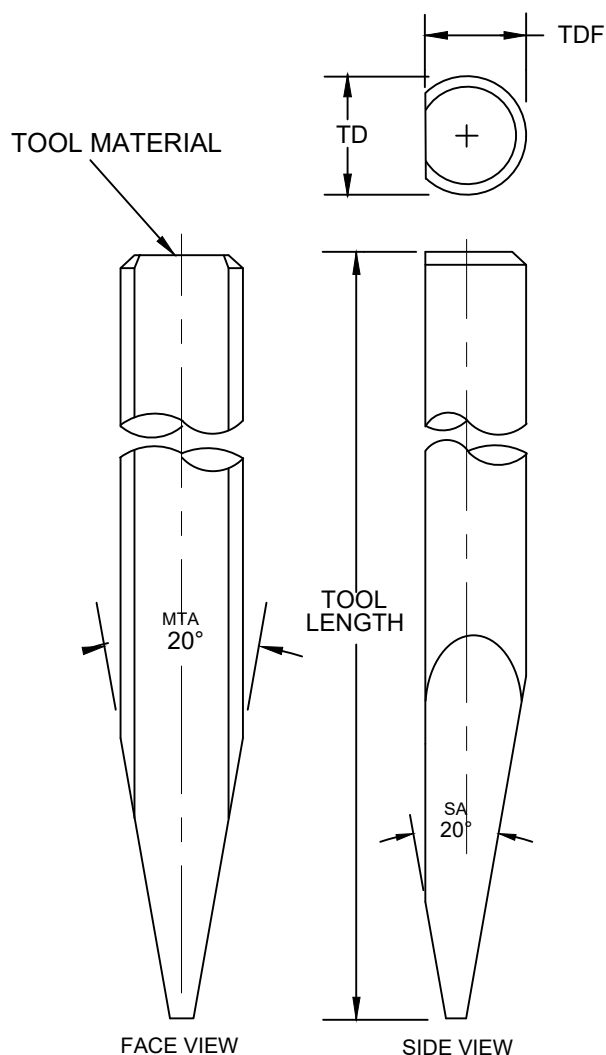
2=G02 2010 MATERIAL

TUNGSTEN CARBIDE WITH 10% COBALT (LESS WEIGHT)

EXAMPLE: 2-GF-100-1-1/8-1-M

TS =SOLID TITANIUM CARBIDE

S =STAINLESS STEEL



## WELDED TOOLS MATERIALS AVAILABLE:

M =CERAMIC TIP ON TUNGSTEN CARBIDE SHANK

L =ZIRCONIA TIP ON TUNGSTEN CARBIDE SHANK

B=TITANIUM DIBORIDE TIP ON TUNGSTEN CARBIDE SHANK

Y=TUNGSTEN CARBIDE TIP ON ZIRCONIA SHANK

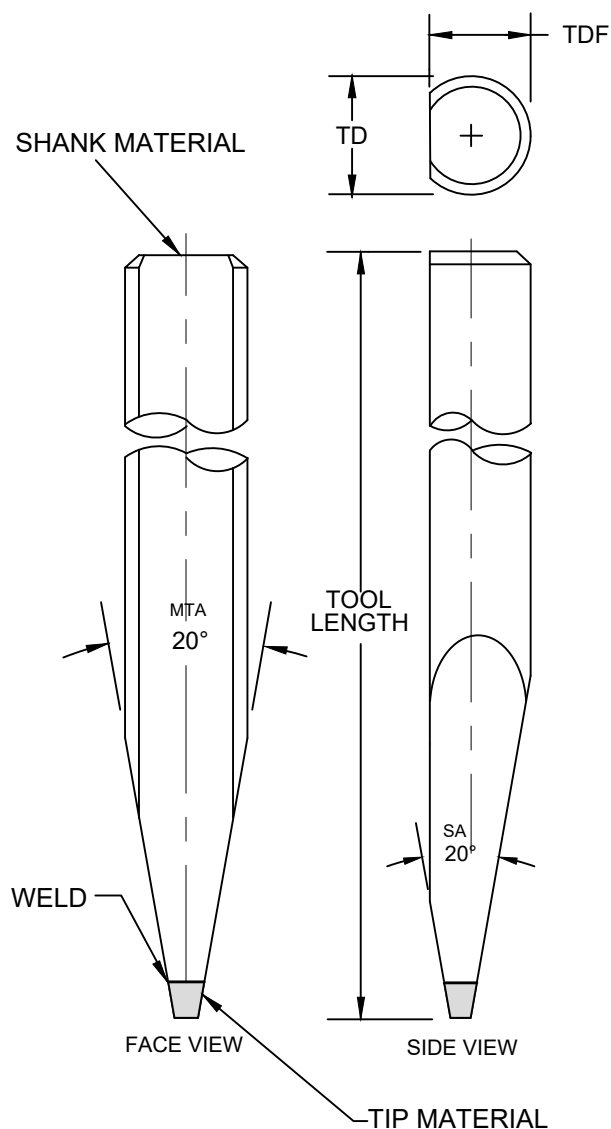
G=CERAMIC TIP ON ZIRCONIA SHANK

J =TITANIUM DIBORIDE TIP ON ZIRCONIA SHANK

I =CARBIDE SHANK, ZIRCONIA INSULATOR, CERAMIC TIP

E=CERAMIC TIP, NON-ELECTRICAL CERAMIC INSERT, CARBIDE SHANK

T=TITANIUM CARBIDE TIP, CARBIDE SHANK

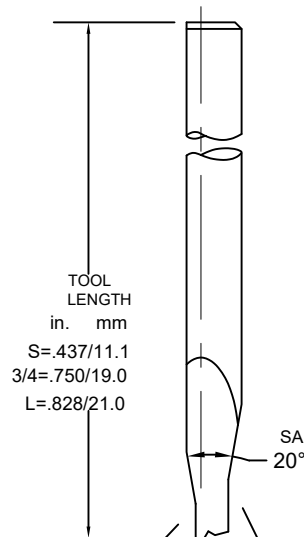
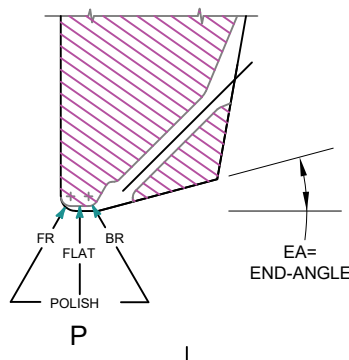
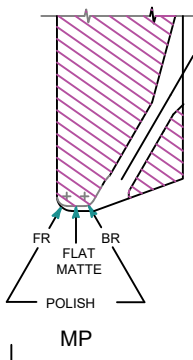
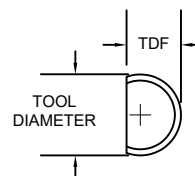
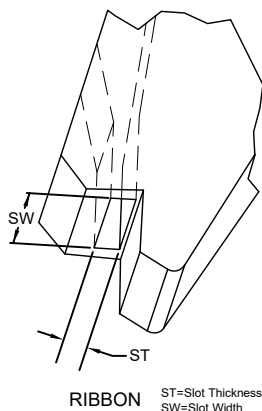
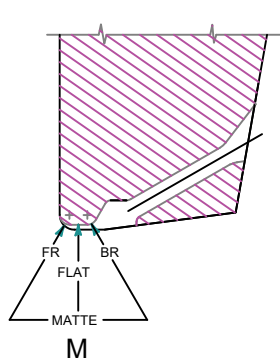


# TOOL CONFIGURATIONS



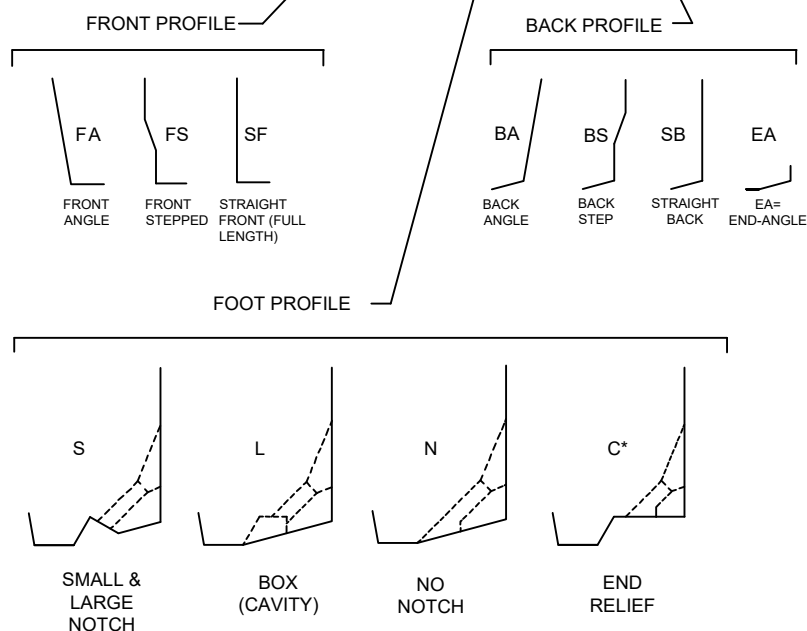
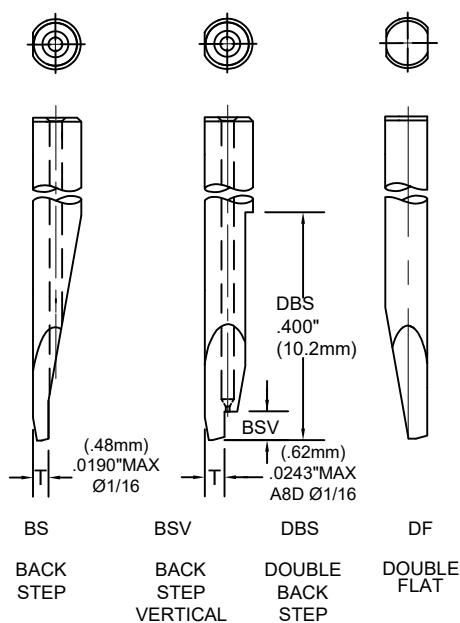
**Note: All drawings and charts are not to scale and only representative of actual sizes**

Shown below are diagrams of the standard tool configurations available. For a better understanding of how these configurations are utilized see Tool Option. Please contact customer service for special configurations or combinations not shown.



**FOOT FINISH**

## VERTICAL FEED STYLES





# GLOSSARY OF TOOL CONFIGURATIONS

Below is a listing of standard configurations for the tools shown in this catalog. This may be used as a quick reference in selecting the tool style to fit your particular bonding needs. Always review the actual tool diagrams from the following pages to ensure a correct choice. For assistance in choosing a tool to solve a particular problem refer to the option (see Tool Option) or contact customer service.

|                           |                             |                               |                        |
|---------------------------|-----------------------------|-------------------------------|------------------------|
| BA=Back Angle             | CM=Center of Mass           | M=Matte                       | SS=Side Step           |
| BC=Back Chamfer           | DBS=Double Back Step        | MTA=Main Taper Angle          | ST=Slot Thickness      |
| BF=Bond Flat              | DF=Double Flat              | MP=FR & BR Polished, BF-Matte | SW=Slot Width          |
| BL=Bond Length            | ELG=Elongated Hole          | N=No Notch                    | TD=Tool Diameter       |
| BR=Back Radius            | EN=End Angle                | P=Polished                    | TDF=Tool Diameter Flat |
| BS=Back Step              | F = Flat                    | R=Regular Notch               | V=Vertical Feed        |
| BSV=Back Step Vertical    | FA=Front Angle              | RR=Right Radius               | VG="V" Groove          |
| C*=End Relief             | FR=Front Radius             | S=Small & Large Notch         | VGC= Chamfer on VG     |
| C=Concave Foot            | FS=Front Step               | SA=Side View Angle            | XCM=Extra Coarse       |
| CBR=Chamfered Back Radius | GW=Groove in Wire Direction | SB=Straight Back              | Matte finish           |
| C/CG= Concave Foot with   | L=Box (Cavity)              | SC=Side Chamfer               | XPBR=Extra Polish Back |
| Cross Groove              | LR=Left Radius              | SF=Straight Front             | Radius                 |
| CG=Cross Groove           |                             |                               |                        |

## SMALL WIRE & LARGE WIRE

| TOOL SERIES | CONFIGURATION | TOOL SERIES | CONFIGURATION |
|-------------|---------------|-------------|---------------|
| AL          | SF BA L       | ALV         | SF BA L V     |
| AN          | SF BA N       | ANV         | SF BA N V     |
| AS          | SF BA S       | ASV         | SF BA S V     |
| C           | SF BS C       | CV          | FS BS C V     |
| CL          | SF BS L       | CLV         | FS BS L V     |
| CN          | SF BS N       | CNV         | FS BS N V     |
| CS          | SF BS S       | CSV         | FS BS S V     |
| KN          | FA BS N       | KNV         | FA BS N V     |
| KNL         | FA BS L       | KNLV        | FA BS L V     |
| KS          | FA BS S       | KSV         | FA BS S V     |

## RIBBON

| TOOL SERIES | CONFIGURATION | TOOL SERIES | CONFIGURATION |
|-------------|---------------|-------------|---------------|
| R           | SF BA S       | RV          | SF BA S V     |
| RCS         | SF BS S       | RCSV        | FS BS S V     |
| RKN         | FA BS N       | RKNV        | FA BS N V     |
| RKS         | FA BS S       | RKSV        | FA BS S V     |
| RN          | SF BS N       | RNV         | FS BS N V     |

## RIBBON - DOUBLE FLAT- VERTICAL FEED

| TOOL SERIES | CONFIGURATION | TOOL SERIES | CONFIGURATION |
|-------------|---------------|-------------|---------------|
| RCSH        | FS SB S       | RKSH        | FA SB S       |
| RKNH        | FA SB N       | RNH         | FS SB N       |

## DOUBLE FLAT - VERTICAL FEED

| TOOL SERIES | CONFIGURATION | TOOL SERIES | CONFIGURATION |
|-------------|---------------|-------------|---------------|
| CLH         | FS SB L       | KNH         | FA SB N       |
| CNH         | FS SB N       | KSH         | FA SB S       |
| CSH         | FS SB S       | KNLH        | FA SB L       |

## OLD SERIES

Large Series **A** is now Series **AS** and large Series **CR** now Series **CS**

For all existing **old** Tools, **still use old Serial Number**  
For all new Tools, **please use new Serial Numbers**

## TOOL SELECTION

### TOOL SELECTION

For every wire size there is a series of tools available from DeWeyl with different bond lengths (BL). Unless the bond pad is the limiting factor, bond lengths of 2½ to 3 times wire diameter are recommended. The longer the bond length, the less critical the bond schedule.

### BOND LENGTH & FOOT WIDTH

The correct bond length for a given job should be as large as the pad and adjacent obstacles will allow. The foot width is restrained by the distance between bonds, yet must be large enough to accommodate some degree of off-center wire flow as well as maximize the bonding area.

### FRONT RADIUS AND BACK RADIUS

The **front radius** effects the rate of transition from the round wire to the flattened area of the bond. In general more gradual transition yields stronger and more consistent bonds, yet larger front radii either decrease the bond length or increase the tip size.

The **back radius** affects the “heel” of the bond. As the back radius is increased the heel is strengthened. The stronger heel aggravates the tail-pulling problem where the wire is broken too far away from the heel. Incorrect termination of the second bond leaves too much tail on the pad and not enough wire under the tool's foot to successfully begin the next bonding sequence. Some back radius is recommended, however, since a back radius of zero produces a “heel-crack” and an unreliable bond.

### HOLE SIZE

Most bonding wedges include a wire feed hole designed to lead the wire directly under the bonding foot. The diameter of the hole is normally about 250% of the wire diameter (applies to small wire .00025 to .0015 only). In most cases this ratio is limiting enough to insure proper wire centering, yet large enough to prevent excessive drag. As the width of the bond foot is decreased, however, a smaller hole (200% of wire diameter) may become necessary to satisfy the more critical wire centering problem.

### WIRE FEED ANGLE

The wire feed angle is varied to accommodate obstacles near the pad which might foul the wire during the bonding operation. Larger wire feed angles increase the length of the hole and increase the drag potential. Two things are done to offset this effect. First, the entry of the hole is countersunk thus dramatically increasing the hole diameter through most of its length and incidentally creating a better target for manual threading. Second, the back edge of the shank near the tip is tapered or machined out. The latter solution implies a modification of the tool's vibration characteristics discussed below. 30°, 45°, and 60° wire feed tools are available. 60° wedges are particularly applicable within high walled ceramic packages where pads are inaccessible to standard 30° and 45° wedges.

### TIP-TO-SHANK RATIOS

Ultrasonic bonding wedges vibrate at ultrasonic frequencies effectively translating mechanical energy from the transducer and the transducer horn to the bonding environment. The amplitude of the tool's vibration at its foot is a ratio of the input (shank) diameter to the output (foot) diameter. Therefore, bonding wedges are designed with varying tip-to-shank dimensional ratios.

A diminished tip dimension as in the case of the DeWeyl 60° Hi-Gain wedge vibrates at a high amplitude which rapidly dampens in contact with the bond surface.

A standard 30° wedge with the same input amplitude, will vibrate at a comparatively lower amplitude but dampens more slowly, presenting the hazard of over-working a delicate bond. In general, larger wire requires more energy to bond than small. Hence stiffer wedges work best as wire size increases.



# The Wire Feed Hole

## The Wire Feed Hole Is Important

The feed hole on the bonding wedge is likely the most critical aspect of the wedge configuration. The feed hole has the responsibility of guiding the wire accurately to the center of the bond foot. The feed hole's most significant contribution is how it defines the looping performance for our customers.

## Looping Performance

What do we mean by looping performance? Our customers use our product to attach wires between two points. This wire needs to have an arc shape in order to prevent shorting on other circuitry within the electronic device. If a wire is laid flat, it would sag down and touch other electrical points in the customer's product. If the wire is shaped into an arc similar to the shape of a bridge spanning a stream, then the wire is stronger, just like the bridge is stronger. This wire shape is what we call the loop profile. The loop profile can be very low or it can be very high for a variety of different reasons. The loop profile will be dictated by the length of the wire, the diameter of the wire and the height difference between the first and second bond. Our customers have to consider all these factors when deciding which wedge to utilize.

## Feed Hole Diameter

There is a very simple guideline to start with when selecting the diameter of the feed hole. Generally speaking, the feed hole diameter will be twice the diameter of the bonding wire. A .001" diameter wire will use a .002" diameter hole. Customers deviate from this general guideline for a variety of reasons.

## Feed Hole Problems

The feed hole plays such a critical role that it can also be the cause of many performance problems. These problems can be very difficult for our customers to resolve quickly because the symptoms can be caused from several different sources. These problems include poor wire feeding, poor looping, wire damage, poor wire termination and difficulty threading the wire. This is why accuracy on the feed hole diameter, the feed hole length, and the funnel depth are extremely critical.

## Feed Hole Wirelock

The feed hole gains control over the wire by producing "wire lock." Wire lock is when the wire cannot slide through the feed hole. The wire is thus "locked" inside the feed hole. Wire lock takes place when the angle of the wire moves significantly away from the angle of the feed hole. In other words, the wire angle and the hole angle need to be at the same angle in order for the wire to freely pass through the feed hole. If the angles of the wire and hole are not the same, then there will be friction on the wire. The greater the angle differential the greater the friction. Eventually the friction is high enough to achieve wire lock. Then the tool is in control of the wire and in control of the loop profile. A couple of feed hole aspects can cause significant wire lock problems. The two primary aspects would be the hole diameter in relationship to the wire diameter, as well as the feed hole length.

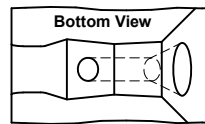
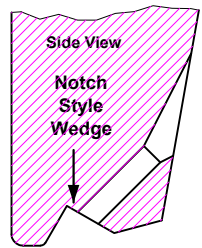
## Feed Hole Length

One of the other factors that contributes to wire lock performance is the length of the feed hole. The length of the feed hole is altered when the depth of the funnel is altered or if the "T" dimension of the tool is modified.

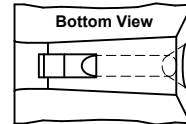
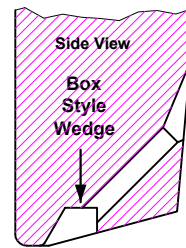
# Wedge Tip Styles



## Manual Wedge



## Automatic Wedge



The DeWeyl product catalog offers a significant variety of tools. The general difference between "Automatic" bonding wedges and "Manual" bonding wedges hinges on the difference between "notch" and "box" style wedges.

## The Notch Style Wedge

We make several variations of the notch style tool. The notch style wedge is designed for use on manual wire bonders. The notch style wedge can be modified with more aggression than the box style.

For example, we can offer a narrower "W" dimension on a notch style because the walls of the box are missing from a notch style tool. Our "CS" series is the best choice for manual wire bonders and is especially useful for our microwave technology customers.

Why is the notch style a poor choice for automatic wire bonding equipment? If you look closely at the sketch of the notch tool you will see how the wire is free to move side to side once it exits the feed through hole. It is this characteristic that prevents the notch tool from being selected for automatic bonding applications. When a manual bonding operator looks through the microscope to place the wire bond he/she will target the wire to the bond pad. Thus, if the wire shifts side to side it does not pose any significant problem with regards to placement accuracy.

However, automatic wire bonders cannot see when the wire shifts from side to side. The auto bonder can only assume knowledge of the center of the wedge and thus attempt to place that wedge center on the center of the bonding pad. Thus, excellent wire centering is needed when operating an automatic wire bonder.

**Notch style wedges:** AS, CS, KS, CSH, KSH, R, RCS, RCSH

## The Box Style Wedge

This tool is best suited for automatic and semi-automatic wire bond equipment. Thanks to the tool design, the wire is contained from side to side movement until just before the bond foot area. This wire control helps keep the wire centered on the tool and offers enhancements to placement accuracy.

We offer many styles of boxed tools. Two examples would be the "CL" series and the other is the "CN" series. The "CL" series offers a bit more looping freedom than the "CN" style. Look closely at the "CN" catalog page and you will notice how the exit of the "CN" style is more restrictive than the "CL" style tool. This restriction can generate more drag on the wire during looping when compared to the "CL" series. Depending on the application, this extra wire drag will either be helpful or problematic.

**Box style wedges:** AL, AN, CL, CN, KN, KNL, CLH, CNH, KNH, KNLH, RKNH, RNH,

Please contact the DeWeyl factory for application specific recommendations.

## Parameters

Ultrasonic bonding wedges are designed to carry high frequency mechanical vibrations together with the wire to discrete positions on a pad where pressure and ultrasonic "scrubbing" create a metallurgical bonding environment.

The satisfaction of all these requirement simultaneously for a full range of applications implies a wide variety of wedge configurations, which vary primarily to allow tool and wire clearance of obstacles on or near the pad. Wedge configurations possess three main design elements: the bonding foot; the hole and wire feed angle; and the tip-to-shank ratio.

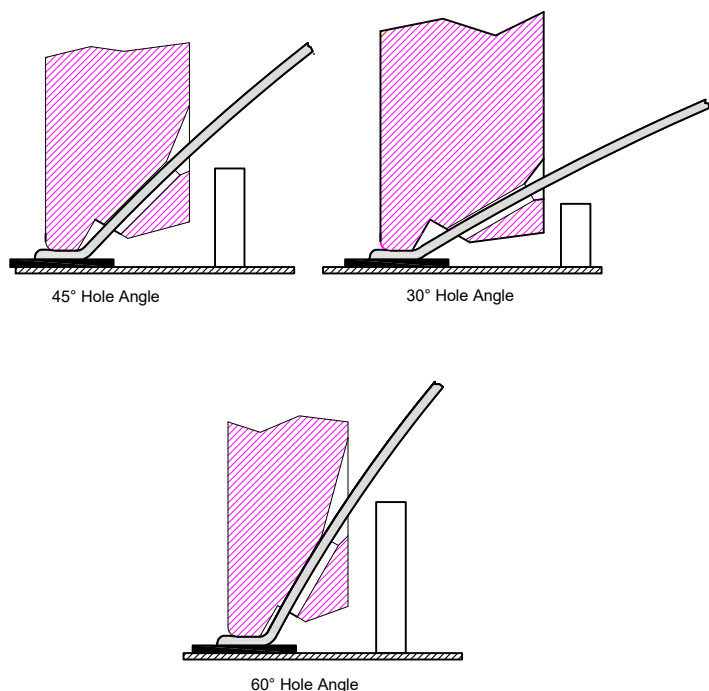
No definite values for the parameters of force, time, and power can be given for an optimum bonding schedule because of different wire bonding surfaces, semiconductor die, and package characteristics.

The general guideline for establishing optimum bonding is that the bonding parameters be adjusted so that reducibility is maximum yet high bond pull strength is maintained.

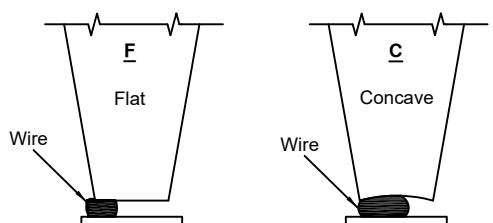
## Dimensional Variables

Bonding wedge dimensions vary primarily to permit access of the tool and wire to tightly confined points on the pad.

The overall tip length and width, and the tip clearance dimensions are important considerations in the selection of a wedge for a given task .



## Profile



-- FIG. 5 --

The face of the bonding foot may be flat concave, the latter being the most widely accepted configuration. The concave face creates an inward force component which keeps the wire toward the center of the foot. Flat faced wedges present the possibility of off-center bonds in which wire material is squeezed off to the side.

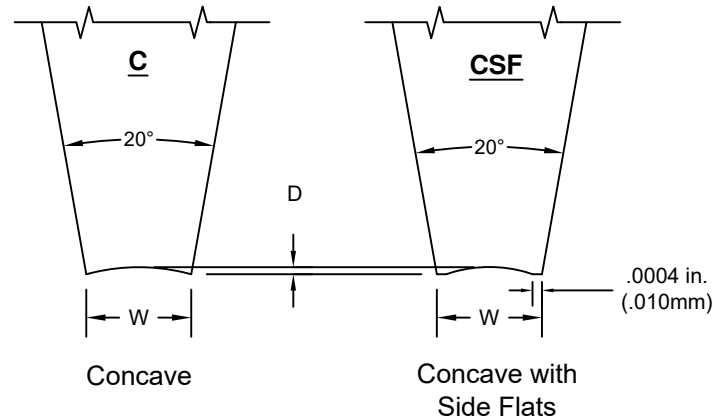
### Wire Diameter:

Wire size is selected on the basis of device requirements and bonding pad size. One mil AL, 1 % Si wire is used in most devices; however, usage of 1¼ mil diameter is growing.

**Elongation:** Low elongation ( $\frac{1}{2}$  -  $1\frac{1}{2}$ ) is normally required so the wire may be broken after the second bond. Too great elongation results in excessive rebonding.

**Tensile Strength:** Relatively hard wire is needed for small diameter wire ( $< 2$  mil) with tensile strength ranging from 15-19 grams for 1 mil and 19-21 for ¼ mil. Higher tensile strength (harder) may fracture silicon (cratering), under the bond. Lower tensile strength (softer) wire reduces the range of bonding schedules.

## Concave Bonding Wedges



The Concave Bonding Wedge is offered for customers using small diameter aluminum bonding wire. Small diameter wire is generally viewed as wire that runs between .001" dia. Up to .002". Aluminum wire (small) is offered in the following diameters. .001", .00125", .0015" and .002". Anything over .002" diameter is usually considered a large wire application.

Additionally, the Concave Bonding Wedge is used for bonding aluminum wire, because the arch at the back of the bond foot offers additional material thickness, and thus strength for the wire. Aluminum wire is very brittle and needs this additional thickness to minimize the chance that the aluminum wire could easily break at the heel of the bond foot.

## Concave With Side Flats

This tool is identical to the "Concave" tool and is used for the same reasons. However, occasionally we will have a customer using gold wire with the concave style tip. As a result, the outside edges of the wedge may contact the bonding surface when the bonding wire is deformed. To prevent the tool contact on the edges, we offer side flats to give extra clearance, thus eliminating the tool contact to the bonding surface.

## THE CSF BONDING TOOL

Greatly extended tool life and improved “pull strength” are the principal attributes of the newly developed CSF Bonding Tool. Extensive testing at numerous semiconductor plants indicate an expected tool life 300% to 500% above that experienced using concave tools. Comparative pull test data show an increase in average bond strength with an accompanying decrease in standard deviation.

Photograph No. 1 illustrates the highly polished side flats which minimize edge erosion and protect both tool and die in the event of accidental contact.

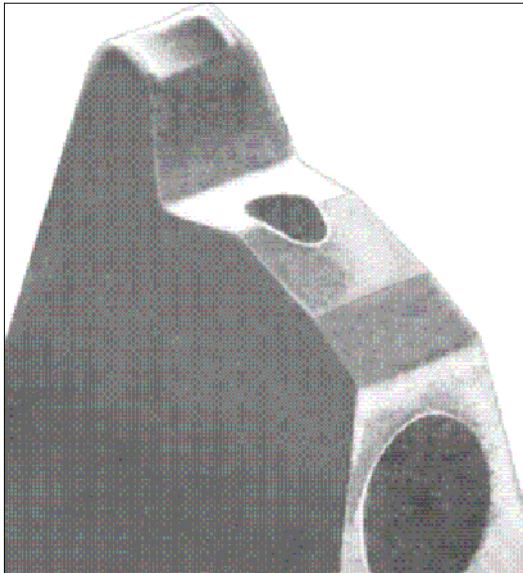


Photo 1. DeWeyl CSF Ultrasonic Bonding Tool  
This photo shows are CS-Series with a A6 option

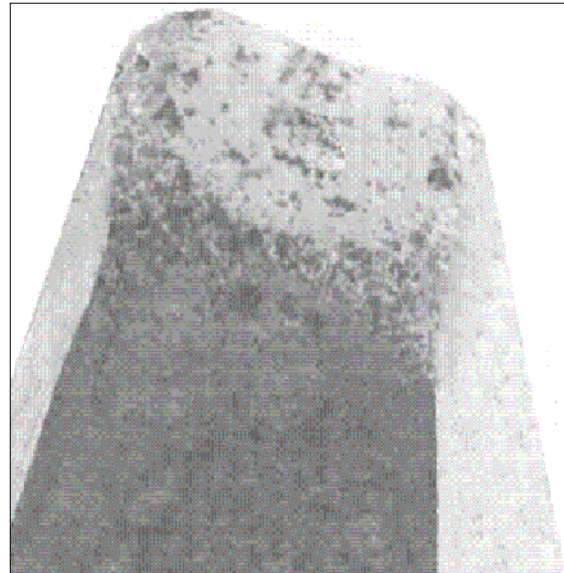


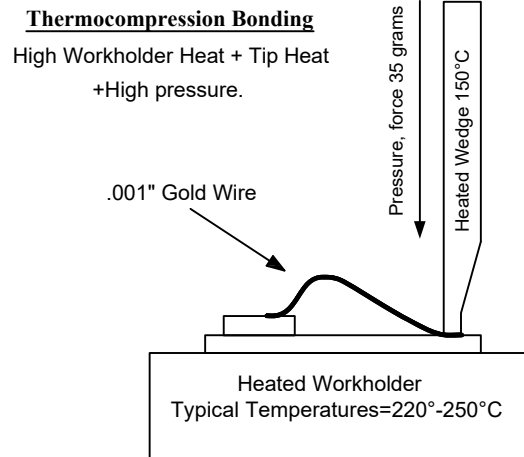
Photo 2. Typical concave Ultrasonic Bonding Tool after 100,000 bonds

### THE CSF BONDING TOOL

- EXTENDED TOOL LIFE
- HIGHER BOND STRENGTHS
- LESS BOND DOWN TIME
- LOWER COST PER BOND

Photograph No. 2 shows a standard concave tool after 100,000 bonds. The sharp edges have started the normal breakdown process. Micro-chipping will swiftly progress to ultimate tool failure—the typical wear-out mode of both concave and flat tool geometries.

## Thermocompression Bonding

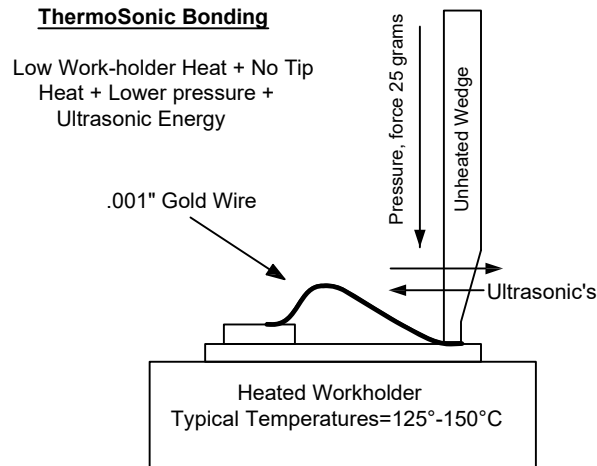


The microwave industry primarily uses a method called "thermocompression bonding" on gold wire.

Thermocompression bonding is used for bonding gold wire with heat, pressure and time. No ultrasonic energy is applied to the bond wire. This bonding process requires elevated temperatures during the bonding process when compared to "thermosonic bonding".

The heat is supplied by a heated workholder, which holds the part being bonded. The bonding wedge is usually heated as well. The bonding machine supplies the pressure as it pushes down the wedge onto the wire. The time or duration is how long the bonding wedge sits on the wire.

# ThermoSonic Bonding

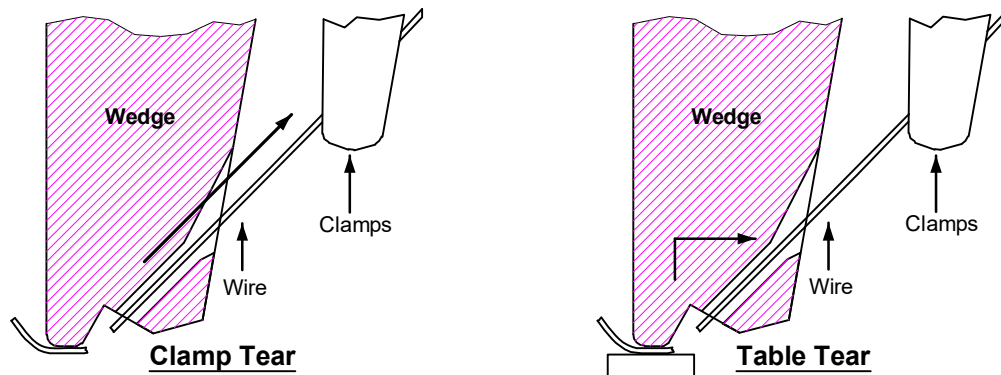


Thermosonic bonding is used for bonding gold wire with less heat, less pressure and less time, when compared to the thermocompression technique. This bonding process allows reduced temperatures during the bonding process.

The addition of ultrasonic energy is what allows all of the reductions in heat and pressure. The lower heat is still supplied by a heated workholder, which holds the part being bonded. The bonding wedge is usually unheated. The bonding machine supplies the lower pressure as it pushes down the wedge onto the wire. The time or duration is how long the bonding wedge sits on the wire and this time requirement is typically reduced as well.

The ultrasonic energy results from a mechanical vibration of the wedge at a standard frequency of 63khz. New high frequency systems offer frequencies of 110-120Khz. The ultrasonic vibration of the wedge is what allows all the reduction in forces and temperatures, and scrubs the bonding wire into the metal interface.

## Wire Termination Methods



There are two basic methods that wire bonding equipment use to terminate the wire bond. The first is called clamp tear and the second is called table tear.

### Clamp Tear

Just like it sounds, the wire bonding machine uses a set of clamp blades to clamp on to the wire immediately after the last wire bond contact is made and the clamps actually move back and pull on the wire with enough force to break the wire. This wire clamp movement must be done while the bonding wedge is in contact with the wire. The tool is pressing down on the wire while the clamps are pulling on the wire.

This sequence is very important. If the wedge is not holding the pressure down on the wire, the clamp pull force would likely lift up the already bonded wire connection. How does the wire know where to break? The wire will break at its weakest point. Where is that weakest point? If we assume that the correct bonding wedge is used, the weakest location will be at the back radius of the tool. This semi-sharp portion of the tool is designed to weaken the wire strength and allow for the wire to break at a predictable location. Many manual machines and a some automatic wire bonders use this technique to terminate the wire.

### Table Tear

This method still utilizes a set of clamp blades, however the clamps only clamp on the wire and do not have a motion to pull back on the wire. Instead, the wire bonding machine lifts up the wedge after the last bond is complete. This lift elevation is extremely low and is measured in just a few thousandths of an inch. After the tool lifts from the surface, the table moves such that the tool steps back and as a result breaks the wire.

Once again, how does it know where to break? The back of the bond foot has been weakened by the back radius design of our wedge. As a result of the semi-sharp back radius, the wire breaks at the desired location.

Since this wire termination method requires some motorized table movement, it is almost exclusively used on automatic wire bonders. The automatic equipment engineers like to use this method out of consideration for bonding speed. They can perform a table tear method faster than trying to perform a clamp tear sequence, because every fraction of a second is considered.

## VERTICAL FEED / DEEP ACCESS

### OPTIONS FOR DEEP ACCESS APPLICATIONS

DeWeyl Tool has the wedge technology solution for all application needs. The following highlights a few of our many product offerings. Please refer to the Tool Options page for other design solutions to common problem situations that can occur during normal bonding applications.

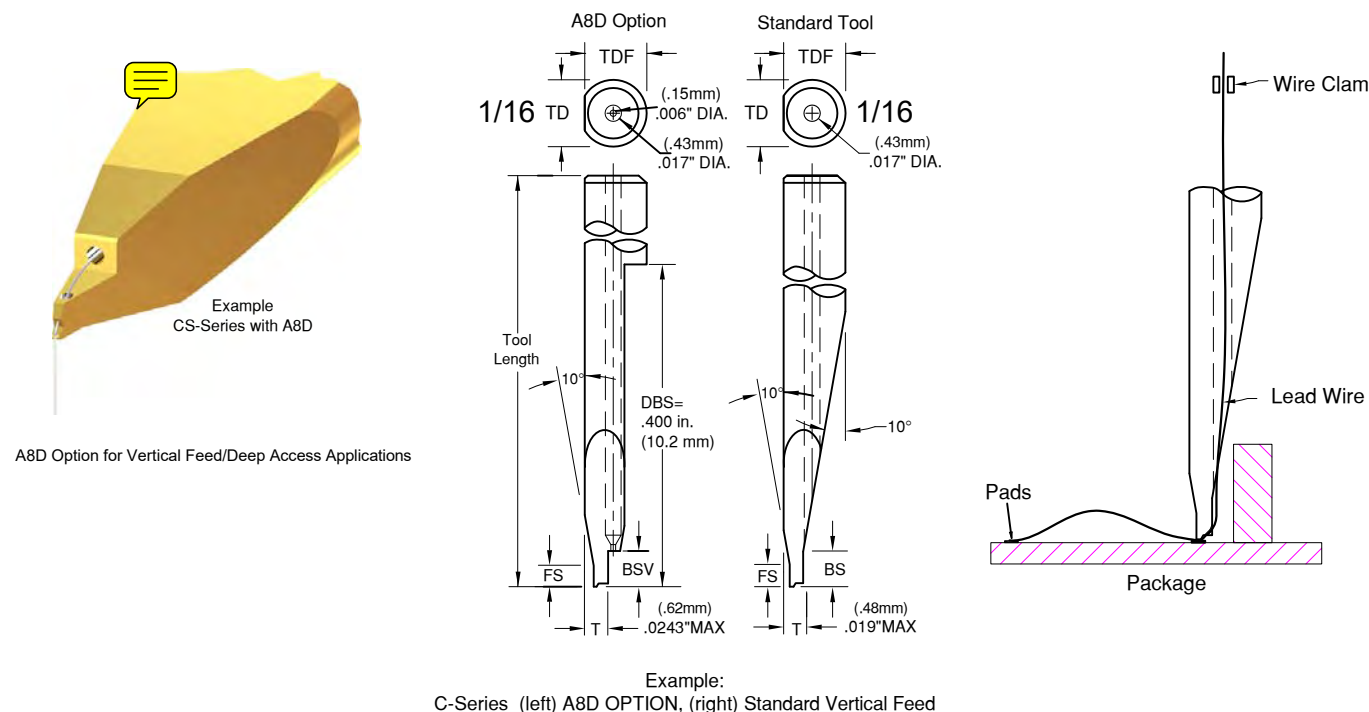
### VERTICAL FEED / DEEP ACCESS

DeWeyl Tool continues to offer the industry's first high technology bonding wedge for deep access applications, as well as for standard wire feed angles. Our Vertical Feed/Deep Access bonding wedges offer significant solutions in maintaining maximum looping and tail control.

Our product line includes a wide selection of Vertical Feed/Deep Access bonding tool solutions for manual, semi-automatic and automatic bonding equipment. A minimum of three material choices are available for your consideration: Tungsten Carbide, Titanium and Ceramic. Additionally, our vertical feed bonding wedges are offered with 45 degree, 52 degree and 60 degree feed hole angles.

DeWeyl Tool understands that today's complex Vertical Feed applications require gold bonding of .0007" diameter wire. Our extensive micro-machining experience has allowed the development of wedges for eve .0005" diameter wire, utilizing bond lengths of .0005" and feed holes of .001".

The DeWeyl Vertical Feed tools, along with their basic design specifications, are indicated accordingly within our online and PDF catalogs. Please visit the appropriate wedge style category for your specific needs, or consult your local representative or the DeWeyl factory to discuss your application requirements.



DeWeyl has developed an exclusive design for the Vertical Feed/Deep Access applications identified as the "A8D" option. This feature maintains maximum control during the looping and feeding operations of your equipment, and is highly recommended for maximum Vertical Feed/Deep Access performance. Please pay particular attention to the "Problem and Solution" drawings on the Tool Options page.

**Note:** The A8D option is not suitable for use with **F&K Delvotec** and **Hesse Mechatronics** machines.

## TECHNICAL DATA

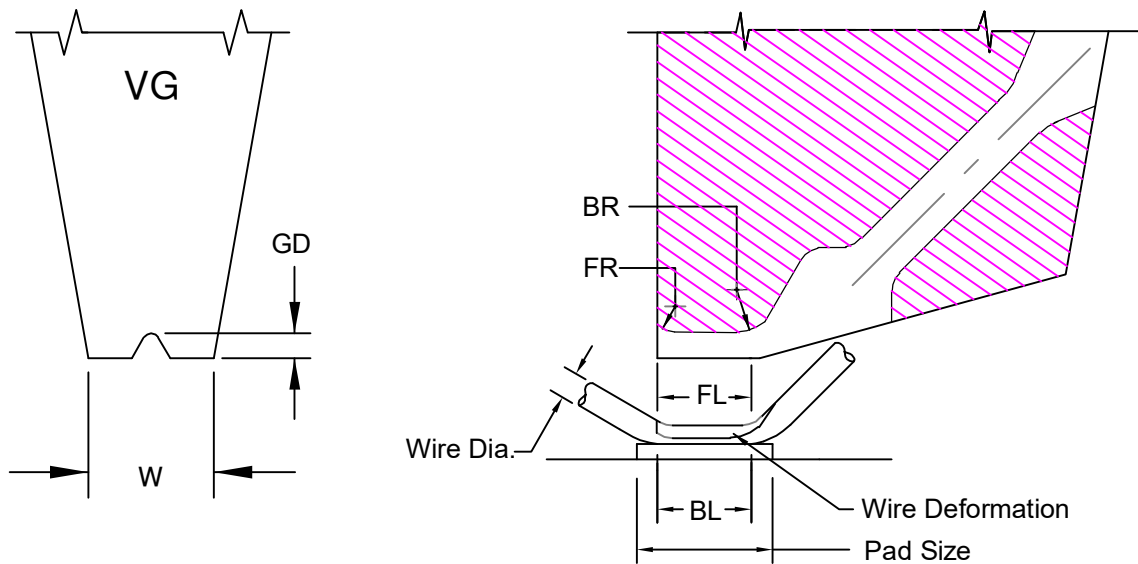
### "V" GROOVE BOND LENGTH ILLUSTRATION

In this illustration we are showing a "V" Groove bonding foot for larger wire, .003 through .0160 Notice that the FL (Foot Length) and the BL (Bond Length) are the same dimension. When choosing a tool size use the following bonding formula:

70% of the FR (Front Radius) plus the BF (Bond Flat) plus 35% of the BR (Back Radius) equals the BL (Bond Length).

Example:  $.70 (.002 \text{ FR}) + .0021 \text{ BF} + .35 (.007 \text{ BR}) = .006 \text{ BL}$

For this size bond length you may need a pad size of .0075 using 80% coverage of bond pad in wire direction. In this case the tool size you would choose from our dimension chart for .003 diameter wire would be 4560. Again, the sizes on our chart are the most common, but you may choose any size using this formula.



On "V" Groove Tools the Foot Length (FL) equals Bond Length (BL).

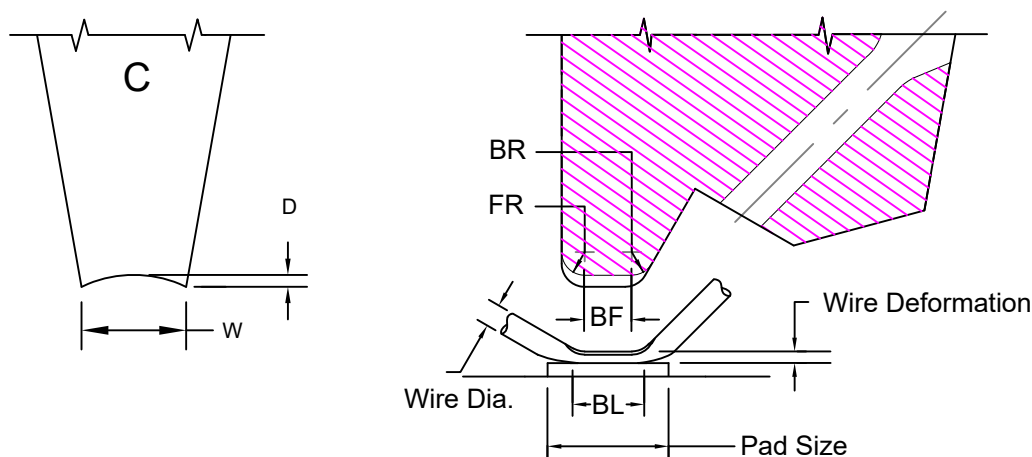
## TECHNICAL DATA

### SMALL WIRE BOND LENGTH ILLUSTRATION

We are showing our style of Concave tool in the Small Wire Illustration with instruction on how to determine bond length and how the bond would look. Bond length is the bottom surface of the wire that is bonded to the chip. We calculate the bond length by adding the bond flat dimension plus **1/3 of the FR (Front Radius) dimension plus 1/3 of the BR (Back Radius) dimension**. So when trying to decide what tool size to choose, find the smallest pad size within the package and multiply 50% to 70% times the pad size in the wire direction. One concern here is to understand how much space you need for targeting your wire onto the bonding pad. Some operators need less space than others. If this is the case then you may want to use a larger % basis to determine a larger bond length. The tool sizes shown in our catalog are the most common but you may select any size that is not shown by using this formula.

Example: 50% x .002 (pad size) = .001 (bond length)

For .0007 wire your selection for tool size would be 1510.



$$\text{Bond Flat (BF)} + \frac{1}{3} \text{ Front Radius (FR)} + \frac{1}{3} \text{ Back Radius (BR)} = \text{Bond Length (BL)}.$$

#### Front Radius and Back Radius

The front radius and back radius of the bonding tool can sometimes seem like something rather insignificant. But actually, the proper selection of radii, especially the back radius, is very important to the strength of the wire bond system. The FR and BR need to be modified based on the type of wire being bonding, i.e. gold or aluminum. You must also consider the wire size when deciding the size of the radius. Generally speaking, gold wire will use a smaller back radius to help cut the wire cleanly. Aluminum wire is harder and more brittle. It needs to have a smoother radius to prevent cracking of the wire.

**Front Radius (FR)** The front radius of the bond tool needs consideration on the second bond. The first bond does not matter much with regard to the front radius. The front radius' main job is to offer a smooth and gentle transition between the bond flat and the wire diameter at the second bond contact. The most common choices for the **front radius on .001" diameter wire is FR= .001" for both aluminum and gold wire.**

**Back Radius (BR)** The back radius is the critical radius. If this is selected incorrectly an aluminum wire may break very easily or a gold wire may not terminate properly. The most common choices for the **back radius on .001" diameter wire is BR= .001" for aluminum wire and BR= .0005" for gold wire.**



## ULTRASONIC GOLD WIRE AND RIBBON BONDING

### Deep Access-Vertical Feed Applications

DeWeyl Tool Company continues to offer the industries first high technology bonding wedge for “deep access” applications as well as standard wire feed angles. DeWeyl's “deep access” or “vertical feed” bonding wedges offer significant solutions in maintaining maximum looping and tail control. DeWeyl vertical feed bonding wedges are offered with 45°, 52° and 60° feed hole angles. Common bonding wedge materials such as Tungsten Carbide and Titanium Carbide have exhibited specific performance limitations thus DeWeyl Tool Company developed the industries first ceramic tip-bonding wedge.

DeWeyl's ceramic tip bonding wedge offers a unique and enhanced surface texture. This surface texture allows optimum ultrasonic coupling with the wire structure. This results in a superb *tool to wire* interface and thus efficient ultrasonic energy transfer. The DeWeyl ceramic tip wedge offers impressive benefits for gold wire, aluminum wire and gold ribbon ultrasonic applications. Here are some of the reported advantages when using DeWeyl's ceramic tip wedge:

- ❖ INCREASED BOND ADHESION
- ❖ INCREASED PULL TEST RESULTS
- ❖ ULTRASONIC OUTPUT REDUCTION
- ❖ EXTENDED WEDGE LIFE
- ❖ IMPROVED BOND DEFINITION
- ❖ GOLD BONDING AT AMBIENT TEMPERATURES

In addition to the ceramic tip wedges, DeWeyl has developed an exclusive design for the “vertical feed” applications identified as the “A8D” option. This feature maintains maximum control during the looping and feeding operations of your equipment. It is highly recommended for maximum vertical feed/deep access performance.

**Note:** The A8D option is not suitable for use with **F&K Delvotec** and **Hesse Mechatronics** machines.

In order to take full advantage of the ceramic tip tool on ultrasonic gold wire applications we recommend using 0.5-2% wire elongation. This wire elongation will offer the best response to the ultrasonic energy. However, some applications may find acceptable performance from 1-3% wire elongation. Thick film applications may find additional advantages in using a cross-groove style bonding tip in addition to the ceramic material.

DeWeyl Tool Company understands that today's complex vertical feed applications require gold bonding of .0007” diameter wire. Our extensive micro-machining experience has allowed the development of wedges for even .0005” diameter wire, utilizing bond lengths of .0005” and feed holes of .001”. Please do not hesitate to consult your local representative or call the factory direct to discuss your application requirement. DeWeyl Tool Company has the wedge technology solution for your application.

# ULTRASONIC BONDING

## PROCESS

Ultrasonic wedge bonding presents an alternative to thermo-sonic and thermo-compression bonding techniques.

The key difference between the two is that the latter employs heat energy, while ultrasonic bonding uses mechanical energy together with pressure and time to effect a bond.

The ultrasonic technique is applicable with materials of low heat tolerance, and particularly, to the bonding of aluminum wire. Ultrasonic bonding to date, is the most successful and proven method for work with aluminum.

In the ultrasonic bonding process, a metallurgical bond is achieved through the proper transmittal of ultrasonic energy under pressure to the bond interface. Consistent and reliable bonding requires optimized parameters as illustrated in the following paragraphs. The parameters to consider are power, clamping force (pressure), time, mating of tool geometry with wire, and bonding pad and package condition.

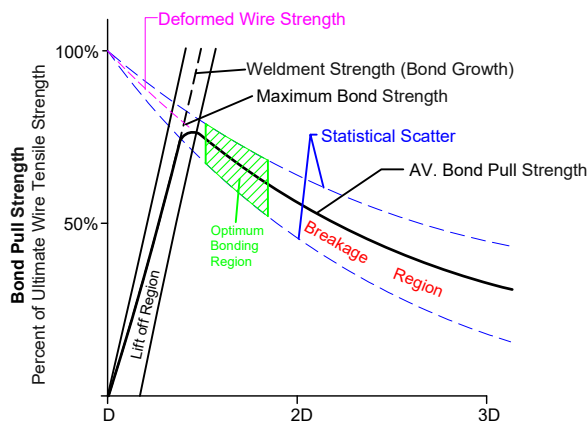
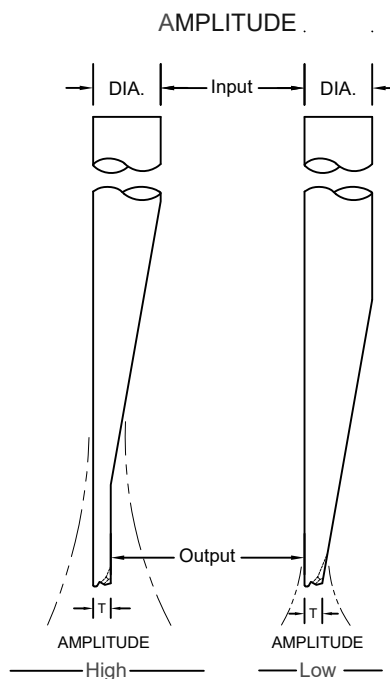
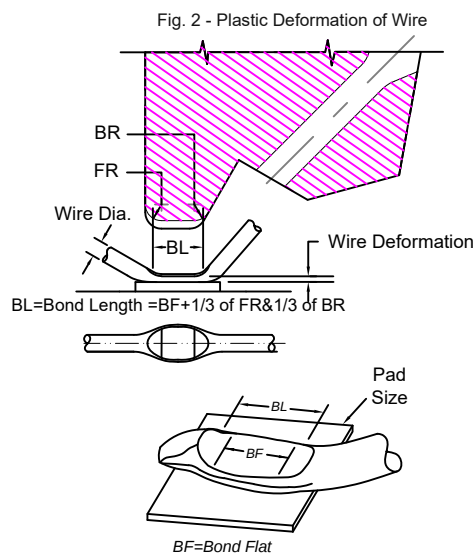


Fig. 1 - Bond Pull Strength vs. Deformed Width or Ultrasonic Power

Figure 1 shows the relationship of the bond pull strength in percent of ultimate wire tensile strength to the deformed width of the bond (see Fig. 2). Three sets of curves of bond pull strength versus power, time, or clamping force can be obtained by varying one of these parameters while holding the other two constant at their optimum. Each curve is similar to, and can be related to, the curve of bond pull strength versus wire deformed width.

As each parameter is increased, the weldment grows stronger in lift off strength through bond growth. At the same time, due to wire deformation, the transition from the wire into the weldment becomes weaker. The failure mode changes from weldment failure (lift off) to wire breakage failure. Maximum pull strength is at the intersection of the two failure modes. Lowest reproducibility is within the lift off failure mode and within the breakage failure mode after the deformed width exceeds two times the wire diameter. Highest reproducibility is within the breakage failure mode, directly after, but less than the maximum pull strength.



## **CERAMIC**

Introducing the newest technology in gold wire and ribbon bonding.

DeWeyl has always strived to bring the finest line of wedge type bonding tools to the industry and has done so for more than thirty years.

Now we bring a new ceramic material to the industry that has more superior bonding qualities than any other material on the market today. This new material is a type of silicon nitride specially selected for our great line of tools. We researched this area quite extensively until we found just the right matrix.

Now you have a new material selection and, as always DeWeyl quality, which, when matched with our new designs give you a precision made, superior quality bonding tool that we call our SUPER TOOL.

If you have any questions please be encouraged to call

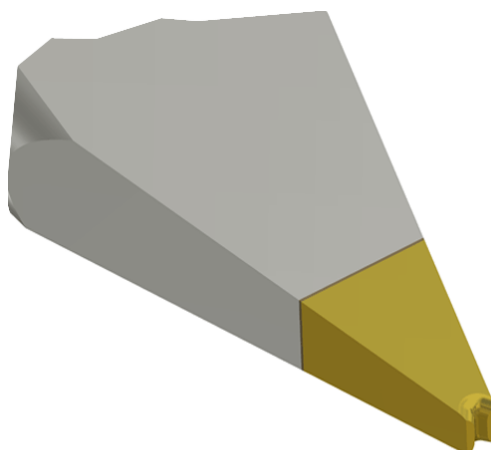
our customer service department.

1-800-821-8665

1-707-765-5779

[info@deweyl.com](mailto:info@deweyl.com)

## The Ceramic Advantage



### Why Ceramic?

DeWeyl Tool developed the industry's first Ceramic tip bonding wedge, because common bonding wedge materials such as Tungsten Carbide and Titanium exhibited specific performance limitations.

The ceramic material is bonded to a tungsten carbide shank utilizing, once again, a process developed and mastered by DeWeyl Tool. And, while designed primarily for ultrasonic bonding of gold wire, many customers have reported tremendous tool life while bonding aluminum wire with very little aluminum build up on the bond flat. Please refer to the [Recommendations](#) page for further details.

### BENEFITS

Our Ceramic tip wedge offers impressive benefits for both gold wire, aluminum wire and gold ribbon ultrasonic applications. It also has a proven track record on both production and R&D products. Here are some of the reported advantages when using our Ceramic tip wedge:

- Increased Bond Adhesion
- Increased Pull Test Results
- Ultrasonic Output Reduction
- Extended Wedge Life
- Improved Bond Definition
- Gold Bonding at Ambient Temperatures
- Improved Production Yields

### ULTRASONIC EFFICIENCY

One of the most significant benefits of the DeWeyl Ceramic wedge is the excellent tool to wire interface. The ideal ultrasonic bonding wedge allows for zero tool slippage while in contact with the wire and during the application of ultrasonic energy. If the tool has zero slippage then the ultrasonic transfer of energy is operating at 100%. This is the value of the Ceramic wedge. The naturally porous structure of the Ceramic offers a surface texture that couples with the wire giving optimum ultrasonic transfer. This efficiency in transfer allows for a reduction in ultrasonic power and time levels, which results in a superb tool-to-wire interface and thus efficient ultrasonic energy transfer. Difficult applications due to low bonding temperature or contaminated bond surfaces are made easier with the use of the Ceramic tool.

### ECONOMICAL

The standard angle feed Ceramic wedge (non vertical feed) costs only 8% more than the cost of titanium. And the cost of a vertical feed Ceramic tool is only 18% more expensive than the cost of titanium. The additional cost for ceramic becomes very economical when DeWeyl customers understand that the life expectancy of Ceramic is 2-3 times greater than other available materials. The net cost per bond thus is significantly lower with the Ceramic wedge.

# The Ceramic Advantage

## CLIENT RECOMMENDATIONS / TESTIMONIALS

Since 1969, DeWeyl Tool has provided some of the best and most reliable wedge bonding tools in the industry. Our customer list is extensive – from well known research universities to high volume manufacturers overseas. No matter if you are looking for 1 tool or 50,000 per year, give us a call or email us. While we have an extensive listing of tools and combinations on our web site, we also provide custom configurations to meet all of your bonding needs.

### CLIENT RECOMMENDATIONS GOLD WIRE

Many customers have discovered that gold wedge bonding at room temperature is dramatically enhanced by utilization of the ceramic wedge.

### BONDING ALUMINUM WITH CERAMIC TIP

The Ceramic wedge tool is primarily designed for ultrasonic bonding of gold wire. However, many customers have reported tremendous tool life while bonding aluminum wire with very little aluminum build up on the bond flat. To reap the rewards of using our Ceramic tool you will need to follow a few recommendations. Use .5 to 2 percent wire elongation. You can also use 1 to 3 percent elongation with good results. If you use 3 to 5 percent elongation, results will be over-bonding because the wire is too soft. Next use very low channel settings to start with as well as low heat since our ceramic material has excellent coupling features and produces a very efficient bonding scrub. Then increase your power and heat if needed until you obtain the desired results. If you are bonding to thick film you probably will require a Cross Groove style tip to obtain more scrubbing action.

### CLIENT TESTIMONIALS

In a recent survey, we collected input from Customers, Equipment Manufacturers and DeWeyl Reps. Following is some of the feedback we received:

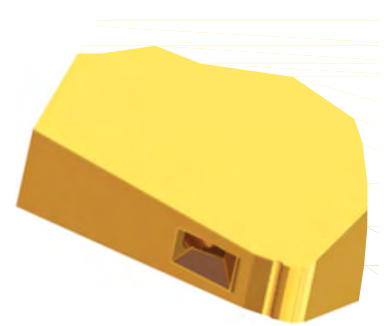
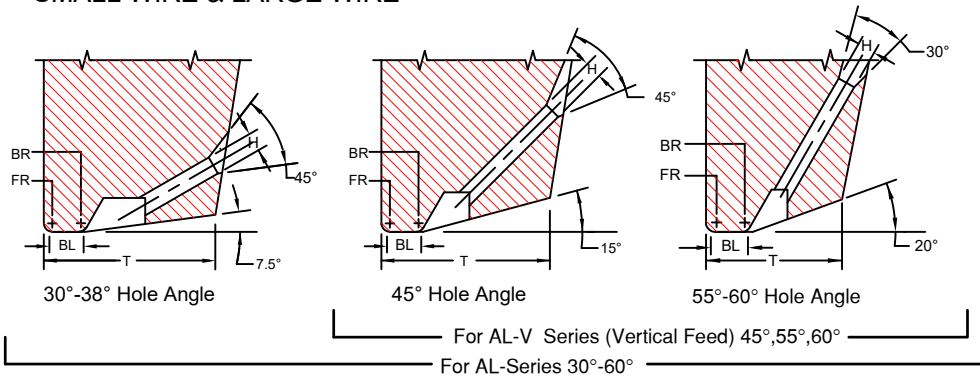
- "Even though I only needed at most a half dozen wedge tools, the customer support treated me as though I had ordered a thousand or more; I felt I mattered to them."
- "You had what we needed and we received our product in a timely manner."
- "Customer Service always made our quote and ordering process very quick and easy."
- "We once compared the bonding characteristics of DeWeyl ceramic with (competitor) ceramic; DeWeyl ceramic performed better. "
- "Very good tool for Au and deep access applications."
- "The best in your industry!"
- "The R&D Director is quite happy with the wedge tool (as) he is having a problem with others."
- "Easy to do custom orders."
- "We are extremely happy with the tools."
- "We use the A8D option and we are extremely pleased with the tool."



# SERIES AL & AL-V

## SMALL WIRE & LARGE WIRE

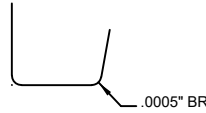
FOR AUTOMATIC BONDERS



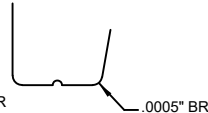
Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

FLAT



CROSS GROOVE



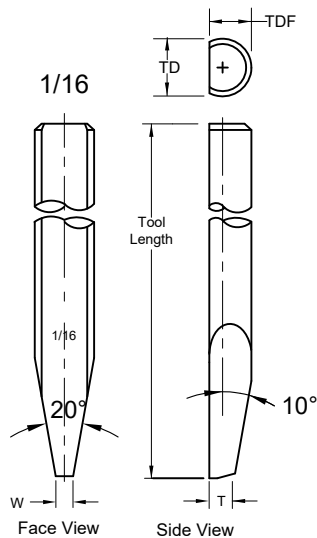
We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### AL-SERIES SMALL WIRE

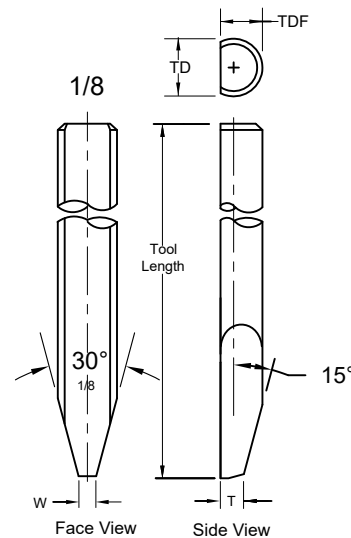
.0005" through .0020" wireØ

### AL-SERIES LARGE WIRE

For wire diameters .0030" through .0160"

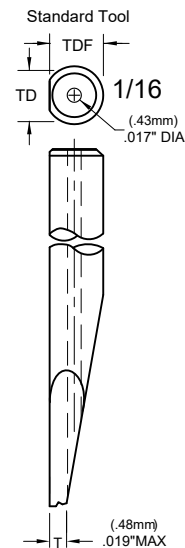


Standard: Ø 1/16, 45° Hole Angle

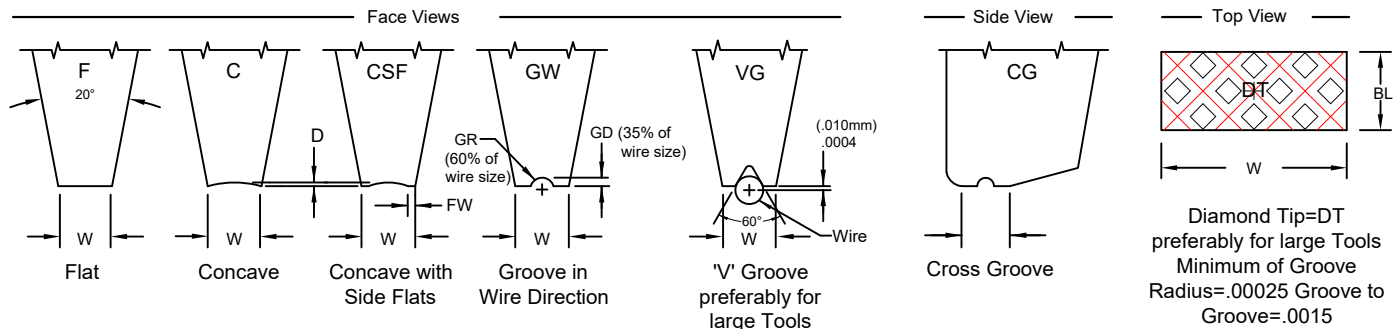


### AL-V SERIES VERTICAL FEED DEEP ACCESS

.0005" through .0020" wireØ



Standard: Ø1/16 45° Hole Angle



# SERIES AL & AL-V

## SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: **M-AL-O-X-1/16-1-45-CG-2020-M-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

1. MATERIAL: \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. SERIES: AL \_\_\_\_\_

3. WIRE FEED: O = Standard Feed \_\_\_\_\_  
V = Vertical Feed \_\_\_\_\_

4. FRONT/BACK RADIUS: See Radius Option Chart \_\_\_\_\_  
\*For special Radius sizes insert an X Please specify FR/BR

5. SHANK DIA.: Please Specify Diameter \_\_\_\_\_

6. TOOL LENGTH: Please Specify Length \_\_\_\_\_

7. HOLE ANGLE: for AL (30°, 38°, 45°) \_\_\_\_\_  
for AL-V (45°)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-AL-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

(11) See Tool Option

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat) Polish  
P = finish (FR, BR, & Bond Flat) Polish finish  
MP = (FR, BR), and Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |

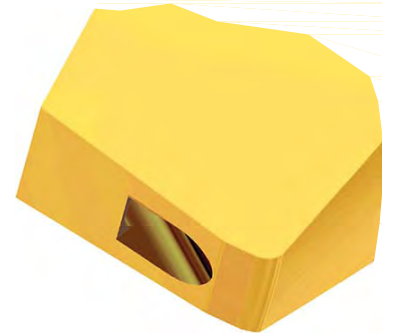
For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |        |     |        |     |        |      |           |      |        | AL SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |      |                           |              |  |  |  |  |  |
|----------------|--------|-----|--------|-----|--------|------|-----------|------|--------|---------------------------------------------------------|--------|------|---------------------------|--------------|--|--|--|--|--|
| TS             | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45°) |                                                         | W      |      | SUGGESTED WD              |              |  |  |  |  |  |
| Units          | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.    | μ                                                       | in.    | μ    | in.                       | μ            |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005 | ±13                                                     | ±.0005 | ±13  | in.                       | μ            |  |  |  |  |  |
| 1505           | .0015  | 38  | .0005  | 13  | .0002  | 5    | .0140     | 356  | .0110  | 279                                                     | .0025  | 64   | .0005<br>through<br>.0007 | 13<br><br>18 |  |  |  |  |  |
| 1507           | .0015  | 38  | .0007  | 18  | .0002  | 5    | .0140     | 356  | .0110  | 279                                                     | .0025  | 64   |                           |              |  |  |  |  |  |
| 1510           | .0015  | 38  | .0010  | 25  | .0002  | 5    | .0140     | 356  | .0120  | 305                                                     | .0025  | 64   |                           |              |  |  |  |  |  |
| 1513           | .0015  | 38  | .0013  | 33  | .0002  | 5    | .0140     | 356  | .0120  | 305                                                     | .0025  | 64   |                           |              |  |  |  |  |  |
| 1515           | .0015  | 38  | .0015  | 38  | .0002  | 5    | .0150     | 381  | .0120  | 305                                                     | .0025  | 64   |                           |              |  |  |  |  |  |
| 1520           | .0015  | 38  | .0020  | 51  | .0002  | 5    | .0150     | 381  | .0130  | 330                                                     | .0025  | 64   |                           |              |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | 0.0005    | 12.7 | ±.0005 | ±13                                                     | ±.0002 | ±5   |                           |              |  |  |  |  |  |
| 2010           | .0020  | 51  | .0010  | 25  | .0002  | 5    | .0160     | 406  | .0140  | 356                                                     | .0040  | 102  | .0007<br>through<br>.0010 | 18<br><br>25 |  |  |  |  |  |
| 2015           | .0020  | 51  | .0015  | 38  | .0002  | 5    | .0160     | 406  | .0140  | 356                                                     | .0040  | 102  |                           |              |  |  |  |  |  |
| 2020           | .0020  | 51  | .0020  | 51  | .0002  | 5    | .0170     | 432  | .0150  | 381                                                     | .0040  | 102  |                           |              |  |  |  |  |  |
| 2025           | .0020  | 51  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0150  | 381                                                     | .0040  | 102  |                           |              |  |  |  |  |  |
| 2030           | .0020  | 51  | .0030  | 76  | .0002  | 5    | .0170     | 432  | .0150  | 381                                                     | .0040  | 102  |                           |              |  |  |  |  |  |
| 2520           | .0025  | 64  | .0020  | 51  | .0002  | 5    | .0170     | 432  | .0150  | 381                                                     | .0040  | 102  | .0013                     | 33           |  |  |  |  |  |
| 2525           | .0025  | 64  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0160  | 406                                                     | .0040  | 102  |                           |              |  |  |  |  |  |
| 2530           | .0025  | 64  | .0030  | 76  | .0002  | 5    | .0180     | 457  | .0170  | 432                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 2535           | .0025  | 64  | .0035  | 89  | .0002  | 5    | .0180     | 457  | .0170  | 432                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 2540           | .0025  | 64  | .0040  | 102 | .0002  | 5    | .0180     | 457  | .0170  | 432                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 3020           | .0030  | 76  | .0020  | 51  | .0003  | 8    | .0180     | 457  | .0170  | 432                                                     | .0050  | 127  | .0015                     | 38           |  |  |  |  |  |
| 3025           | .0030  | 76  | .0025  | 64  | .0003  | 8    | .0200     | 508  | .0170  | 432                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 3030           | .0030  | 76  | .0030  | 76  | .0003  | 8    | .0200     | 508  | .0180  | 457                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 3035           | .0030  | 76  | .0035  | 89  | .0003  | 8    | .0210     | 533  | .0180  | 457                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 3040           | .0030  | 76  | .0040  | 102 | .0003  | 8    | .0210     | 533  | .0180  | 457                                                     | .0050  | 127  |                           |              |  |  |  |  |  |
| 3525           | .0035  | 89  | .0025  | 64  | .0003  | 8    | .0220     | 559  | .0190  | 483                                                     | .0060  | 152  | .0020                     | 51           |  |  |  |  |  |
| 3530           | .0035  | 89  | .0030  | 76  | .0003  | 8    | .0220     | 559  | .0200  | 508                                                     | .0060  | 152  |                           |              |  |  |  |  |  |
| 3535           | .0035  | 89  | .0035  | 89  | .0003  | 8    | .0230     | 584  | .0200  | 508                                                     | .0060  | 152  |                           |              |  |  |  |  |  |
| 3540           | .0035  | 89  | .0040  | 102 | .0003  | 8    | .0230     | 584  | .0210  | 533                                                     | .0060  | 152  |                           |              |  |  |  |  |  |
| 3545           | .0035  | 89  | .0045  | 114 | .0003  | 8    | .0240     | 610  | .0210  | 533                                                     | .0060  | 152  |                           |              |  |  |  |  |  |
| 3550           | .0035  | 89  | .0050  | 127 | .0003  | 8    | .0240     | 610  | .0220  | 559                                                     | .0060  | 152  |                           |              |  |  |  |  |  |
| STANDARD CHART |        |     |        |     |        |      |           |      |        | AL LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |      |                           |              |  |  |  |  |  |
| TS             | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45°) |                                                         | W      |      | SUGGESTED WD              |              |  |  |  |  |  |
| Units          | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.    | μ                                                       | in.    | μ    | in.                       | μ            |  |  |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0005 | ±13 | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010 | ±25                                                     | ±.0010 | ±25  | in.                       | μ            |  |  |  |  |  |
| 4560           | .0045  | 114 | .0060  | 152 | .0006  | 15   | .0340     | 864  | .0310  | 787                                                     | .0075  | 191  | .0030                     | 76           |  |  |  |  |  |
| 6008           | .0060  | 152 | .0080  | 203 | .0008  | 20   | .0390     | 991  | .0340  | 864                                                     | .0100  | 254  | .0040                     | 102          |  |  |  |  |  |
| 7510           | .0075  | 191 | .0100  | 254 | .0010  | 25   | .0450     | 1143 | .0410  | 1041                                                    | .0125  | 318  | .0050                     | 127          |  |  |  |  |  |
| 0912           | .0090  | 229 | .0120  | 305 | .0012  | 30   | .0520     | 1321 | .0490  | 1245                                                    | .0150  | 381  | .0060                     | 152          |  |  |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0010 | ±25 | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010 | ±25                                                     | ±.0010 | ±25  |                           |              |  |  |  |  |  |
| 01014          | .0105  | 267 | .0140  | 356 | .0014  | 36   | .0650     | 1651 | .0540  | 1372                                                    | .0175  | 445  | .0070                     | 178          |  |  |  |  |  |
| 01215          | .0120  | 305 | .0150  | 381 | .0016  | 41   | .0680     | 1727 | .0560  | 1422                                                    | .0200  | 508  | .0080                     | 203          |  |  |  |  |  |
| 01518          | .0150  | 381 | .0180  | 457 | .0020  | 51   | .0720     | 1829 | .0640  | 1626                                                    | .0250  | 635  | .0100                     | 254          |  |  |  |  |  |
| 01820          | .0180  | 457 | .0200  | 508 | .0024  | 61   | .0900     | 2286 | .0800  | 2032                                                    | .0300  | 762  | .0120                     | 305          |  |  |  |  |  |
| 02122          | .0210  | 533 | .0220  | 559 | .0028  | 71   | .0980     | 2489 | .0820  | 2083                                                    | .0350  | 889  | .0140                     | 356          |  |  |  |  |  |
| 02424          | .0240  | 610 | .0240  | 610 | .0032  | 81   | .1100     | 2794 | .0930  | 2362                                                    | .0400  | 1016 | .0160                     | 406          |  |  |  |  |  |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only  
TOOL SIZE=TS, WIRE DIAMETER=WD, \*T\* To be determined according to the size of FR and BR and Hole Bore Length



FOR AUTOMATIC BONDERS



Diamond Tip=DT  
preferably for large Tools  
Minimum of Groove  
Radius=.00025 Groove  
to Groove=.0015

# SERIES AN & AN-V

SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



SAMPLE PART NUMBER: **M-AN-O-X-1/16-1-45-CG-2020-M- \***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
- SERIES:** AN
- WIRE FEED:** O = Standard Feed  
V = Vertical Feed
- FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
- SHANK DIA.:** Please Specify Diameter
- TOOL LENGTH:** Please Specify Length
- HOLE ANGLE:** for AN (30°, 38°, 45°)  
for AN-V (45°)



(11) See Tool Option

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-AN-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART AN SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |     |        |     |        |      |           |      |        |      |        |      |                           |     |
|------------------------------------------------------------------------|--------|-----|--------|-----|--------|------|-----------|------|--------|------|--------|------|---------------------------|-----|
| TS                                                                     | H      |     | BL     |     | D      |      | T(30°38") |      | T(45°) |      | W      |      | SUGGESTED WD              |     |
| Units                                                                  | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.    | μ    | in.    | μ    | in.                       | μ   |
| Tolerance                                                              | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005 | ±13  | ±.0005 | ±13  |                           |     |
| 1505                                                                   | .0015  | 38  | .0005  | 13  | .0002  | 5    | .0140     | 356  | .0110  | 279  | .0025  | 64   | .0005<br>through<br>.0007 | 13  |
| 1507                                                                   | .0015  | 38  | .0007  | 18  | .0002  | 5    | .0140     | 356  | .0110  | 279  | .0025  | 64   |                           |     |
| 1510                                                                   | .0015  | 38  | .0010  | 25  | .0002  | 5    | .0140     | 356  | .0120  | 305  | .0025  | 64   |                           |     |
| 1513                                                                   | .0015  | 38  | .0013  | 33  | .0002  | 5    | .0140     | 356  | .0120  | 305  | .0025  | 64   |                           |     |
| 1515                                                                   | .0015  | 38  | .0015  | 38  | .0002  | 5    | .0150     | 381  | .0120  | 305  | .0025  | 64   |                           |     |
| 1520                                                                   | .0015  | 38  | .0020  | 51  | .0002  | 5    | .0150     | 381  | .0130  | 330  | .0025  | 64   |                           |     |
| Tolerance                                                              | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | 0.0005    | 12.7 | ±.0005 | ±13  | ±.0002 | ±5   |                           |     |
| 2010                                                                   | .0020  | 51  | .0010  | 25  | .0002  | 5    | .0160     | 406  | .0120  | 305  | *.0040 | 102  | .0007<br>through<br>.0010 | 18  |
| 2015                                                                   | .0020  | 51  | .0015  | 38  | .0002  | 5    | .0160     | 406  | .0130  | 330  | .0040  | 102  |                           |     |
| 2020                                                                   | .0020  | 51  | .0020  | 51  | .0002  | 5    | .0170     | 432  | .0140  | 356  | .0040  | 102  |                           |     |
| 2025                                                                   | .0020  | 51  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0140  | 356  | .0040  | 102  |                           |     |
| 2030                                                                   | .0020  | 51  | .0030  | 76  | .0002  | 5    | .0170     | 432  | .0150  | 381  | .0040  | 102  |                           |     |
| 2520                                                                   | .0025  | 64  | .0020  | 51  | .0002  | 5    | .0170     | 432  | .0150  | 381  | .0040  | 102  |                           |     |
| 2525                                                                   | .0025  | 64  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0160  | 406  | .0040  | 102  | .0013                     | 33  |
| 2530                                                                   | .0025  | 64  | .0030  | 76  | .0002  | 5    | .0180     | 457  | .0160  | 406  | .0050  | 127  |                           |     |
| 2535                                                                   | .0025  | 64  | .0035  | 89  | .0002  | 5    | .0180     | 457  | .0170  | 432  | .0050  | 127  |                           |     |
| 2540                                                                   | .0025  | 64  | .0040  | 102 | .0002  | 5    | .0180     | 457  | .0170  | 432  | .0050  | 127  |                           |     |
| 3020                                                                   | .0030  | 76  | .0020  | 51  | .0003  | 8    | .0180     | 457  | .0170  | 432  | .0050  | 127  | .0015                     | 38  |
| 3025                                                                   | .0030  | 76  | .0025  | 64  | .0003  | 8    | .0200     | 508  | .0170  | 432  | .0050  | 127  |                           |     |
| 3030                                                                   | .0030  | 76  | .0030  | 76  | .0003  | 8    | .0200     | 508  | .0180  | 457  | .0050  | 127  |                           |     |
| 3035                                                                   | .0030  | 76  | .0035  | 89  | .0003  | 8    | .0210     | 533  | .0180  | 457  | .0050  | 127  |                           |     |
| 3040                                                                   | .0030  | 76  | .0040  | 102 | .0003  | 8    | .0210     | 533  | .0180  | 457  | .0050  | 127  |                           |     |
| 3525                                                                   | .0035  | 89  | .0025  | 64  | .0003  | 8    | .0220     | 559  | .0190  | 483  | .0060  | 152  | .0020                     | 51  |
| 3530                                                                   | .0035  | 89  | .0030  | 76  | .0003  | 8    | .0220     | 559  | .0200  | 508  | .0060  | 152  |                           |     |
| 3535                                                                   | .0035  | 89  | .0035  | 89  | .0003  | 8    | .0230     | 584  | .0200  | 508  | .0060  | 152  |                           |     |
| 3540                                                                   | .0035  | 89  | .0040  | 102 | .0003  | 8    | .0230     | 584  | .0210  | 533  | .0060  | 152  |                           |     |
| 3545                                                                   | .0035  | 89  | .0045  | 114 | .0003  | 8    | .0240     | 610  | .0210  | 533  | .0060  | 152  |                           |     |
| 3550                                                                   | .0035  | 89  | .0050  | 127 | .0003  | 8    | .0240     | 610  | .0210  | 533  | .0060  | 152  |                           |     |
| STANDARD CHART AN LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |     |        |     |        |      |           |      |        |      |        |      |                           |     |
| TS                                                                     | H      |     | BL     |     | D      |      | T(30°38") |      | T(45°) |      | W      |      | SUGGESTED WD              |     |
| Units                                                                  | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.    | μ    | in.    | μ    | in.                       | μ   |
| Tolerance                                                              | ±.0005 | ±13 | ±.0005 | ±13 | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010 | ±25  | ±.0010 | ±25  |                           |     |
| 4560                                                                   | .0045  | 114 | .0060  | 152 | .0006  | 15   | .0340     | 864  | .0310  | 787  | .0075  | 191  | .0030                     | 76  |
| 6008                                                                   | .0060  | 152 | .0080  | 203 | .0008  | 20   | .0390     | 991  | .0340  | 864  | .0100  | 254  | .0040                     | 102 |
| 7510                                                                   | .0075  | 191 | .0100  | 254 | .0010  | 25   | .0450     | 1143 | .0410  | 1041 | .0125  | 318  | .0050                     | 127 |
| 0912                                                                   | .0090  | 229 | .0120  | 305 | .0012  | 30   | .0520     | 1321 | .0490  | 1245 | .0150  | 381  | .0060                     | 152 |
| Tolerance                                                              | ±.0005 | ±13 | ±.0010 | ±25 | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010 | ±25  | ±.0010 | ±25  |                           |     |
| 01014                                                                  | .0105  | 267 | .0140  | 356 | .0014  | 36   | .0650     | 1651 | .0540  | 1372 | .0175  | 445  | .0070                     | 178 |
| 01215                                                                  | .0120  | 305 | .0150  | 381 | .0016  | 41   | .0680     | 1727 | .0560  | 1422 | .0200  | 508  | .0080                     | 203 |
| 01518                                                                  | .0150  | 381 | .0180  | 457 | .0020  | 51   | .0720     | 1829 | .0640  | 1626 | .0250  | 635  | .0100                     | 254 |
| 01820                                                                  | .0180  | 457 | .0200  | 508 | .0024  | 61   | .0900     | 2286 | .0800  | 2032 | .0300  | 762  | .0120                     | 305 |
| 02122                                                                  | .0210  | 533 | .0220  | 559 | .0028  | 71   | .0980     | 2489 | .0820  | 2083 | .0350  | 889  | .0140                     | 356 |
| 02424                                                                  | .0240  | 610 | .0240  | 610 | .0032  | 81   | .1100     | 2794 | .0930  | 2362 | .0400  | 1016 | .0160                     | 406 |

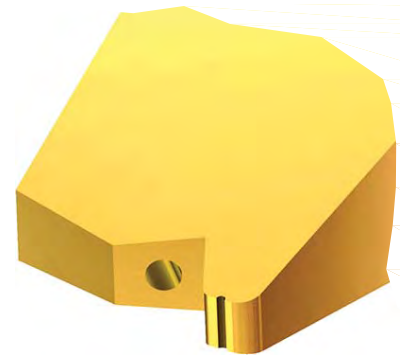
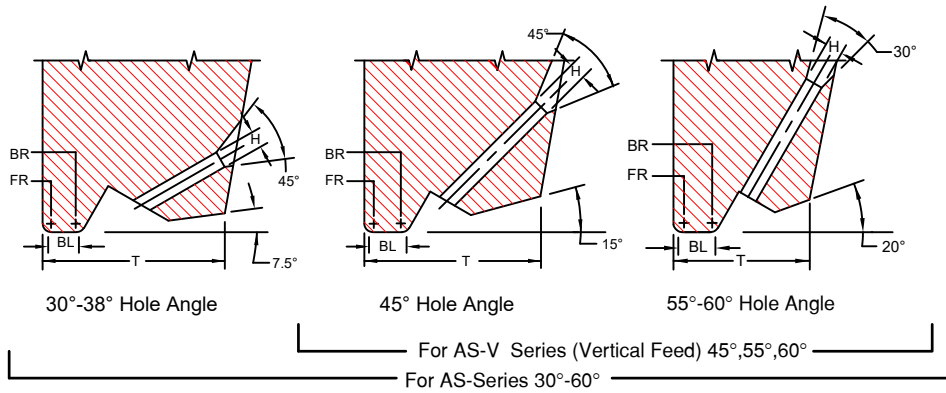
\*Other sizes available upon request \*All dimensions and tolerances are for reference only  
TOOL SIZE=TS, WIRE DIAMETER=WD, "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES AS/AS-V

## SMALL WIRE & LARGE WIRE

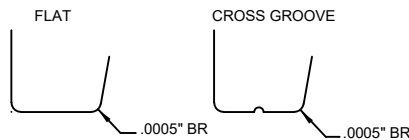


FOR MANUAL AND SEMI-AUTOMATIC BONDERS



Available Vertical Hole Ø marked with X

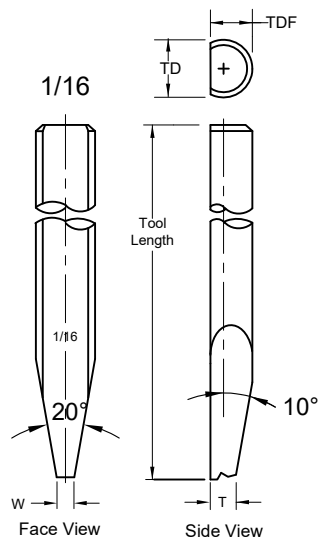
|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |



We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### AS-SERIES SMALL WIRE

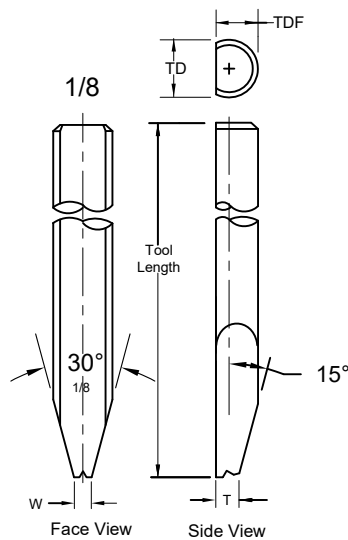
.0005" through .0020" wireØ



Standard: Ø 1/16, 45° Hole Angle

### AS-SERIES LARGE WIRE

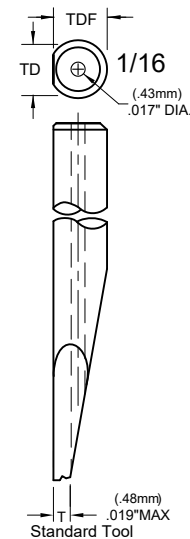
For wire diameters .0030" through .0160"



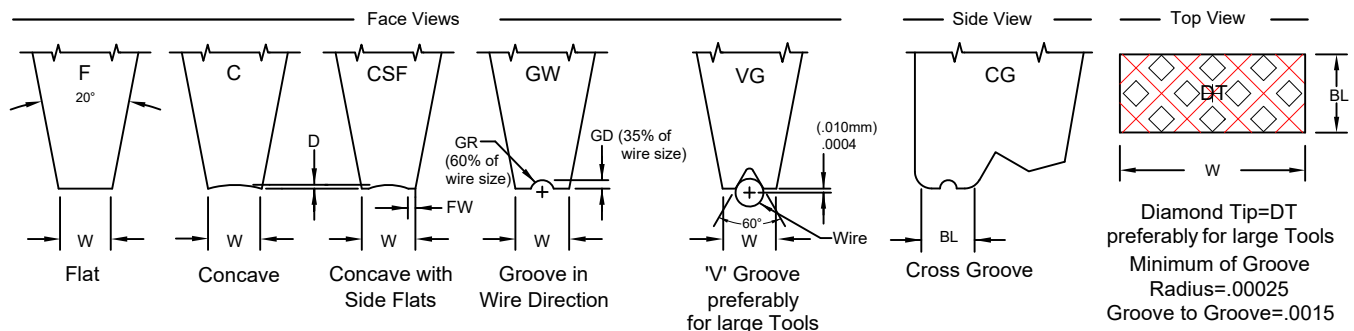
### AS-V SERIES

#### VERTICAL FEED DEEP ACCESS

.0005" through .0020" wireØ



Standard: Ø 1/16 45° Hole Angle



# SERIES AS/AS-V

SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: M-AS-O-X-1/16-1-45-CG-2020-M-\*

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

1. MATERIAL:

M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: see Material Selection Guide

2. SERIES: AS (Small wire & Large wire)

3. WIRE FEED: O = Standard Feed  
V = Vertical Feed

4. FRONT/BACK RADIUS: See Radius Option Chart

\*For special Radius sizes insert an X Please specify FR/BR

5. SHANK DIA.: Please Specify Diameter

6. TOOL LENGTH: Please Specify Length

7. HOLE ANGLE: for AS (30°, 38°, 45°), for AS-V (45°)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-AS-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

(11) See Tool Option

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           |                 | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           |                 | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART AS SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |     |        |     |        |      |           |      |        |      | SUGGESTED WD |      |
|------------------------------------------------------------------------|--------|-----|--------|-----|--------|------|-----------|------|--------|------|--------------|------|
| TS                                                                     | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45°) |      | W            |      |
| Units                                                                  | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.    | μ    | in.          | μ    |
| Tolerance                                                              | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005 | ±13  | ±.0005       | ±13  |
| 1505                                                                   | .0015  | 38  | .0005  | 13  | .0002  | 5    | .0140     | 356  | .0115  | 292  | .0025        | 64   |
| 1507                                                                   | .0015  | 38  | .0007  | 18  | .0002  | 5    | .0140     | 356  | .0115  | 292  | .0025        | 64   |
| 1510                                                                   | .0015  | 38  | .0010  | 25  | .0002  | 5    | .0150     | 381  | .0125  | 318  | .0025        | 64   |
| 1513                                                                   | .0015  | 38  | .0013  | 33  | .0002  | 5    | .0150     | 381  | .0125  | 318  | .0025        | 64   |
| 1515                                                                   | .0015  | 38  | .0015  | 38  | .0002  | 5    | .0150     | 381  | .0130  | 330  | .0025        | 64   |
| 1520                                                                   | .0015  | 38  | .0020  | 51  | .0002  | 5    | .0155     | 394  | .0135  | 343  | .0025        | 64   |
| Tolerance                                                              | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | 0.0005    | 12.7 | ±.0005 | ±13  | ±.0002       | ±5   |
| 2010                                                                   | .0020  | 51  | .0010  | 25  | .0002  | 5    | .0160     | 406  | .0135  | 343  | .0040        | 102  |
| 2015                                                                   | .0020  | 51  | .0015  | 38  | .0002  | 5    | .0165     | 419  | .0135  | 343  | .0040        | 102  |
| 2020                                                                   | .0020  | 51  | .0020  | 51  | .0002  | 5    | .0165     | 419  | .0140  | 356  | .0040        | 102  |
| 2025                                                                   | .0020  | 51  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0150  | 381  | .0040        | 102  |
| 2030                                                                   | .0020  | 51  | .0030  | 76  | .0002  | 5    | .0175     | 445  | .0150  | 381  | .0040        | 102  |
| 2520                                                                   | .0025  | 64  | .0020  | 51  | .0002  | 5    | .0180     | 457  | .0150  | 381  | .0040        | 102  |
| 2525                                                                   | .0025  | 64  | .0025  | 64  | .0002  | 5    | .0180     | 457  | .0150  | 381  | .0040        | 102  |
| 2530                                                                   | .0025  | 64  | .0030  | 76  | .0002  | 5    | .0195     | 495  | .0160  | 406  | .0040        | 102  |
| 2535                                                                   | .0025  | 64  | .0035  | 89  | .0002  | 5    | .0195     | 495  | .0170  | 432  | .0040        | 102  |
| 2540                                                                   | .0025  | 64  | .0040  | 102 | .0002  | 5    | .0200     | 508  | .0170  | 432  | .0040        | 102  |
| 3020                                                                   | .0030  | 76  | .0020  | 51  | .0003  | 8    | .0190     | 483  | .0170  | 432  | .0050        | 127  |
| 3025                                                                   | .0030  | 76  | .0025  | 64  | .0003  | 8    | .0200     | 508  | .0170  | 432  | .0050        | 127  |
| 3030                                                                   | .0030  | 76  | .0030  | 76  | .0003  | 8    | .0200     | 508  | .0180  | 457  | .0050        | 127  |
| 3035                                                                   | .0030  | 76  | .0035  | 89  | .0003  | 8    | .0210     | 533  | .0180  | 457  | .0050        | 127  |
| 3040                                                                   | .0030  | 76  | .0040  | 102 | .0003  | 8    | .0210     | 533  | .0190  | 483  | .0050        | 127  |
| 3525                                                                   | .0035  | 89  | .0025  | 64  | .0003  | 8    | .0220     | 559  | .0190  | 483  | .0060        | 152  |
| 3530                                                                   | .0035  | 89  | .0030  | 76  | .0003  | 8    | .0220     | 559  | .0200  | 508  | .0060        | 152  |
| 3535                                                                   | .0035  | 89  | .0035  | 89  | .0003  | 8    | .0230     | 584  | .0200  | 508  | .0060        | 152  |
| 3540                                                                   | .0035  | 89  | .0040  | 102 | .0003  | 8    | .0230     | 584  | .0210  | 533  | .0060        | 152  |
| 3545                                                                   | .0035  | 89  | .0045  | 114 | .0003  | 8    | .0240     | 610  | .0210  | 533  | .0060        | 152  |
| 3550                                                                   | .0035  | 89  | .0050  | 127 | .0003  | 8    | .0240     | 610  | .0220  | 559  | .0060        | 152  |
| STANDARD CHART AS LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |     |        |     |        |      |           |      |        |      | SUGGESTED WD |      |
| TS                                                                     | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45°) |      | W            |      |
| Units                                                                  | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.    | μ    | in.          | μ    |
| Tolerance                                                              | ±.0005 | ±13 | ±.0005 | ±13 | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010 | ±25  | ±.0010       | ±25  |
| 4560                                                                   | .0045  | 114 | .0060  | 152 | .0006  | 15   | .0340     | 864  | .0310  | 787  | .0075        | 191  |
| 6008                                                                   | .0060  | 152 | .0080  | 203 | .0008  | 20   | .0390     | 991  | .0340  | 864  | .0100        | 254  |
| 7510                                                                   | .0075  | 191 | .0100  | 254 | .0010  | 25   | .0450     | 1143 | .0410  | 1041 | .0125        | 318  |
| 0912                                                                   | .0090  | 229 | .0120  | 305 | .0012  | 30   | .0520     | 1321 | .0490  | 1245 | .0150        | 381  |
| Tolerance                                                              | ±.0005 | ±13 | ±.0010 | ±25 | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010 | ±25  | ±.0010       | ±25  |
| 01014                                                                  | .0105  | 267 | .0140  | 356 | .0014  | 36   | .0650     | 1651 | .0540  | 1372 | .0175        | 445  |
| 01215                                                                  | .0120  | 305 | .0150  | 381 | .0016  | 41   | .0680     | 1727 | .0560  | 1422 | .0200        | 508  |
| 01518                                                                  | .0150  | 381 | .0180  | 457 | .0020  | 51   | .0720     | 1829 | .0640  | 1626 | .0250        | 635  |
| 01820                                                                  | .0180  | 457 | .0200  | 508 | .0024  | 61   | .0900     | 2286 | .0800  | 2032 | .0300        | 762  |
| 02122                                                                  | .0210  | 533 | .0220  | 559 | .0028  | 71   | .0980     | 2489 | .0820  | 2083 | .0350        | 889  |
| 02424                                                                  | .0240  | 610 | .0240  | 610 | .0032  | 81   | .1100     | 2794 | .0930  | 2362 | .0400        | 1016 |

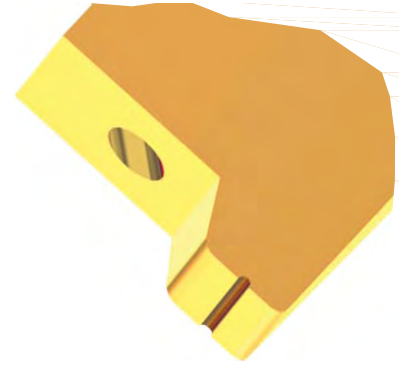
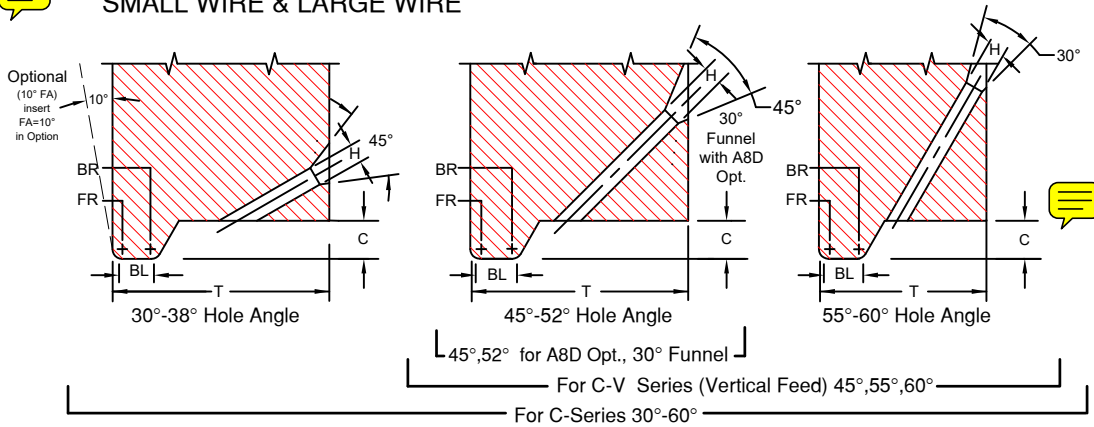
\*Other sizes available upon request \*All dimensions and tolerances are for reference only  
TOOL SIZE=TS, WIRE DIAMETER=WD, "T" To be determined according to the size of FR and BR and Hole Bore Length



# SERIES C & C-V

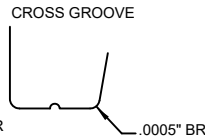
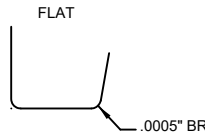
## SMALL WIRE & LARGE WIRE

FOR MANUAL AND SEMI-AUTOMATIC BONDERS



Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |



We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### C-SERIES SMALL WIRE

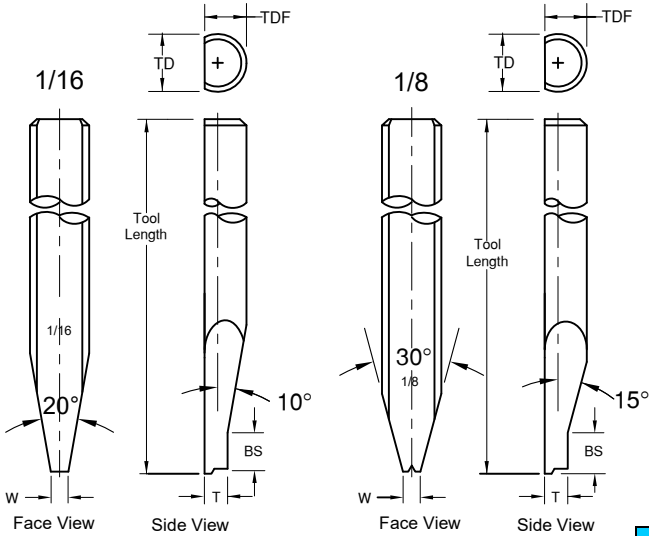
.0005" through .0020" wireØ

### C-SERIES LARGE WIRE

For wire diameters .0030" through .0160"

### C-V SERIES VERTICAL FEED DEEP ACCESS

.0005" through .0020" wireØ

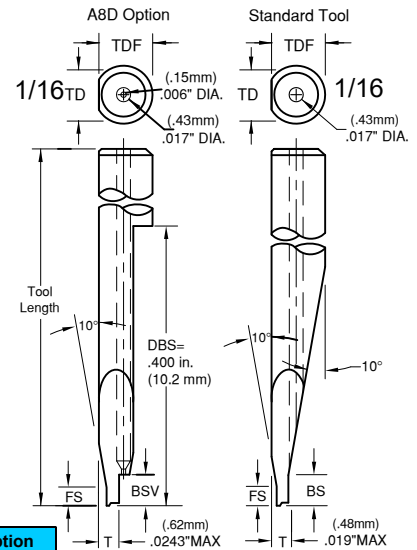


Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø 1/16, larger tool Ø are different.  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

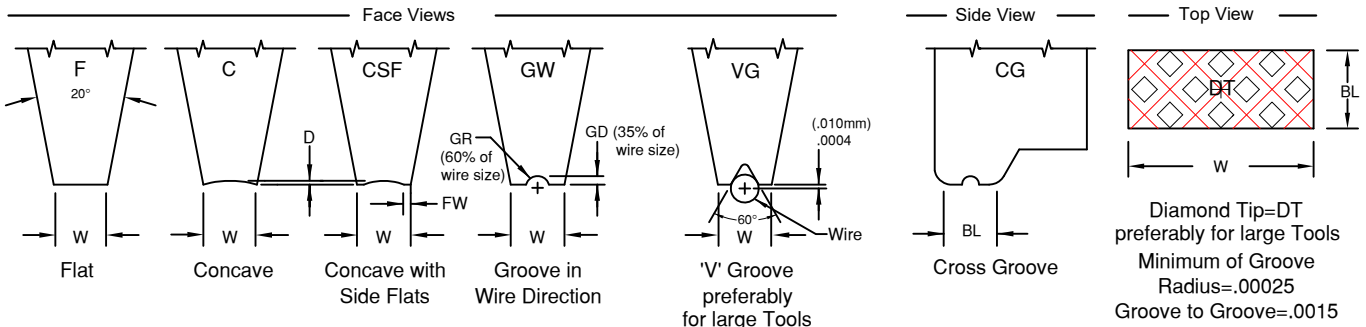
**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration. To order just add A8D in space 11. Not suitable for F&K and Hesse Mechatronics machine

#### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |



Standard: Ø 1/16 45° to 52° Hole Angle :  
FS=.015" (.38mm) BS"=.045" (1.14mm)  
Standard: (FS&BS) supplied unless otherwise specified. See Tool Options #A3  
No FS if T=MAX



# SERIES C & C-V

## SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



SAMPLE PART NUMBER: M-C-O-X-1/8-1-45-VG-6008-M-\*

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

- MATERIAL:**
    - M = Ceramic
    - C = Tungsten Carbide
    - T = Titanium
    - All other: See Material Selection Guide
  - SERIES: C**
  - WIRE FEED:** O = Standard Feed  
V = Vertical Feed
  - FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
  - SHANK DIA.:** Please Specify Diameter
  - TOOL LENGTH:** Please Specify Length
  - HOLE ANGLE:** for C (30°, 38°, 45°, 52°, 55°, 60°) for C-V (45°, 55°, 60°)  
for C-V with A8D-Opt. (45°, 52°)
- \*NOTE: Please specify for either guillotine cut or tension break.  
On V-groove tools the bond length (BL) is the same as the foot length (FL).  
For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.  
Example: M-C-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007  
On V-groove tools the bond length is the same as the foot length.
- (11) See Tool Option
- (10) FOOT FINISH:  
M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP= Polish finish (FR, BR), and Matte finish (Bond Flat)
- (9) TOOL SIZE: See Standard Chart
- (8) FOOT TYPE:  
F = Flat  
C = Concave  
CSF = Concave with Side Flats (CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction (Please specify wire size)  
DT = Diamond Tip  
VG = V Groove

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

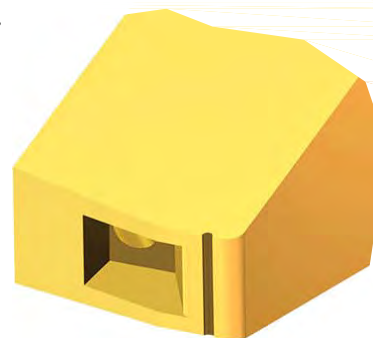
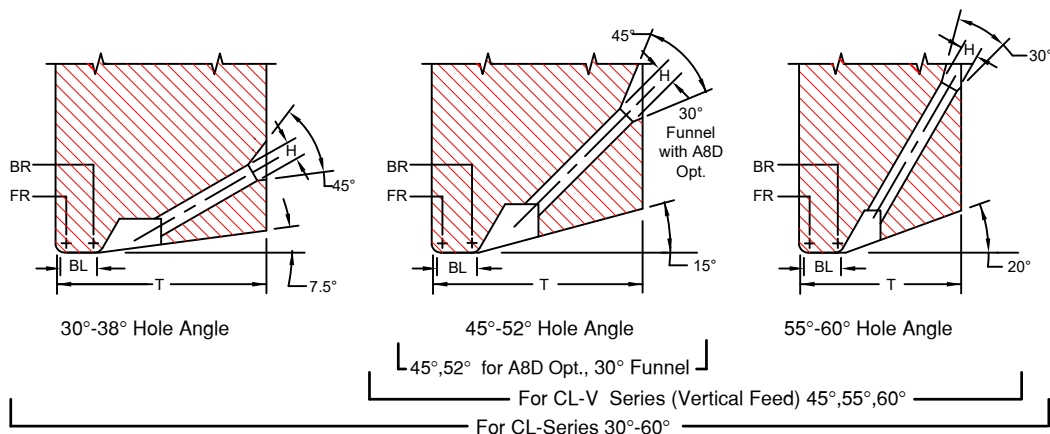
For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |            |            |            | C SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |             |            |            |            |                           |            |            |     |   | SUGGESTED WD |  |
|----------------|------------|------------|------------|--------------------------------------------------------|-------------|------------|------------|------------|---------------------------|------------|------------|-----|---|--------------|--|
| TS             | H          | BL         | C          | D                                                      | T(30°38°)   | T(45° 52°) | T(55° 60°) | W          |                           |            |            |     |   |              |  |
| Units          | in. μ      | in. μ      | in. μ      | in. μ                                                  | in. μ       | in. μ      | in. μ      | in. μ      | in. μ                     | in. μ      | in. μ      | in. | μ |              |  |
| Tolerance      | ±.0002 ±5  | ±.0002 ±5  | ±.0002 ±5  | ±.0002 ±5                                              | -.0001 -2.5 | ±.0005 ±13 | ±.0005 ±13 | ±.0005 ±13 | ±.0005 ±13                | ±.0005 ±13 | ±.0005 ±13 | in. | μ |              |  |
| 1505           | .0015 38   | .0005 13   | .0020 51   | .0002 5                                                | .0150 381   | .0130 330  | .0100 254  | .0025 64   | .0005<br>through<br>.0007 | 13<br>18   |            |     |   |              |  |
| 1507           | .0015 38   | .0007 18   | .0020 51   | .0002 5                                                | .0150 381   | .0130 330  | .0100 254  | .0025 64   |                           |            |            |     |   |              |  |
| 1510           | .0015 38   | .0010 25   | .0020 51   | .0002 5                                                | .0155 394   | .0135 343  | .0110 279  | .0025 64   |                           |            |            |     |   |              |  |
| 1513           | .0015 38   | .0013 33   | .0020 51   | .0002 5                                                | .0155 394   | .0140 356  | .0110 279  | .0025 64   |                           |            |            |     |   |              |  |
| 1515           | .0015 38   | .0015 38   | .0020 51   | .0002 5                                                | .0160 406   | .0140 356  | .0110 279  | .0025 64   |                           |            |            |     |   |              |  |
| 1520           | .0015 38   | .0020 51   | .0020 51   | .0002 5                                                | .0165 419   | .0145 368  | .0120 305  | .0025 64   | .0007<br>through<br>.0010 | 18<br>25   |            |     |   |              |  |
| Tolerance      | ±.0002 ±5  | ±.0002 ±5  | ±.0002 ±5  | -.0001 -2.5                                            | ±.0005 ±13  | ±.0005 ±13 | ±.0005 ±13 | ±.0002 ±5  |                           |            |            |     |   |              |  |
| 2010           | .0020 51   | .0010 25   | .0030 76   | .0002 5                                                | .0165 419   | .0145 368  | .0110 279  | *.0040 102 |                           |            |            |     |   |              |  |
| 2015           | .0020 51   | .0015 38   | .0030 76   | .0002 5                                                | .0165 419   | .0145 368  | .0120 305  | .0040 102  |                           |            |            |     |   |              |  |
| 2020           | .0020 51   | .0020 51   | .0030 76   | .0002 5                                                | .0165 419   | .0145 368  | .0120 305  | .0040 102  |                           |            |            |     |   |              |  |
| 2025           | .0020 51   | .0025 64   | .0030 76   | .0002 5                                                | .0170 432   | .0150 381  | .0130 330  | .0040 102  | .0013                     | 33         |            |     |   |              |  |
| 2030           | .0020 51   | .0030 76   | .0030 76   | .0002 5                                                | .0175 445   | .0155 394  | .0130 330  | .0040 102  |                           |            |            |     |   |              |  |
| 2520           | .0025 64   | .0020 51   | .0030 76   | .0002 5                                                | .0180 457   | .0160 406  | .0125 318  | .0040 102  |                           |            |            |     |   |              |  |
| 2525           | .0025 64   | .0025 64   | .0030 76   | .0002 5                                                | .0180 457   | .0160 406  | .0125 318  | .0040 102  |                           |            |            |     |   |              |  |
| 2530           | .0025 64   | .0030 76   | .0030 76   | .0002 5                                                | .0195 495   | .0170 432  | .0140 356  | .0040 102  |                           |            |            |     |   |              |  |
| 2535           | .0025 64   | .0035 89   | .0030 76   | .0002 5                                                | .0195 495   | .0170 432  | .0140 356  | .0040 102  | .0015                     | 38         |            |     |   |              |  |
| 2540           | .0025 64   | .0040 102  | .0030 76   | .0002 5                                                | .0200 508   | .0180 457  | .0150 381  | .0040 102  |                           |            |            |     |   |              |  |
| 3020           | .0030 76   | .0020 51   | .0030 76   | .0003 8                                                | .0190 483   | .0170 432  | .0150 381  | .0050 127  |                           |            |            |     |   |              |  |
| 3025           | .0030 76   | .0025 64   | .0030 76   | .0003 8                                                | .0200 508   | .0170 432  | .0150 381  | .0050 127  |                           |            |            |     |   |              |  |
| 3030           | .0030 76   | .0030 76   | .0030 76   | .0003 8                                                | .0200 508   | .0180 457  | .0160 406  | .0050 127  |                           |            |            |     |   |              |  |
| 3035           | .0030 76   | .0035 89   | .0030 76   | .0003 8                                                | .0210 533   | .0180 457  | .0160 406  | .0050 127  | .0020                     | 51         |            |     |   |              |  |
| 3040           | .0030 76   | .0040 102  | .0030 76   | .0003 8                                                | .0210 533   | .0190 483  | .0170 432  | .0050 127  |                           |            |            |     |   |              |  |
| 3525           | .0035 89   | .0025 64   | .0030 76   | .0003 8                                                | .0220 559   | .0190 483  | .0170 432  | .0060 152  |                           |            |            |     |   |              |  |
| 3530           | .0035 89   | .0030 76   | .0030 76   | .0003 8                                                | .0220 559   | .0200 508  | .0180 457  | .0060 152  |                           |            |            |     |   |              |  |
| 3535           | .0035 89   | .0035 89   | .0030 76   | .0003 8                                                | .0230 584   | .0200 508  | .0180 457  | .0060 152  |                           |            |            |     |   |              |  |
| 3540           | .0035 89   | .0040 102  | .0030 76   | .0003 8                                                | .0230 584   | .0210 533  | .0190 483  | .0060 152  |                           |            |            |     |   |              |  |
| 3545           | .0035 89   | .0045 114  | .0030 76   | .0003 8                                                | .0240 610   | .0210 533  | .0190 483  | .0060 152  |                           |            |            |     |   |              |  |
| 3550           | .0035 89   | .0050 127  | .0030 76   | .0003 8                                                | .0240 610   | .0220 559  | .0190 483  | .0060 152  |                           |            |            |     |   |              |  |
| STANDARD CHART |            |            |            | C LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |             |            |            |            |                           |            |            |     |   | SUGGESTED WD |  |
| TS             | H          | BL         | C          | D                                                      | T(30°38°)   | T(45° 52°) | T(55° 60°) | W          |                           |            |            |     |   |              |  |
| Units          | in. μ      | in. μ      | in. μ      | in. μ                                                  | in. μ       | in. μ      | in. μ      | in. μ      | in. μ                     | in. μ      | in. μ      | in. | μ |              |  |
| Tolerance      | ±.0005 ±13 | ±.0005 ±13 | ±.0005 ±13 | ±.0005 ±13                                             | -.0001 -2.5 | ±.0010 ±25 | ±.0010 ±25 | ±.0010 ±25 | ±.0010 ±25                | ±.0010 ±25 | ±.0010 ±25 | in. | μ |              |  |
| 4560           | .0045 114  | .0060 152  | .0080 203  | .0006 15                                               | .0340 864   | .0310 787  | .0260 660  | .0075 191  |                           |            |            |     |   |              |  |
| 6008           | .0060 152  | .0080 203  | .0100 254  | .0008 20                                               | .0390 991   | .0340 864  | .0290 737  | .0100 254  |                           |            |            |     |   |              |  |
| 7510           | .0075 191  | .0100 254  | .0115 292  | .0010 25                                               | .0450 1143  | .0410 1041 | .0350 889  | .0125 318  |                           |            |            |     |   |              |  |
| 0912           | .0090 229  | .0120 305  | .0135 343  | .0012 30                                               | .0520 1321  | .0490 1245 | .0410 1041 | .0150 381  |                           |            |            |     |   |              |  |
| Tolerance      | ±.0005 ±13 | ±.0010 ±25 | ±.0005 ±13 | ±.0002 ±5                                              | ±.0010 ±25  | ±.0010 ±25 | ±.0010 ±25 | ±.0010 ±25 |                           |            |            |     |   |              |  |
| 01014          | .0105 267  | .0140 356  | .0150 381  | .0014 36                                               | .0650 1651  | .0540 1372 | .0450 1143 | .0175 445  |                           |            |            |     |   |              |  |
| 01215          | .0120 305  | .0150 381  | .0170 432  | .0016 41                                               | .0680 1727  | .0560 1422 | .0460 1168 | .0200 508  |                           |            |            |     |   |              |  |
| 01518          | .0150 381  | .0180 457  | .0200 508  | .0020 51                                               | .0720 1829  | .0720 1829 | .0600 1524 | .0250 635  |                           |            |            |     |   |              |  |
| 01820          | .0180 457  | .0200 508  | .0200 508  | .0024 61                                               | .0900 2286  | .0800 2032 | .0690 1753 | .0300 762  |                           |            |            |     |   |              |  |
| 02122          | .0210 533  | .0220 559  | .0210 533  | .0028 71                                               | .0980 2489  | .0820 2083 | .0700 1778 | .0350 889  |                           |            |            |     |   |              |  |
| 02424          | .0240 610  | .0240 610  | .0220 559  | .0032 81                                               | .1270 3226  | .0930 2362 | .0830 2108 | .0400 1016 | .0160 406                 |            |            |     |   |              |  |

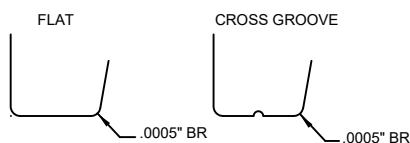
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER =WD "T" To be determined according to the size of FR and BR and Hole Bore Length

FOR AUTOMATIC BONDERS



| Available Vertical Hole Ø marked with X |       |      |       |      |                   |
|-----------------------------------------|-------|------|-------|------|-------------------|
| TD                                      |       |      | TDF   |      | For Vertical Hole |
|                                         | in.   | mm   | in.   | mm   |                   |
| 1/16                                    | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16                                    | .0624 | 1.59 | .0590 | 1.50 | X                 |
|                                         | .0784 | 1.99 | .0630 | 1.60 |                   |
|                                         | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32                                    | .0937 | 2.38 | .0880 | 2.24 | X                 |
|                                         | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8                                     | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8                                     | .1249 | 3.17 | 1.180 | 3.00 |                   |



We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

## CL-SERIES SMALL WIRE

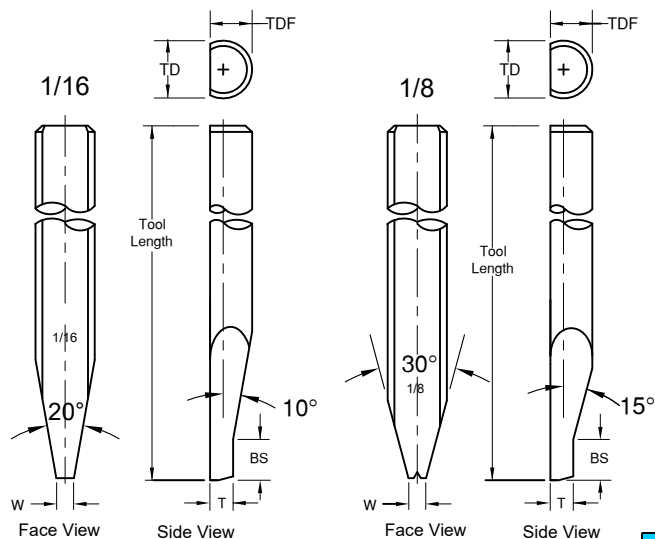
.0005" through .0020" wireØ

## CL-SERIES LARGE WIRE

**For wire diameters .0030" through .0160"**

## CL-V SERIES VERTICAL FEED DEEP ACCESS

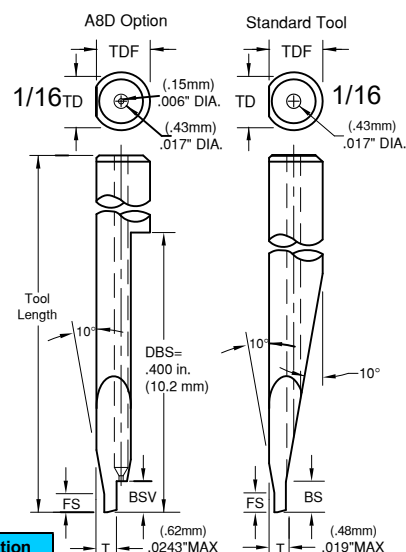
0005" through .0020" wireØ



**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration.

To order just add A8D in space **11**.

Not suitable for F&K and Hesse Mechatronics machine

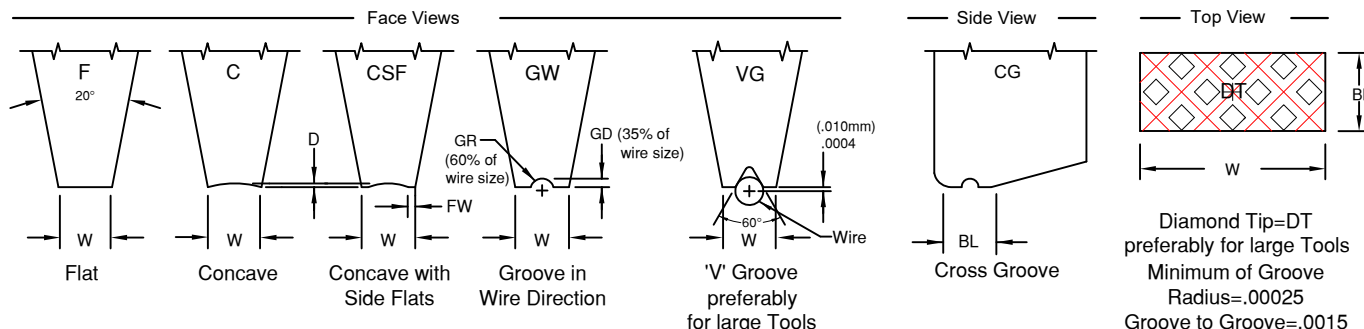


### A8D Option

| Hole Angles Available with A8D Option |      |      |
|---------------------------------------|------|------|
| Hole Angle                            | BSV  |      |
|                                       | in.  | mm   |
| 45°                                   | .035 | .89  |
| 52°                                   | .050 | 1.27 |

Standard: Ø1/16 45°to 52° Hole Angle :  
**FS=.015"**(.38mm) **BS"=.045"** (1.14mm)  
 Standard: (FS&BS) supplied unless  
 otherwise specified. See Tool Options #A3  
**No FS if T=MAX**

Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3



# SERIES CL & CL-V

## SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: **M-CL-O-X-1/16-1-45-CG-2020-M-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

### 1. MATERIAL:

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

### 2. SERIES: CL

### 3. WIRE FEED: O = Standard Feed

V = Vertical Feed

### 4. FRONT/BACK RADIUS: See Radius Option Chart

\*For special Radius sizes insert an X Please specify FR/BR

### 5. SHANK DIA.: Please Specify Diameter

### 6. TOOL LENGTH: Please Specify Length

### 7. HOLE ANGLE: for CL (30°, 38°, 45°, 52°, 55°, 60°), for CL-V (45°, 55°, 60°) for CL-V with A8D Opt. (45°, 52°)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-CL-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

On V-groove tools the bond length is the same as the foot length.

(11) See Tool Option

### (10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

### (8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |        |     |        | CL SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |      |           |      |            |      |            |      |        |      |                           |                  |  |  |  |
|----------------|--------|-----|--------|---------------------------------------------------------|--------|------|-----------|------|------------|------|------------|------|--------|------|---------------------------|------------------|--|--|--|
| TS             | H      |     | BL     |                                                         | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |                  |  |  |  |
| Units          | in.    | μ   | in.    | μ                                                       | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ                |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5                                                      | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0005 | ±13  | ±.0005                    | ±13              |  |  |  |
| 1505           | .0015  | 38  | .0005  | 13                                                      | .0002  | 5    | .0140     | 356  | .0120      | 305  | .0100      | 254  | .0025  | 64   | .0005<br>through<br>.0007 | 13<br><br><br>18 |  |  |  |
| 1507           | .0015  | 38  | .0007  | 18                                                      | .0002  | 5    | .0140     | 356  | .0125      | 318  | .0100      | 254  | .0025  | 64   |                           |                  |  |  |  |
| 1510           | .0015  | 38  | .0010  | 25                                                      | .0002  | 5    | .0140     | 356  | .0130      | 330  | .0100      | 254  | .0025  | 64   |                           |                  |  |  |  |
| 1513           | .0015  | 38  | .0013  | 33                                                      | .0002  | 5    | .0140     | 356  | .0130      | 330  | .0110      | 279  | .0025  | 64   |                           |                  |  |  |  |
| 1515           | .0015  | 38  | .0015  | 38                                                      | .0002  | 5    | .0150     | 381  | .0130      | 330  | .0110      | 279  | .0025  | 64   |                           |                  |  |  |  |
| 1520           | .0015  | 38  | .0020  | 51                                                      | .0002  | 5    | .0150     | 381  | .0140      | 356  | .0110      | 279  | .0025  | 64   | .0007<br>through<br>.0010 | 18<br><br><br>25 |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5                                                      | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0002 | ±5   |                           |                  |  |  |  |
| 2010           | .0020  | 51  | .0010  | 25                                                      | .0002  | 5    | .0160     | 406  | .0140      | 356  | .0120      | 305  | *.0040 | 102  |                           |                  |  |  |  |
| 2015           | .0020  | 51  | .0015  | 38                                                      | .0002  | 5    | .0160     | 406  | .0140      | 356  | .0120      | 305  | .0040  | 102  |                           |                  |  |  |  |
| 2020           | .0020  | 51  | .0020  | 51                                                      | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0130      | 330  | .0040  | 102  |                           |                  |  |  |  |
| 2025           | .0020  | 51  | .0025  | 64                                                      | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0130      | 330  | .0040  | 102  | .0013                     | 33               |  |  |  |
| 2030           | .0020  | 51  | .0030  | 76                                                      | .0002  | 5    | .0180     | 457  | .0150      | 381  | .0140      | 356  | .0040  | 102  |                           |                  |  |  |  |
| 2520           | .0025  | 64  | .0020  | 51                                                      | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0140      | 356  | .0040  | 102  |                           |                  |  |  |  |
| 2525           | .0025  | 64  | .0025  | 64                                                      | .0002  | 5    | .0180     | 457  | .0170      | 432  | .0140      | 356  | .0040  | 102  |                           |                  |  |  |  |
| 2530           | .0025  | 64  | .0030  | 76                                                      | .0002  | 5    | .0180     | 457  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |                  |  |  |  |
| 2535           | .0025  | 64  | .0035  | 89                                                      | .0002  | 5    | .0180     | 457  | .0170      | 432  | .0150      | 381  | .0050  | 127  | .0015                     | 38               |  |  |  |
| 2540           | .0025  | 64  | .0040  | 102                                                     | .0002  | 5    | .0180     | 457  | .0170      | 432  | .0160      | 406  | .0050  | 127  |                           |                  |  |  |  |
| 3020           | .0030  | 76  | .0020  | 51                                                      | .0003  | 8    | .0190     | 483  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |                  |  |  |  |
| 3025           | .0030  | 76  | .0025  | 64                                                      | .0003  | 8    | .0200     | 508  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |                  |  |  |  |
| 3030           | .0030  | 76  | .0030  | 76                                                      | .0003  | 8    | .0200     | 508  | .0180      | 457  | .0160      | 406  | .0050  | 127  |                           |                  |  |  |  |
| 3035           | .0030  | 76  | .0035  | 89                                                      | .0003  | 8    | .0210     | 533  | .0180      | 457  | .0160      | 406  | .0050  | 127  | .0020                     | 51               |  |  |  |
| 3040           | .0030  | 76  | .0040  | 102                                                     | .0003  | 8    | .0210     | 533  | .0190      | 483  | .0170      | 432  | .0050  | 127  |                           |                  |  |  |  |
| 3525           | .0035  | 89  | .0025  | 64                                                      | .0003  | 8    | .0220     | 559  | .0190      | 483  | .0170      | 432  | .0060  | 152  |                           |                  |  |  |  |
| 3530           | .0035  | 89  | .0030  | 76                                                      | .0003  | 8    | .0220     | 559  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |                  |  |  |  |
| 3535           | .0035  | 89  | .0035  | 89                                                      | .0003  | 8    | .0230     | 584  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |                  |  |  |  |
| 3540           | .0035  | 89  | .0040  | 102                                                     | .0003  | 8    | .0230     | 584  | .0210      | 533  | .0180      | 457  | .0060  | 152  |                           |                  |  |  |  |
| 3545           | .0035  | 89  | .0045  | 114                                                     | .0003  | 8    | .0240     | 610  | .0210      | 533  | .0190      | 483  | .0060  | 152  |                           |                  |  |  |  |
| 3550           | .0035  | 89  | .0050  | 127                                                     | .0003  | 8    | .0240     | 610  | .0220      | 559  | .0190      | 483  | .0060  | 152  |                           |                  |  |  |  |
| STANDARD CHART |        |     |        | CL LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |      |           |      |            |      |            |      |        |      |                           |                  |  |  |  |
| TS             | H      |     | BL     |                                                         | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |                  |  |  |  |
| Units          | in.    | μ   | in.    | μ                                                       | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ                |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0005 | ±13                                                     | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25              |  |  |  |
| 4560           | .0045  | 114 | .0060  | 152                                                     | .0006  | 15   | .0340     | 864  | .0310      | 787  | .0260      | 660  | .0075  | 191  | .0030                     | 76               |  |  |  |
| 6008           | .0060  | 152 | .0080  | 203                                                     | .0008  | 20   | .0390     | 991  | .0340      | 864  | .0290      | 737  | .0100  | 254  | .0040                     | 102              |  |  |  |
| 7510           | .0075  | 191 | .0100  | 254                                                     | .0010  | 25   | .0450     | 1143 | .0410      | 1041 | .0350      | 889  | .0125  | 318  | .0050                     | 127              |  |  |  |
| 0912           | .0090  | 229 | .0120  | 305                                                     | .0012  | 30   | .0520     | 1321 | .0490      | 1245 | .0410      | 1041 | .0150  | 381  | .0060                     | 152              |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0010 | ±25                                                     | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25              |  |  |  |
| 01014          | .0105  | 267 | .0140  | 356                                                     | .0014  | 36   | .0650     | 1651 | .0540      | 1372 | .0450      | 1143 | .0175  | 445  | .0070                     | 178              |  |  |  |
| 01215          | .0120  | 305 | .0150  | 381                                                     | .0016  | 41   | .0680     | 1727 | .0560      | 1422 | .0460      | 1168 | .0200  | 508  | .0080                     | 203              |  |  |  |
| 01518          | .0150  | 381 | .0180  | 457                                                     | .0020  | 51   | .0720     | 1829 | .0640      | 1626 | .0600      | 1524 | .0250  | 635  | .0100                     | 254              |  |  |  |
| 01820          | .0180  | 457 | .0200  | 508                                                     | .0024  | 61   | .0900     | 2286 | .0800      | 2032 | .0690      | 1753 | .0300  | 762  | .0120                     | 305              |  |  |  |
| 02122          | .0210  | 533 | .0220  | 559                                                     | .0028  | 71   | .0980     | 2489 | .0820      | 2083 | .0700      | 1778 | .0350  | 889  | .0140                     | 356              |  |  |  |
| 02424          | .0240  | 610 | .0240  | 610                                                     | .0032  | 81   | .1100     | 2794 | .0930      | 2362 | .0830      | 2108 | .0400  | 1016 | .0160                     | 406              |  |  |  |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only

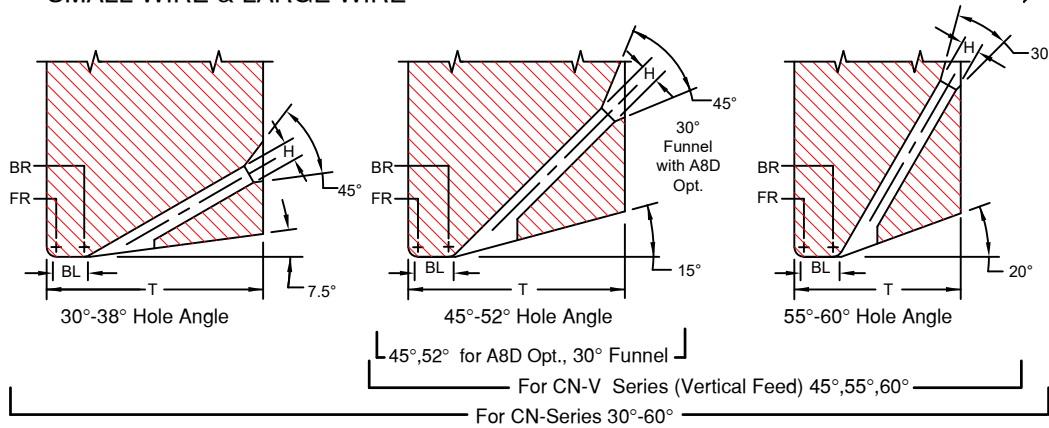
TOOL SIZE=TS, WIRE DIAMETER =WD "T" To be determined according to the size of FR and BR and Hole Bore Length

DeWeyl Tool Company, 959 Transport Way Petaluma, CA 94954 USA Phone 800-821-8665 707-765-5779

# SERIES CN & CN-V

## SMALL WIRE & LARGE WIRE

FOR AUTOMATIC BONDERS

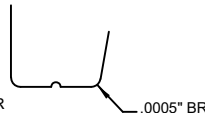
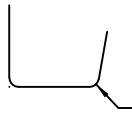


Available Vertical Hole Ø marked with X

| TD   | in.   |      | mm    |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 | X                 |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 |                   |
|      | .0784 | 1.99 | .0630 | 1.60 | X                 |
|      | .0784 | 1.99 | .0720 | 1.83 |                   |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

FLAT

CROSS GROOVE



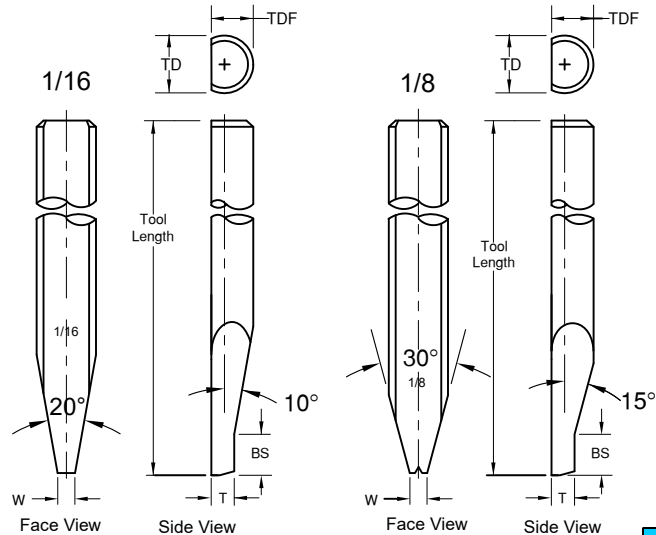
We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### CN SERIES SMALL WIRE

.0005" through .0020" wireØ

### CN SERIES LARGE WIRE

For wire diameters .0030" through .0160"



Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø 1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

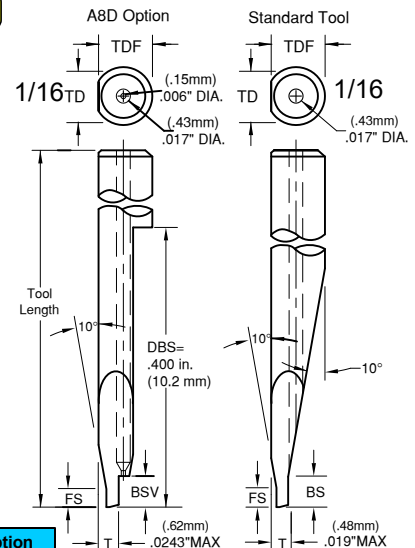
### CN-V SERIES VERTICAL FEED DEEP ACCESS

.0005" through .0020" wireØ

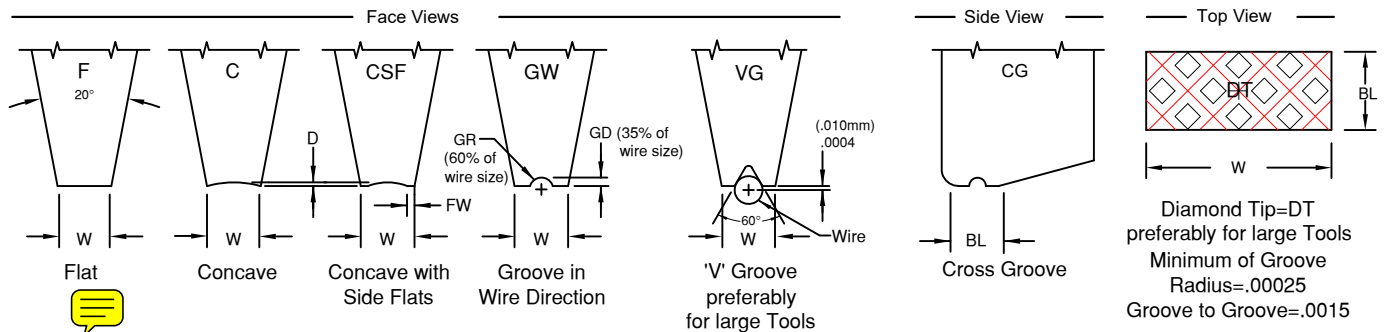
**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration. To order just add A8D in space 11. Not suitable for F&K and Hesse Mechatronics machine

#### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |



Standard: Ø 1/16 45° to 52° Hole Angle : FS=.015" (.38mm) BS"=.045" (1.14mm)  
Standard: (FS&BS) supplied unless otherwise specified. See Tool Options #A3  
No FS if T=MAX



# SERIES CN & CN-V

SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER:** M-CN-O-X-1/16-1-45-CG-2020-M-\*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11

- MATERIAL:**
    - M = Ceramic
    - C = Tungsten Carbide
    - T = Titanium
    - All other: See Material Selection Guide
  - SERIES:** CN
  - WIRE FEED:** O = Standard Feed  
V = Vertical Feed
  - FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
  - SHANK DIA.:** Please Specify Diameter
  - TOOL LENGTH:** Please Specify Length
- HOLE ANGLE:** for CN (30°, 38°, 45°, 52°, 55°, 60°), for CN-V (45°, 55°, 60°)  
for CN-V with A8D Opt.(45°, 52°)

(11) See Tool Option

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-CN-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |  | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|--|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         |  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        |  | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    |
|                           | BACK          |  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | RADIUS        |  | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |        |    |        |           |            |            |        |     |              | CN SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |     |        |     |        |     |        |     |        |
|----------------|--------|----|--------|-----------|------------|------------|--------|-----|--------------|---------------------------------------------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| TS             | H      | BL | D      | T(30°38°) | T(45° 52°) | T(55° 60°) | W      |     | SUGGESTED WD |                                                         |        |     |        |     |        |     |        |     |        |
| Units          | in.    | μ  | in.    | μ         | in.        | μ          | in.    | μ   | in.          | μ                                                       | in.    | μ   | in.    | μ   | in.    | μ   | in.    | μ   | in.    |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5        | ±.0001     | ±2.5       | ±.0005 | ±13 | ±.0005       | ±13                                                     | ±.0005 | ±13 | ±.0005 | ±13 | ±.0005 | ±13 | ±.0005 | ±13 | ±.0005 |
| 1505           | .0015  | 38 | .0005  | 13        | .0002      | 5          | .0140  | 356 | .0110        | 279                                                     | .0090  | 229 | .0025  | 64  | .0005  | 13  | .0005  | 13  | .0005  |
| 1507           | .0015  | 38 | .0007  | 18        | .0002      | 5          | .0140  | 356 | .0110        | 279                                                     | .0090  | 229 | .0025  | 64  | .0005  | 13  | .0005  | 13  | .0005  |
| 1510           | .0015  | 38 | .0010  | 25        | .0002      | 5          | .0140  | 356 | .0120        | 305                                                     | .0100  | 254 | .0025  | 64  | .0005  | 13  | .0005  | 13  | .0005  |
| 1513           | .0015  | 38 | .0013  | 33        | .0002      | 5          | .0140  | 356 | .0130        | 330                                                     | .0100  | 254 | .0025  | 64  | .0005  | 13  | .0005  | 13  | .0005  |
| 1515           | .0015  | 38 | .0015  | 38        | .0002      | 5          | .0150  | 381 | .0130        | 330                                                     | .0100  | 254 | .0025  | 64  | .0005  | 13  | .0005  | 13  | .0005  |
| 1520           | .0015  | 38 | .0020  | 51        | .0002      | 5          | .0150  | 381 | .0130        | 330                                                     | .0110  | 279 | .0025  | 64  | .0005  | 13  | .0005  | 13  | .0005  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5        | ±.0001     | ±2.5       | ±.0005 | ±13 | ±.0005       | ±13                                                     | ±.0005 | ±13 | ±.0005 | ±13 | ±.0005 | ±13 | ±.0005 | ±13 | ±.0005 |
| 2010           | .0020  | 51 | .0010  | 25        | .0002      | 5          | .0160  | 406 | .0140        | 356                                                     | .0110  | 279 | .0040  | 102 | .0007  | 18  | .0007  | 18  | .0007  |
| 2015           | .0020  | 51 | .0015  | 38        | .0002      | 5          | .0160  | 406 | .0140        | 356                                                     | .0110  | 279 | .0040  | 102 | .0007  | 18  | .0007  | 18  | .0007  |
| 2020           | .0020  | 51 | .0020  | 51        | .0002      | 5          | .0170  | 432 | .0150        | 381                                                     | .0120  | 305 | .0040  | 102 | .0007  | 18  | .0007  | 18  | .0007  |
| 2025           | .0020  | 51 | .0025  | 64        | .0002      | 5          | .0170  | 432 | .0150        | 381                                                     | .0120  | 305 | .0040  | 102 | .0007  | 18  | .0007  | 18  | .0007  |
| 2030           | .0020  | 51 | .0030  | 76        | .0002      | 5          | .0170  | 432 | .0150        | 381                                                     | .0130  | 330 | .0040  | 102 | .0007  | 18  | .0007  | 18  | .0007  |
| 2520           | .0025  | 64 | .0020  | 51        | .0002      | 5          | .0170  | 432 | .0150        | 381                                                     | .0140  | 356 | .0040  | 102 | .0013  | 33  | .0013  | 33  | .0013  |
| 2525           | .0025  | 64 | .0025  | 64        | .0002      | 5          | .0170  | 432 | .0160        | 406                                                     | .0140  | 356 | .0040  | 102 | .0013  | 33  | .0013  | 33  | .0013  |
| 2530           | .0025  | 64 | .0030  | 76        | .0002      | 5          | .0180  | 457 | .0170        | 432                                                     | .0150  | 381 | .0050  | 127 | .0013  | 33  | .0013  | 33  | .0013  |
| 2535           | .0025  | 64 | .0035  | 89        | .0002      | 5          | .0180  | 457 | .0170        | 432                                                     | .0150  | 381 | .0050  | 127 | .0013  | 33  | .0013  | 33  | .0013  |
| 2540           | .0025  | 64 | .0040  | 102       | .0002      | 5          | .0180  | 457 | .0170        | 432                                                     | .0160  | 406 | .0050  | 127 | .0013  | 33  | .0013  | 33  | .0013  |
| 3020           | .0030  | 76 | .0020  | 51        | .0003      | 8          | .0190  | 483 | .0170        | 432                                                     | .0150  | 381 | .0050  | 127 | .0015  | 38  | .0015  | 38  | .0015  |
| 3025           | .0030  | 76 | .0025  | 64        | .0003      | 8          | .0200  | 508 | .0170        | 432                                                     | .0150  | 381 | .0050  | 127 | .0015  | 38  | .0015  | 38  | .0015  |
| 3030           | .0030  | 76 | .0030  | 76        | .0003      | 8          | .0200  | 508 | .0180        | 457                                                     | .0160  | 406 | .0050  | 127 | .0015  | 38  | .0015  | 38  | .0015  |
| 3035           | .0030  | 76 | .0035  | 89        | .0003      | 8          | .0210  | 533 | .0180        | 457                                                     | .0160  | 406 | .0050  | 127 | .0015  | 38  | .0015  | 38  | .0015  |
| 3040           | .0030  | 76 | .0040  | 102       | .0003      | 8          | .0210  | 533 | .0190        | 483                                                     | .0170  | 432 | .0050  | 127 | .0015  | 38  | .0015  | 38  | .0015  |
| 3525           | .0035  | 89 | .0025  | 64        | .0003      | 8          | .0220  | 559 | .0190        | 483                                                     | .0150  | 381 | .0060  | 152 | .0020  | 51  | .0020  | 51  | .0020  |
| 3530           | .0035  | 89 | .0030  | 76        | .0003      | 8          | .0220  | 559 | .0200        | 508                                                     | .0160  | 406 | .0060  | 152 | .0020  | 51  | .0020  | 51  | .0020  |
| 3535           | .0035  | 89 | .0035  | 89        | .0003      | 8          | .0230  | 584 | .0200        | 508                                                     | .0160  | 406 | .0060  | 152 | .0020  | 51  | .0020  | 51  | .0020  |
| 3540           | .0035  | 89 | .0040  | 102       | .0003      | 8          | .0230  | 584 | .0210        | 533                                                     | .0170  | 432 | .0060  | 152 | .0020  | 51  | .0020  | 51  | .0020  |
| 3545           | .0035  | 89 | .0045  | 114       | .0003      | 8          | .0240  | 610 | .0210        | 533                                                     | .0170  | 432 | .0060  | 152 | .0020  | 51  | .0020  | 51  | .0020  |
| 3550           | .0035  | 89 | .0050  | 127       | .0003      | 8          | .0240  | 610 | .0220        | 559                                                     | .0180  | 457 | .0060  | 152 | .0020  | 51  | .0020  | 51  | .0020  |

| STANDARD CHART |        |     |        |           |            |            |        |      |              | CN LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |      |        |      |        |     |        |     |        |
|----------------|--------|-----|--------|-----------|------------|------------|--------|------|--------------|---------------------------------------------------------|--------|------|--------|------|--------|-----|--------|-----|--------|
| TS             | H      | BL  | D      | T(30°38°) | T(45° 52°) | T(55° 60°) | W      |      | SUGGESTED WD |                                                         |        |      |        |      |        |     |        |     |        |
| Units          | in.    | μ   | in.    | μ         | in.        | μ          | in.    | μ    | in.          | μ                                                       | in.    | μ    | in.    | μ    | in.    | μ   | in.    | μ   | in.    |
| Tolerance      | ±.0005 | ±13 | ±.0005 | ±13       | ±.0001     | ±2.5       | ±.0010 | ±25  | ±.0010       | ±25                                                     | ±.0010 | ±25  | ±.0010 | ±25  | ±.0010 | ±25 | ±.0010 | ±25 | ±.0010 |
| 4560           | .0045  | 114 | .0060  | 152       | .0006      | 15         | .0340  | 864  | .0310        | 787                                                     | .0260  | 660  | .0075  | 191  | .0030  | 76  | .0030  | 76  | .0030  |
| 6008           | .0060  | 152 | .0080  | 203       | .0008      | 20         | .0390  | 991  | .0340        | 864                                                     | .0290  | 737  | .0100  | 254  | .0040  | 102 | .0040  | 102 | .0040  |
| 7510           | .0075  | 191 | .0100  | 254       | .0010      | 25         | .0450  | 1143 | .0410        | 1041                                                    | .0350  | 889  | .0125  | 318  | .0050  | 127 | .0050  | 127 | .0050  |
| 0912           | .0090  | 229 | .0120  | 305       | .0012      | 30         | .0520  | 1321 | .0490        | 1245                                                    | .0410  | 1041 | .0150  | 381  | .0060  | 152 | .0060  | 152 | .0060  |
| Tolerance      | ±.0005 | ±13 | ±.0010 | ±25       | ±.0002     | ±5         | ±.0010 | ±25  | ±.0010       | ±25                                                     | ±.0010 | ±25  | ±.0010 | ±25  | ±.0010 | ±25 | ±.0010 | ±25 | ±.0010 |
| 01014          | .0105  | 267 | .0140  | 356       | .0014      | 36         | .0650  | 1651 | .0540        | 1372                                                    | .0450  | 1143 | .0175  | 445  | .0070  | 178 | .0070  | 178 | .0070  |
| 01215          | .0120  | 305 | .0150  | 381       | .0016      | 41         | .0680  | 1727 | .0560        | 1422                                                    | .0460  | 1168 | .0200  | 508  | .0080  | 203 | .0080  | 203 | .0080  |
| 01518          | .0150  | 381 | .0180  | 457       | .0020      | 51         | .0720  | 1829 | .0640        | 1626                                                    | .0600  | 1524 | .0250  | 635  | .0100  | 254 | .0100  | 254 | .0100  |
| 01820          | .0180  | 457 | .0200  | 508       | .0024      | 61         | .0900  | 2286 | .0800        | 2032                                                    | .0690  | 1753 | .0300  | 762  | .0120  | 305 | .0120  | 305 | .0120  |
| 02122          | .0210  | 533 | .0220  | 559       | .0028      | 71         | .0980  | 2489 | .0820        | 2083                                                    | .0700  | 1778 | .0350  | 889  | .0140  | 356 | .0140  | 356 | .0140  |
| 02424          | .0240  | 610 | .0240  | 610       | .0032      | 81         | .1100  | 2794 | .0930        | 2362                                                    | .0830  | 2108 | .0400  | 1016 | .0160  | 406 | .0160  | 406 | .0160  |

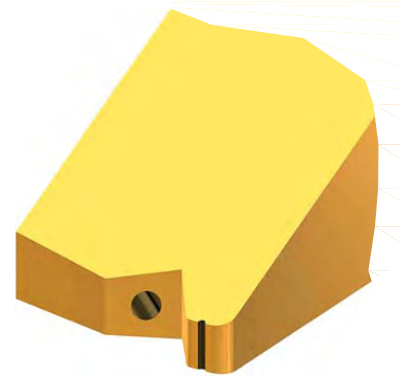
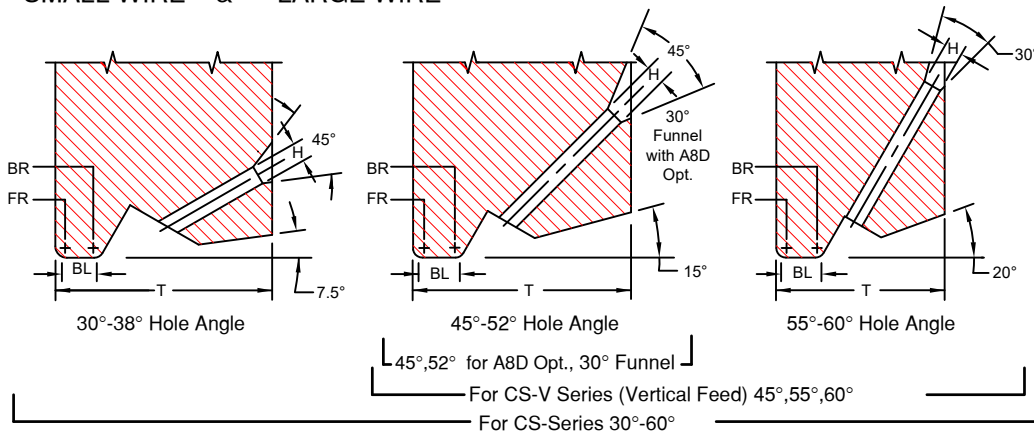
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES CS/CS-V

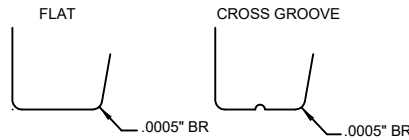
## SMALL WIRE & LARGE WIRE

FOR MANUAL AND SEMI-AUTOMATIC BONDERS



Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |



We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### CS-SERIES SMALL WIRE

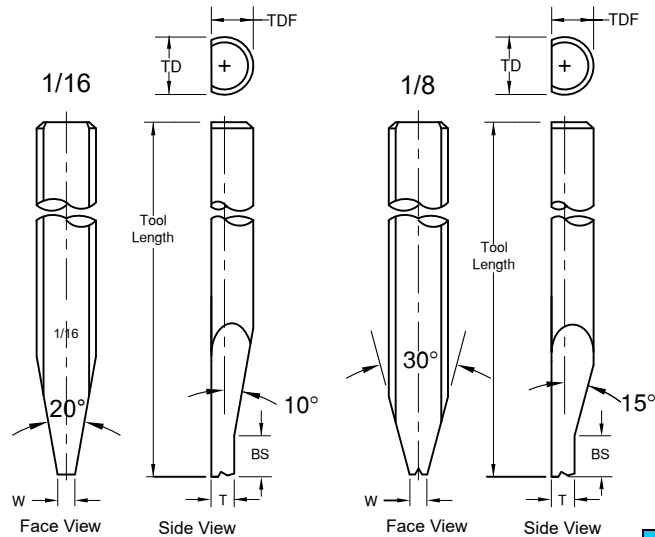
.0005" through .0020" wireØ

### CS-SERIES LARGE WIRE

For wire diameters .0030" through .0160"

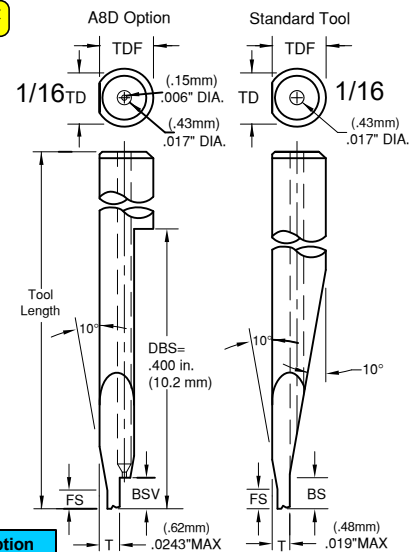
### CS-V SERIES VERTICAL FEED DEEP ACCESS

.0005" through .0020" wireØ



Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

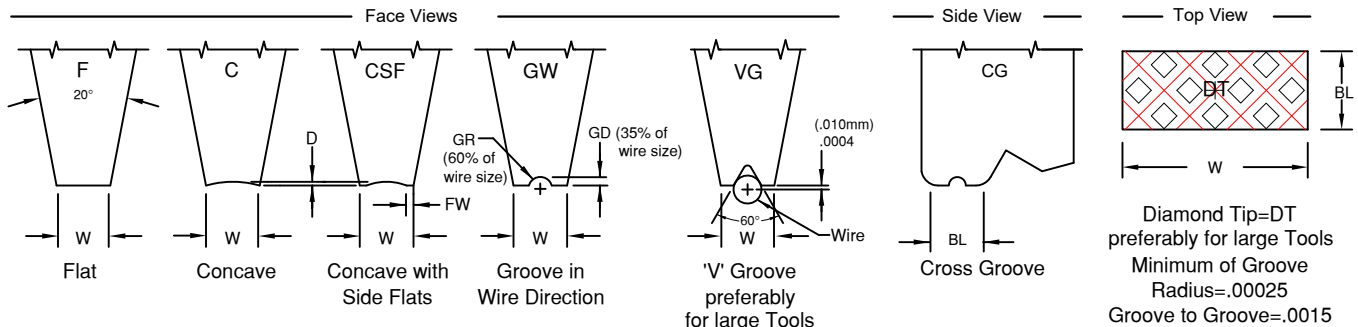
**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration. To order just add A8D in space 11. Not suitable for F&K and Hesse Mechatronics machine



### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |

Standard: Ø1/16 45° to 52° Hole Angle :  
**FS=.015"** (.38mm) **BS"=.045"** (1.14mm)  
Standard: (FS&BS) supplied unless otherwise specified. See Tool Options #A3  
**No FS if T=MAX**



Diamond Tip=DT preferably for large Tools  
Minimum of Groove Radius=.00025  
Groove to Groove=.0015

# SERIES CS/CS-V

SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: M-CS-O-X-1/16-1-45-CG-2020-M-\*

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
- SERIES:** CS (small Wire), CS (large Wire)
- WIRE FEED:** O = Standard Feed  
V = Vertical Feed
- FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
- SHANK DIA.:** Please Specify Diameter
- TOOL LENGTH:** Please Specify Length
- HOLE ANGLE:** for CS, (30°, 38°, 45°, 52°, 55°, 60°)  
for CS-V(45°, 55°, 60°) for CS-V with A8D Opt.(45°, 52°)

(11) See Tool Option

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-CS-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

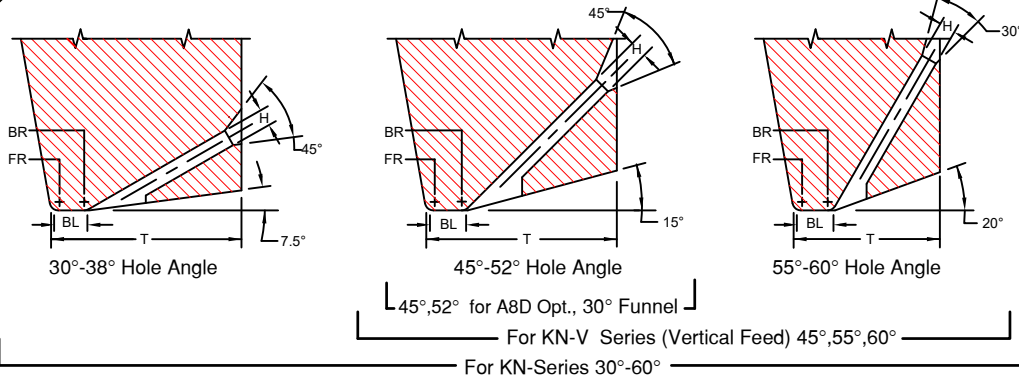
For Vertical Feed: Tmax. for Dia. 1/16 =.0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |        |     |        | CS SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |      |           |      |            |      |            |      |        |      |                           |     |  |
|----------------|--------|-----|--------|---------------------------------------------------------|--------|------|-----------|------|------------|------|------------|------|--------|------|---------------------------|-----|--|
| TS             | H      |     | BL     |                                                         | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |     |  |
| Units          | in.    | μ   | in.    | μ                                                       | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ   |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5                                                      | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0005 | ±13  | ±.0005                    | ±13 |  |
| 1505           | .0015  | 38  | .0005  | 13                                                      | .0002  | 5    | .0150     | 381  | .0130      | 330  | .0100      | 254  | .0025  | 64   | .0005<br>through<br>.0007 | 13  |  |
| 1507           | .0015  | 38  | .0007  | 18                                                      | .0002  | 5    | .0150     | 381  | .0130      | 330  | .0100      | 254  | .0025  | 64   |                           |     |  |
| 1510           | .0015  | 38  | .0010  | 25                                                      | .0002  | 5    | .0155     | 394  | .0135      | 343  | .0110      | 279  | .0025  | 64   |                           |     |  |
| 1513           | .0015  | 38  | .0013  | 33                                                      | .0002  | 5    | .0155     | 394  | .0140      | 356  | .0110      | 279  | .0025  | 64   |                           |     |  |
| 1515           | .0015  | 38  | .0015  | 38                                                      | .0002  | 5    | .0160     | 406  | .0140      | 356  | .0110      | 279  | .0025  | 64   |                           |     |  |
| 1520           | .0015  | 38  | .0020  | 51                                                      | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0120      | 305  | .0025  | 64   | .0007<br>through<br>.0010 | 18  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5                                                      | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0002 | ±5   |                           |     |  |
| 2010           | .0020  | 51  | .0010  | 25                                                      | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0110      | 279  | *.0040 | 102  |                           |     |  |
| 2015           | .0020  | 51  | .0015  | 38                                                      | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0120      | 305  | .0040  | 102  |                           |     |  |
| 2020           | .0020  | 51  | .0020  | 51                                                      | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0120      | 305  | .0040  | 102  |                           |     |  |
| 2025           | .0020  | 51  | .0025  | 64                                                      | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0130      | 330  | .0040  | 102  | .0013                     | 25  |  |
| 2030           | .0020  | 51  | .0030  | 76                                                      | .0002  | 5    | .0175     | 445  | .0155      | 394  | .0130      | 330  | .0040  | 102  |                           |     |  |
| 2520           | .0025  | 64  | .0020  | 51                                                      | .0002  | 5    | .0180     | 457  | .0160      | 406  | .0125      | 318  | .0040  | 102  |                           |     |  |
| 2525           | .0025  | 64  | .0025  | 64                                                      | .0002  | 5    | .0180     | 457  | .0160      | 406  | .0125      | 318  | .0040  | 102  |                           |     |  |
| 2530           | .0025  | 64  | .0030  | 76                                                      | .0002  | 5    | .0195     | 495  | .0170      | 432  | .0140      | 356  | .0040  | 102  |                           |     |  |
| 2535           | .0025  | 64  | .0035  | 89                                                      | .0002  | 5    | .0195     | 495  | .0170      | 432  | .0140      | 356  | .0040  | 102  | .0015                     | 33  |  |
| 2540           | .0025  | 64  | .0040  | 102                                                     | .0002  | 5    | .0200     | 508  | .0180      | 457  | .0150      | 381  | .0040  | 102  |                           |     |  |
| 3020           | .0030  | 76  | .0020  | 51                                                      | .0003  | 8    | .0190     | 483  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |     |  |
| 3025           | .0030  | 76  | .0025  | 64                                                      | .0003  | 8    | .0200     | 508  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |     |  |
| 3030           | .0030  | 76  | .0030  | 76                                                      | .0003  | 8    | .0200     | 508  | .0180      | 457  | .0160      | 406  | .0050  | 127  |                           |     |  |
| 3035           | .0030  | 76  | .0035  | 89                                                      | .0003  | 8    | .0210     | 533  | .0180      | 457  | .0160      | 406  | .0050  | 127  | .0020                     | 38  |  |
| 3040           | .0030  | 76  | .0040  | 102                                                     | .0003  | 8    | .0210     | 533  | .0190      | 483  | .0170      | 432  | .0050  | 127  |                           |     |  |
| 3525           | .0035  | 89  | .0025  | 64                                                      | .0003  | 8    | .0220     | 559  | .0190      | 483  | .0170      | 432  | .0060  | 152  |                           |     |  |
| 3530           | .0035  | 89  | .0030  | 76                                                      | .0003  | 8    | .0220     | 559  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |     |  |
| 3535           | .0035  | 89  | .0035  | 89                                                      | .0003  | 8    | .0230     | 584  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |     |  |
| 3540           | .0035  | 89  | .0040  | 102                                                     | .0003  | 8    | .0230     | 584  | .0210      | 533  | .0190      | 483  | .0060  | 152  | .0020                     | 51  |  |
| 3545           | .0035  | 89  | .0045  | 114                                                     | .0003  | 8    | .0240     | 610  | .0210      | 533  | .0190      | 483  | .0060  | 152  |                           |     |  |
| 3550           | .0035  | 89  | .0050  | 127                                                     | .0003  | 8    | .0240     | 610  | .0220      | 559  | .0190      | 483  | .0060  | 152  |                           |     |  |
| STANDARD CHART |        |     |        | CS LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |      |           |      |            |      |            |      |        |      |                           |     |  |
| TS             | H      |     | BL     |                                                         | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |     |  |
| Units          | in.    | μ   | in.    | μ                                                       | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ   |  |
| Tolerance      | ±.0005 | ±13 | ±.0005 | ±13                                                     | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25 |  |
| 4560           | .0045  | 114 | .0060  | 152                                                     | .0006  | 15   | .0340     | 864  | .0310      | 787  | .0260      | 660  | .0075  | 191  | .0030                     | 76  |  |
| 6008           | .0060  | 152 | .0080  | 203                                                     | .0008  | 20   | .0390     | 991  | .0340      | 864  | .0290      | 737  | .0100  | 254  | .0040                     | 102 |  |
| 7510           | .0075  | 191 | .0100  | 254                                                     | .0010  | 25   | .0450     | 1143 | .0410      | 1041 | .0350      | 889  | .0125  | 318  | .0050                     | 127 |  |
| 0912           | .0090  | 229 | .0120  | 305                                                     | .0012  | 30   | .0520     | 1321 | .0490      | 1245 | .0410      | 1041 | .0150  | 381  | .0060                     | 152 |  |
| Tolerance      | ±.0005 | ±13 | ±.0010 | ±25                                                     | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25 |  |
| 01014          | .0105  | 267 | .0140  | 356                                                     | .0014  | 36   | .0650     | 1651 | .0540      | 1372 | .0450      | 1143 | .0175  | 445  | .0070                     | 178 |  |
| 01215          | .0120  | 305 | .0150  | 381                                                     | .0016  | 41   | .0680     | 1727 | .0560      | 1422 | .0460      | 1168 | .0200  | 508  | .0080                     | 203 |  |
| 01518          | .0150  | 381 | .0180  | 457                                                     | .0020  | 51   | .0720     | 1829 | .0640      | 1626 | .0600      | 1524 | .0250  | 635  | .0100                     | 254 |  |
| 01820          | .0180  | 457 | .0200  | 508                                                     | .0024  | 61   | .0900     | 2286 | .0800      | 2032 | .0690      | 1753 | .0300  | 762  | .0120                     | 305 |  |
| 02122          | .0210  | 533 | .0220  | 559                                                     | .0028  | 71   | .0980     | 2489 | .0820      | 2083 | .0700      | 1778 | .0350  | 889  | .0140                     | 356 |  |
| 02424          | .0240  | 610 | .0240  | 610                                                     | .0032  | 81   | .1100     | 2794 | .0930      | 2362 | .0830      | 2108 | .0400  | 1016 | .0160                     | 406 |  |

# SERIES KN & KN-V

## SMALL WIRE & LARGE WIRE

FOR AUTOMATIC BONDERS



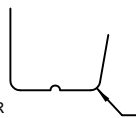
Available Vertical Hole Ø marked with X

| TD   | TDF   |      | For Vertical Hole |
|------|-------|------|-------------------|
|      | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 1.17        |
| 1/16 | .0624 | 1.59 | .0590 1.50        |
|      | .0784 | 1.99 | .0630 1.60        |
|      | .0784 | 1.99 | .0720 1.83        |
| 3/32 | .0937 | 2.38 | .0880 2.24        |
|      | .1180 | 3.00 | .0985 2.50        |
| 1/8  | .1249 | 3.17 | .0937 2.38        |
| 1/8  | .1249 | 3.17 | .1180 3.00        |

FLAT



CROSS GROOVE



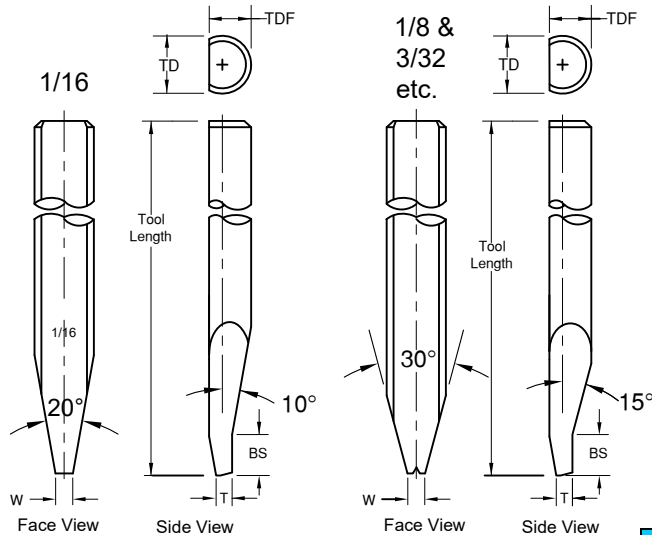
We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### KN-SERIES SMALL WIRE

.0005" through .0020" wireØ

### KN-SERIES LARGE WIRE

.0030" through .0160" For wire Ø

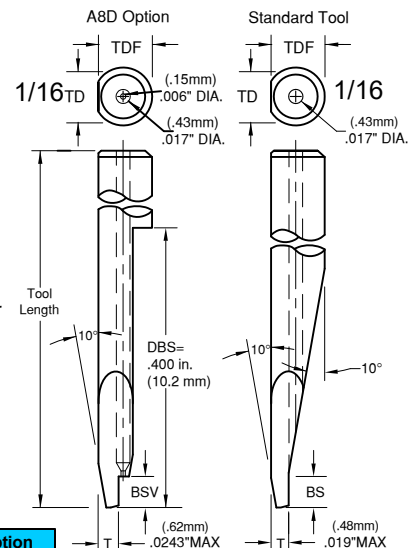


Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

### KN-V SERIES VERTICAL FEED DEEP ACCESS

.0005" through .0020" wireØ

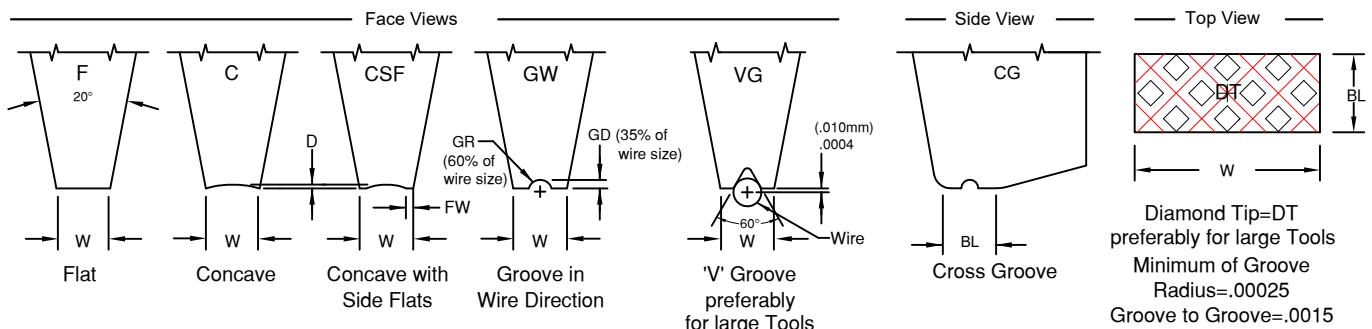
**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration. To order just add A8D in space 11. Not suitable for F&K and Hesse Mechatronics machine



#### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |

Standard: Ø1/16 45° to 52° Hole Angle : BS"=.045" (1.14mm)  
Standard: (BS) supplied unless otherwise specified. See Tool Options  
**No Front Angle if T=MAX**



Diamond Tip=DT preferably for large Tools  
Minimum of Groove Radius=.00025  
Groove to Groove=.0015

# SERIES KN & KN-V

## SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



SAMPLE PART NUMBER: **M-KN-O-X-1/16-1-45-CG-2020-M-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
- SERIES:** KN
- WIRE FEED:** O = Standard Feed  
V = Vertical Feed
- FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
- SHANK DIA.:** Please Specify Diameter
- TOOL LENGTH:** Please Specify Length
- HOLE ANGLE:** for KN (30°, 38°, 45°, 55°, 52°, 60°), for KN-V (45°, 55°, 60°)  
for KN-V with A8D Opt.(45°, 52°)

(11) See Tool Option

(10) FOOT FINISH:

**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

**F** = Flat  
**C** = Concave  
**CSF** = Concave with Side Flats  
(CSF not available with ceramic tools)  
**CG** = Cross Groove  
**GW** = Groove in wire direction  
(Please specify wire size)  
**DT** = Diamond Tip (Please specify Ribbon size)  
**VG** = V Groove (Please specify wire size)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-KN-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART KN SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |     |        |           |            |            |        |              |        |      |
|------------------------------------------------------------------------|--------|-----|--------|-----------|------------|------------|--------|--------------|--------|------|
| TS                                                                     | H      | BL  | D      | T(30°38°) | T(45° 52°) | T(55° 60°) | W      | SUGGESTED WD |        |      |
| Units                                                                  | in.    | μ   | in.    | μ         | in.        | μ          | in.    | μ            | in.    | μ    |
| Tolerance                                                              | ±.0002 | ±5  | ±.0002 | ±5        | -.0001     | -2.5       | ±.0005 | ±13          | ±.0005 | ±13  |
| 1505                                                                   | .0015  | 38  | .0005  | 13        | .0002      | 5          | .0140  | 356          | .0110  | 279  |
| 1507                                                                   | .0015  | 38  | .0007  | 18        | .0002      | 5          | .0140  | 356          | .0110  | 279  |
| 1510                                                                   | .0015  | 38  | .0010  | 25        | .0002      | 5          | .0140  | 356          | .0120  | 305  |
| 1513                                                                   | .0015  | 38  | .0013  | 33        | .0002      | 5          | .0140  | 356          | .0130  | 330  |
| 1515                                                                   | .0015  | 38  | .0015  | 38        | .0002      | 5          | .0150  | 381          | .0130  | 330  |
| 1520                                                                   | .0015  | 38  | .0020  | 51        | .0002      | 5          | .0150  | 381          | .0130  | 330  |
| Tolerance                                                              | ±.0002 | ±5  | ±.0002 | ±5        | -.0001     | -2.5       | ±.0005 | ±13          | ±.0005 | ±13  |
| 2010                                                                   | .0020  | 51  | .0010  | 25        | .0002      | 5          | .0160  | 406          | .0110  | 279  |
| 2015                                                                   | .0020  | 51  | .0015  | 38        | .0002      | 5          | .0160  | 406          | .0110  | 279  |
| 2020                                                                   | .0020  | 51  | .0020  | 51        | .0002      | 5          | .0170  | 432          | .0120  | 305  |
| 2025                                                                   | .0020  | 51  | .0025  | 64        | .0002      | 5          | .0170  | 432          | .0120  | 305  |
| 2030                                                                   | .0020  | 51  | .0030  | 76        | .0002      | 5          | .0170  | 432          | .0150  | 381  |
| 2520                                                                   | .0025  | 64  | .0020  | 51        | .0002      | 5          | .0170  | 432          | .0150  | 381  |
| 2525                                                                   | .0025  | 64  | .0025  | 64        | .0002      | 5          | .0170  | 432          | .0160  | 406  |
| 2530                                                                   | .0025  | 64  | .0030  | 76        | .0002      | 5          | .0180  | 457          | .0170  | 432  |
| 2535                                                                   | .0025  | 64  | .0035  | 89        | .0002      | 5          | .0180  | 457          | .0170  | 432  |
| 2540                                                                   | .0025  | 64  | .0040  | 102       | .0002      | 5          | .0180  | 457          | .0170  | 432  |
| 3020                                                                   | .0030  | 76  | .0020  | 51        | .0003      | 8          | .0190  | 483          | .0170  | 432  |
| 3025                                                                   | .0030  | 76  | .0025  | 64        | .0003      | 8          | .0200  | 508          | .0170  | 432  |
| 3030                                                                   | .0030  | 76  | .0030  | 76        | .0003      | 8          | .0200  | 508          | .0180  | 457  |
| 3035                                                                   | .0030  | 76  | .0035  | 89        | .0003      | 8          | .0210  | 533          | .0180  | 457  |
| 3040                                                                   | .0030  | 76  | .0040  | 102       | .0003      | 8          | .0210  | 533          | .0190  | 483  |
| 3525                                                                   | .0035  | 89  | .0025  | 64        | .0003      | 8          | .0220  | 559          | .0190  | 483  |
| 3530                                                                   | .0035  | 89  | .0030  | 76        | .0003      | 8          | .0220  | 559          | .0200  | 508  |
| 3535                                                                   | .0035  | 89  | .0035  | 89        | .0003      | 8          | .0230  | 584          | .0200  | 508  |
| 3540                                                                   | .0035  | 89  | .0040  | 102       | .0003      | 8          | .0230  | 584          | .0210  | 533  |
| 3545                                                                   | .0035  | 89  | .0045  | 114       | .0003      | 8          | .0240  | 610          | .0210  | 533  |
| 3550                                                                   | .0035  | 89  | .0050  | 127       | .0003      | 8          | .0240  | 610          | .0220  | 559  |
| STANDARD CHART KN LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |        |     |        |           |            |            |        |              |        |      |
| TS                                                                     | H      | BL  | D      | T(30°38°) | T(45° 52°) | T(55° 60°) | W      | SUGGESTED WD |        |      |
| Units                                                                  | in.    | μ   | in.    | μ         | in.        | μ          | in.    | μ            | in.    | μ    |
| Tolerance                                                              | ±.0005 | ±13 | ±.0005 | ±13       | -.0001     | -2.5       | ±.0010 | ±25          | ±.0010 | ±25  |
| 4560                                                                   | .0045  | 114 | .0060  | 152       | .0006      | 15         | .0340  | 864          | .0260  | 660  |
| 6008                                                                   | .0060  | 152 | .0080  | 203       | .0008      | 20         | .0390  | 991          | .0340  | 864  |
| 7510                                                                   | .0075  | 191 | .0100  | 254       | .0010      | 25         | .0450  | 1143         | .0410  | 1041 |
| 0912                                                                   | .0090  | 229 | .0120  | 305       | .0012      | 30         | .0520  | 1321         | .0490  | 1245 |
| Tolerance                                                              | ±.0005 | ±13 | ±.0010 | ±25       | ±.0002     | ±5         | ±.0010 | ±25          | ±.0010 | ±25  |
| 01014                                                                  | .0105  | 267 | .0140  | 356       | .0014      | 36         | .0650  | 1651         | .0540  | 1372 |
| 01215                                                                  | .0120  | 305 | .0150  | 381       | .0016      | 41         | .0680  | 1727         | .0560  | 1422 |
| 01518                                                                  | .0150  | 381 | .0180  | 457       | .0020      | 51         | .0720  | 1829         | .0640  | 1626 |
| 01820                                                                  | .0180  | 457 | .0200  | 508       | .0024      | 61         | .0900  | 2286         | .0800  | 2032 |
| 02122                                                                  | .0210  | 533 | .0220  | 559       | .0028      | 71         | .0980  | 2489         | .0820  | 2083 |
| 02424                                                                  | .0240  | 610 | .0240  | 610       | .0032      | 81         | .1100  | 2794         | .0930  | 2362 |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

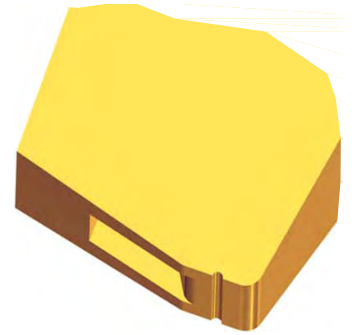
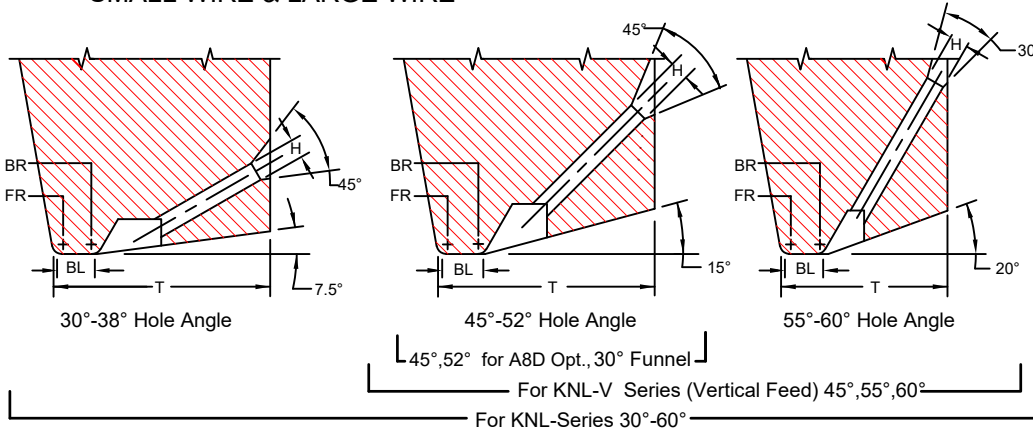
DeWeyl Tool Company, 959 Transport Way Petaluma, CA 94954 USA Phone 800-821-8665 707-765-5779



# SERIES KNL & KNL-V

## SMALL WIRE & LARGE WIRE

FOR AUTOMATIC BONDERS



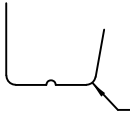
Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

FLAT



CROSS GROOVE



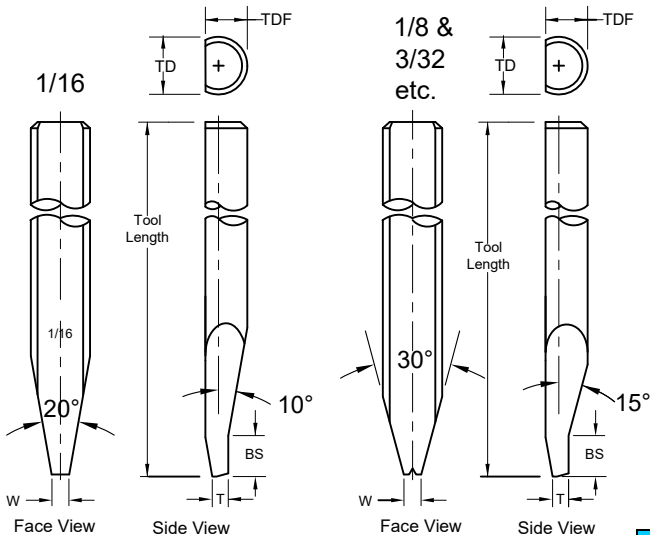
We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### KNL-SERIES SMALL WIRE

.0005" through .0020" wireØ

### KNL-SERIES LARGE WIRE

For wire diameters .0030" through .0160"



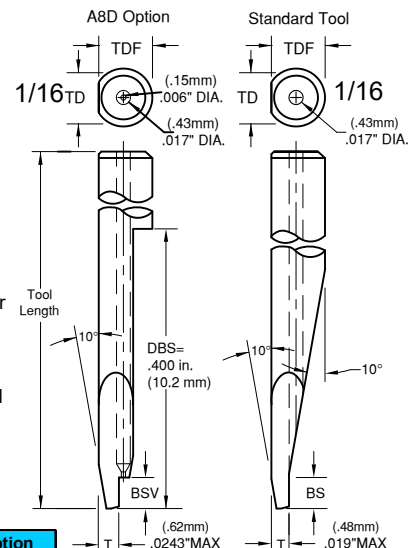
Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm).  
Supplies only to Standard size Ø 1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control.

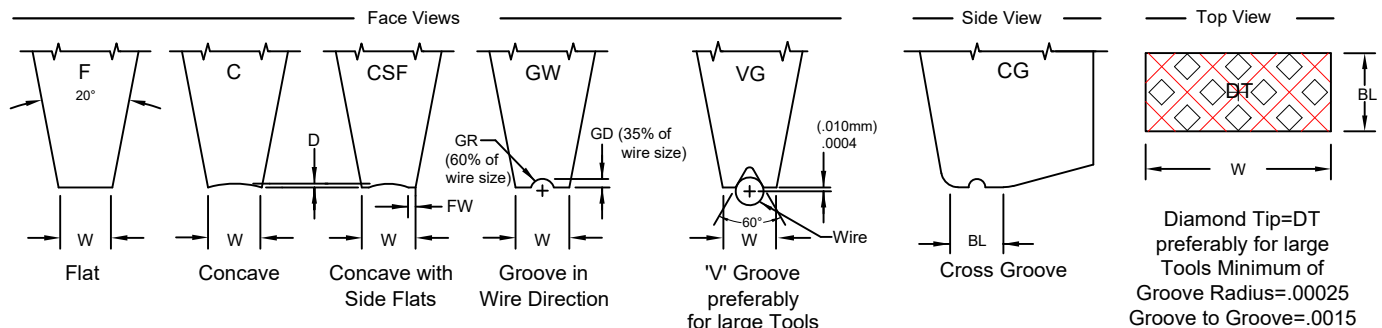
See in **Tool Options** for illustration.  
To order just add A8D in space 11.  
Not suitable for F&K and Hesse Mechatronics machine

### A8D Option

| Hole Angles Available with A8D Option | BSV  |      |
|---------------------------------------|------|------|
|                                       | in.  | mm   |
| 45°                                   | .035 | .89  |
| 52°                                   | .050 | 1.27 |



Standard: Ø 1/16 45° to 52° Hole Angle : BS"=.045" (1.14mm)  
Standard: (BS) supplied unless otherwise specified. See Tool Options  
**No Front Angle if T=MAX**



Diamond Tip=DT preferably for large Tools Minimum of Groove Radius=.00025 Groove to Groove=.0015

# SERIES KNL & KNL-V

SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER: M-KNL-O-X-1/16-1-45-CG-2020-M-\***

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11

- MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide
- SERIES:** KNL \_\_\_\_\_
- WIRE FEED:** O = Standard Feed \_\_\_\_\_  
V = Vertical Feed \_\_\_\_\_
- FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
- SHANK DIA.:** Please Specify Diameter \_\_\_\_\_
- TOOL LENGTH:** Please Specify Length \_\_\_\_\_
- HOLE ANGLE:** for KNL (30°, 38°, 45°, 55°, 52°, 60°), for KNL-V (45°, 55°, 60°)  
for KNL-V with A8D Opt.(45°, 52°)

(11) See Tool Option

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)  
DT = Diamond Tip (Please specify Ribbon size)  
VG = V Groove (Please specify wire size)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-KNL-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 =.0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |        |     |        |     |        |      |           |      |            |      |            |      |        |      |                           |              | KNL SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------|--------|-----|--------|-----|--------|------|-----------|------|------------|------|------------|------|--------|------|---------------------------|--------------|----------------------------------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| TS             | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Units          | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ            | in.                                                      | μ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0005 | ±13  | ±.0005                    | ±13          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1505           | .0015  | 38  | .0005  | 13  | .0002  | 5    | .0140     | 356  | .0120      | 305  | .0100      | 254  | .0025  | 64   | .0005<br>through<br>.0007 | 13<br><br>18 |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1507           | .0015  | 38  | .0007  | 18  | .0002  | 5    | .0140     | 356  | .0125      | 318  | .0100      | 254  | .0025  | 64   |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1510           | .0015  | 38  | .0010  | 25  | .0002  | 5    | .0140     | 356  | .0130      | 330  | .0100      | 254  | .0025  | 64   |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1513           | .0015  | 38  | .0013  | 33  | .0002  | 5    | .0140     | 356  | .0130      | 330  | .0110      | 279  | .0025  | 64   |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1515           | .0015  | 38  | .0015  | 38  | .0002  | 5    | .0150     | 381  | .0130      | 330  | .0110      | 279  | .0025  | 64   |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1520           | .0015  | 38  | .0020  | 51  | .0002  | 5    | .0150     | 381  | .0140      | 356  | .0110      | 279  | .0025  | 64   |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0002 | ±5   | .0007<br>through<br>.0010 | 18<br><br>25 |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2010           | .0020  | 51  | .0010  | 25  | .0002  | 5    | .0160     | 406  | .0140      | 356  | .0120      | 305  | *.0040 | 102  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2015           | .0020  | 51  | .0015  | 38  | .0002  | 5    | .0160     | 406  | .0140      | 356  | .0120      | 305  | .0040  | 102  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2020           | .0020  | 51  | .0020  | 51  | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0130      | 330  | .0040  | 102  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2025           | .0020  | 51  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0130      | 330  | .0040  | 102  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2030           | .0020  | 51  | .0030  | 76  | .0002  | 5    | .0180     | 457  | .0150      | 381  | .0140      | 356  | .0040  | 102  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2520           | .0025  | 64  | .0020  | 51  | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0140      | 356  | .0040  | 102  | .0013                     | 33           |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2525           | .0025  | 64  | .0025  | 64  | .0002  | 5    | .0180     | 457  | .0160      | 406  | .0140      | 356  | .0040  | 102  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2530           | .0025  | 64  | .0030  | 76  | .0002  | 5    | .0180     | 457  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2535           | .0025  | 64  | .0035  | 89  | .0002  | 5    | .0180     | 457  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2540           | .0025  | 64  | .0040  | 102 | .0002  | 5    | .0190     | 483  | .0170      | 432  | .0160      | 406  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3020           | .0030  | 76  | .0020  | 51  | .0003  | 8    | .0200     | 508  | .0170      | 432  | .0150      | 381  | .0050  | 127  | .0015                     | 38           |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3025           | .0030  | 76  | .0025  | 64  | .0003  | 8    | .0200     | 508  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3030           | .0030  | 76  | .0030  | 76  | .0003  | 8    | .0200     | 508  | .0180      | 457  | .0160      | 406  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3035           | .0030  | 76  | .0035  | 89  | .0003  | 8    | .0210     | 533  | .0180      | 457  | .0160      | 406  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3040           | .0030  | 76  | .0040  | 102 | .0003  | 8    | .0210     | 533  | .0190      | 483  | .0170      | 432  | .0050  | 127  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3525           | .0035  | 89  | .0025  | 64  | .0003  | 8    | .0220     | 559  | .0190      | 483  | .0170      | 432  | .0060  | 152  | .0020                     | 51           |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3530           | .0035  | 89  | .0030  | 76  | .0003  | 8    | .0220     | 559  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3535           | .0035  | 89  | .0035  | 89  | .0003  | 8    | .0230     | 584  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3540           | .0035  | 89  | .0040  | 102 | .0003  | 8    | .0230     | 584  | .0210      | 533  | .0190      | 483  | .0060  | 152  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3545           | .0035  | 89  | .0045  | 114 | .0003  | 8    | .0240     | 610  | .0210      | 533  | .0190      | 483  | .0060  | 152  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3550           | .0035  | 89  | .0050  | 127 | .0003  | 8    | .0240     | 610  | .0220      | 559  | .0200      | 508  | .0060  | 152  |                           |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| STANDARD CHART |        |     |        |     |        |      |           |      |            |      |            |      |        |      |                           |              | KNL LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TS             | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |              |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Units          | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ            | in.                                                      | μ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0005 | ±13 | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4560           | .0045  | 114 | .0060  | 152 | .0006  | 15   | .0340     | 864  | .0310      | 787  | .0260      | 660  | .0075  | 191  | .0030                     | 76           |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6008           | .0060  | 152 | .0080  | 203 | .0008  | 20   | .0390     | 991  | .0340      | 864  | .0290      | 737  | .0100  | 254  | .0040                     | 102          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7510           | .0075  | 191 | .0100  | 254 | .0010  | 25   | .0450     | 1143 | .0410      | 1041 | .0350      | 889  | .0125  | 318  | .0050                     | 127          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0912           | .0090  | 229 | .0120  | 305 | .0012  | 30   | .0520     | 1321 | .0490      | 1245 | .0410      | 1041 | .0150  | 381  | .0060                     | 152          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0010 | ±25 | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01014          | .0105  | 267 | .0140  | 356 | .0014  | 36   | .0650     | 1651 | .0540      | 1372 | .0450      | 1143 | .0175  | 445  | .0070                     | 178          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01215          | .0120  | 305 | .0150  | 381 | .0016  | 41   | .0680     | 1727 | .0560      | 1422 | .0460      | 1168 | .0200  | 508  | .0080                     | 203          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01518          | .0150  | 381 | .0180  | 457 | .0020  | 51   | .0720     | 1829 | .0640      | 1626 | .0600      | 1524 | .0250  | 635  | .0100                     | 254          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 01820          | .0180  | 457 | .0200  | 508 | .0024  | 61   | .0900     | 2286 | .0800      | 2032 | .0690      | 1753 | .0300  | 762  | .0120                     | 305          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 02122          | .0210  | 533 | .0220  | 559 | .0028  | 71   | .0980     | 2489 | .0820      | 2083 | .0700      | 1778 | .0350  | 889  | .0140                     | 356          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 02424          | .0240  | 610 | .0240  | 610 | .0032  | 81   | .1100     | 2794 | .0930      | 2362 | .0830      | 2108 | .0400  | 1016 | .0160                     | 406          |                                                          |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

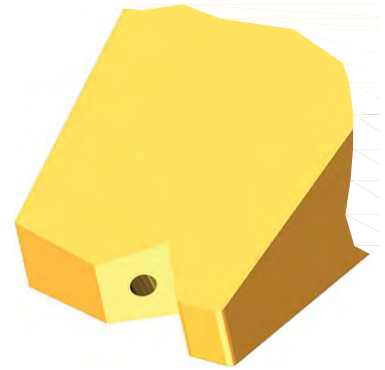
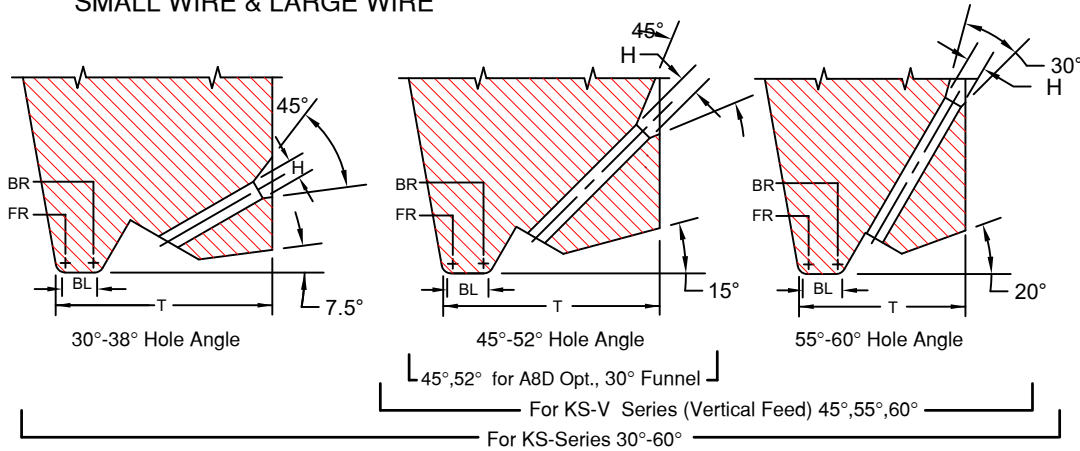
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES KS & KS-V

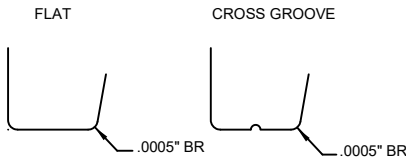
## SMALL WIRE & LARGE WIRE

FOR MANUAL AND SEMI-AUTOMATIC BONDERS



Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |



We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### KS-SERIES SMALL WIRE

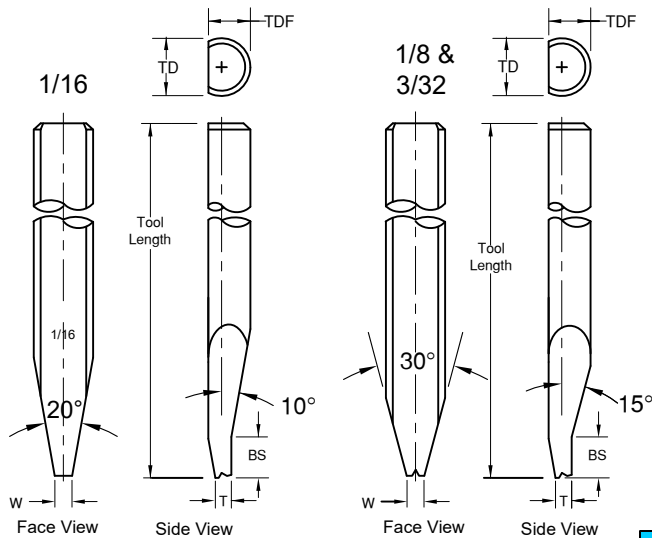
.0005" through .0020" wireØ

### KS-SERIES LARGE WIRE

For wire diameters .0030" through .0160"

### KS-V SERIES VERTICAL FEED DEEP ACCESS

SMALL WIRE .0005" through .0020" wireØ

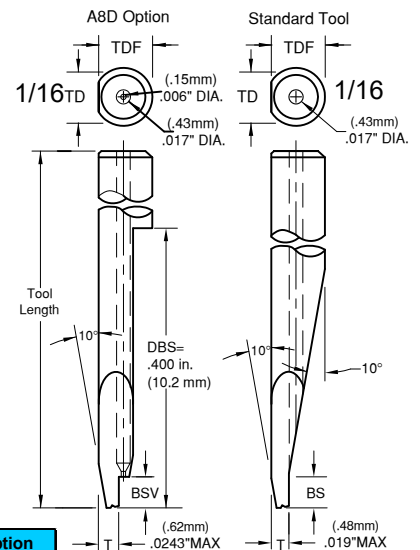


Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

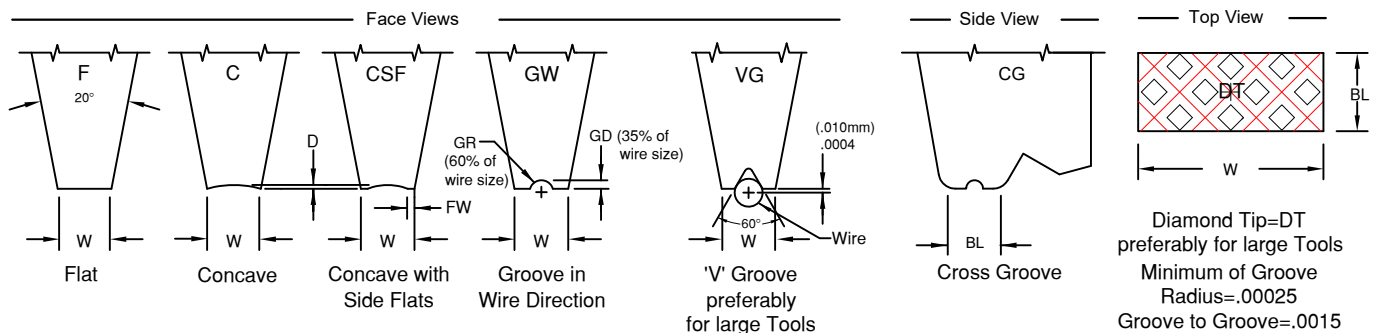
**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration. To order just add A8D in space 11. Not suitable for F&K and Hesse Mechatronics machine

#### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |



Standard: Ø1/16 45° to 52° Hole Angle : BS"=.045" (1.14mm)  
Standard: (BS) supplied unless otherwise specified. See Tool Options  
**No Front Angle if T=MAX**



# SERIES KS & KS-V

SMALL WIRE & LARGE WIRE

ORDERING INFORMATION  
SMALL & LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: M-KS-O-X-1/16-1-45-CG-2020-M-\*

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

1. MATERIAL: M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
(11) See Tool Option

All other: See Material Selection Guide

2. SERIES: KS

3. WIRE FEED: O = Standard Feed  
V = Vertical Feed

4. FRONT/BACK RADIUS: See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR

5. SHANK DIA.: Please Specify Diameter

6. TOOL LENGTH: Please Specify Length

7. HOLE ANGLE: for KS (30°, 38°, 45°, 52°, 55°, 60°) for KS-V (45°, 55°, 60°)  
for KS-V with A8D Opt. (45°, 52°)

\*NOTE: Please specify for either guillotine cut or tension break.

On V-groove tools the bond length (BL) is the same as the foot length (FL).

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-KS-O-X-1/16-3/4-45-CG-2020-M (X) FR=.0012, BR=.0007

(10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)

P = Polish finish (FR, BR, & Bond Flat)

MP = Matte finish (Bond Flat)

(9) TOOL SIZE: See Standard Chart

(8) FOOT TYPE:

F = Flat

C = Concave

CSF = Concave with Side Flats  
(CSF not available with ceramic tools)

CG = Cross Groove

GW = Groove in wire direction  
(Please specify wire size)

DT = Diamond Tip (Please specify Ribbon size)

VG = V Groove (Please specify wire size)

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax = .0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| STANDARD CHART |        |     |        |     |        |      |           |      |            |      |            |      |        |      |                           |     |                           | KS SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |  |  |  |  |  |  |  |  |  |
|----------------|--------|-----|--------|-----|--------|------|-----------|------|------------|------|------------|------|--------|------|---------------------------|-----|---------------------------|---------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| TS             | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| Units          | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ   |                           |                                                         |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0005 | ±13  | ±.0005                    | ±13 |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 1505           | .0015  | 38  | .0005  | 13  | .0002  | 5    | .0150     | 381  | .0130      | 330  | .0100      | 254  | .0025  | 64   | .0005<br>through<br>.0007 | 13  | 18                        |                                                         |  |  |  |  |  |  |  |  |  |
| 1507           | .0015  | 38  | .0007  | 18  | .0002  | 5    | .0150     | 381  | .0130      | 330  | .0100      | 254  | .0025  | 64   |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 1510           | .0015  | 38  | .0010  | 25  | .0002  | 5    | .0155     | 394  | .0135      | 343  | .0110      | 279  | .0025  | 64   |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 1513           | .0015  | 38  | .0013  | 33  | .0002  | 5    | .0155     | 394  | .0140      | 356  | .0110      | 279  | .0025  | 64   |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 1515           | .0015  | 38  | .0015  | 38  | .0002  | 5    | .0160     | 406  | .0140      | 356  | .0110      | 279  | .0025  | 64   |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 1520           | .0015  | 38  | .0020  | 51  | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0120      | 305  | .0025  | 64   |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5  | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005    | ±13  | ±.0005     | ±13  | ±.0005     | ±13  | ±.0002 | ±5   | .0007<br>through<br>.0010 | 18  | 25                        |                                                         |  |  |  |  |  |  |  |  |  |
| 2010           | .0020  | 51  | .0010  | 25  | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0110      | 279  | *.0040 | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2015           | .0020  | 51  | .0015  | 38  | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0120      | 305  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2020           | .0020  | 51  | .0020  | 51  | .0002  | 5    | .0165     | 419  | .0145      | 368  | .0120      | 305  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2025           | .0020  | 51  | .0025  | 64  | .0002  | 5    | .0170     | 432  | .0150      | 381  | .0130      | 330  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2030           | .0020  | 51  | .0030  | 76  | .0002  | 5    | .0175     | 445  | .0155      | 394  | .0130      | 330  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2520           | .0025  | 64  | .0020  | 51  | .0002  | 5    | .0180     | 457  | .0160      | 406  | .0125      | 318  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2525           | .0025  | 64  | .0025  | 64  | .0002  | 5    | .0180     | 457  | .0160      | 406  | .0125      | 318  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2530           | .0025  | 64  | .0030  | 76  | .0002  | 5    | .0195     | 495  | .0170      | 432  | .0140      | 356  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2535           | .0025  | 64  | .0035  | 89  | .0002  | 5    | .0195     | 495  | .0170      | 432  | .0140      | 356  | .0040  | 102  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 2540           | .0025  | 64  | .0040  | 102 | .0002  | 5    | .0200     | 508  | .0180      | 457  | .0150      | 381  | .0040  | 102  | .0013                     | 33  |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3020           | .0030  | 76  | .0020  | 51  | .0003  | 8    | .0190     | 483  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3025           | .0030  | 76  | .0025  | 64  | .0003  | 8    | .0200     | 508  | .0170      | 432  | .0150      | 381  | .0050  | 127  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3030           | .0030  | 76  | .0030  | 76  | .0003  | 8    | .0200     | 508  | .0180      | 457  | .0160      | 406  | .0050  | 127  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3035           | .0030  | 76  | .0035  | 89  | .0003  | 8    | .0210     | 533  | .0180      | 457  | .0160      | 406  | .0050  | 127  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3040           | .0030  | 76  | .0040  | 102 | .0003  | 8    | .0210     | 533  | .0190      | 483  | .0170      | 432  | .0050  | 127  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3525           | .0035  | 89  | .0025  | 64  | .0003  | 8    | .0220     | 559  | .0190      | 483  | .0170      | 432  | .0060  | 152  | .0015                     | 38  |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3530           | .0035  | 89  | .0030  | 76  | .0003  | 8    | .0220     | 559  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3535           | .0035  | 89  | .0035  | 89  | .0003  | 8    | .0230     | 584  | .0200      | 508  | .0180      | 457  | .0060  | 152  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3540           | .0035  | 89  | .0040  | 102 | .0003  | 8    | .0230     | 584  | .0210      | 533  | .0190      | 483  | .0060  | 152  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3545           | .0035  | 89  | .0045  | 114 | .0003  | 8    | .0240     | 610  | .0210      | 533  | .0190      | 483  | .0060  | 152  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 3550           | .0035  | 89  | .0050  | 127 | .0003  | 8    | .0240     | 610  | .0220      | 559  | .0190      | 483  | .0060  | 152  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| STANDARD CHART |        |     |        |     |        |      |           |      |            |      |            |      |        |      |                           |     |                           | KS LARGE WIRE: FOR WIRE DIAMETERS .0030" THROUGH .0160" |  |  |  |  |  |  |  |  |  |
| TS             | H      |     | BL     |     | D      |      | T(30°38°) |      | T(45° 52°) |      | T(55° 60°) |      | W      |      | SUGGESTED WD              |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| Units          | in.    | μ   | in.    | μ   | in.    | μ    | in.       | μ    | in.        | μ    | in.        | μ    | in.    | μ    | in.                       | μ   |                           |                                                         |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0005 | ±13 | -.0001 | -2.5 | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | ±.0010                    | ±25 |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 4560           | .0045  | 114 | .0060  | 152 | .0006  | 15   | .0340     | 864  | .0310      | 787  | .0260      | 660  | .0075  | 191  | .0030                     | 76  | .0005<br>through<br>.0007 | 13                                                      |  |  |  |  |  |  |  |  |  |
| 6008           | .0060  | 152 | .0080  | 203 | .0008  | 20   | .0390     | 991  | .0340      | 864  | .0290      | 737  | .0100  | 254  | .0040                     | 102 |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 7510           | .0075  | 191 | .0100  | 254 | .0010  | 25   | .0450     | 1143 | .0410      | 1041 | .0350      | 889  | .0125  | 318  | .0050                     | 127 |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 0912           | .0090  | 229 | .0120  | 305 | .0012  | 30   | .0520     | 1321 | .0490      | 1245 | .0410      | 1041 | .0150  | 381  | .0060                     | 152 |                           |                                                         |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0005 | ±13 | ±.0010 | ±25 | ±.0002 | ±5   | ±.0010    | ±25  | ±.0010     | ±25  | ±.0010     | ±25  | ±.0010 | ±25  | .0007<br>through<br>.0010 | 18  | 25                        |                                                         |  |  |  |  |  |  |  |  |  |
| 01014          | .0105  | 267 | .0140  | 356 | .0014  | 36   | .0650     | 1651 | .0540      | 1372 | .0450      | 1143 | .0175  | 445  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 01215          | .0120  | 305 | .0150  | 381 | .0016  | 41   | .0680     | 1727 | .0560      | 1422 | .0460      | 1168 | .0200  | 508  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 01518          | .0150  | 381 | .0180  | 457 | .0020  | 51   | .0720     | 1829 | .0640      | 1626 | .0600      | 1524 | .0250  | 635  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 01820          | .0180  | 457 | .0200  | 508 | .0024  | 61   | .0900     | 2286 | .0800      | 2032 | .0690      | 1753 | .0300  | 762  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 02122          | .0210  | 533 | .0220  | 559 | .0028  | 71   | .0980     | 2489 | .0820      | 2083 | .0700      | 1778 | .0350  | 889  |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 02424          | .0240  | 610 | .0240  | 610 | .0032  | 81   | .1100     | 2794 | .0930      | 2362 | .0830      | 2108 | .0400  | 1016 |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |
| 02726          | .0270  | 688 | .0270  | 688 | .0036  | 91   | .1200     | 3006 | .1020      | 2556 | .0920      | 2292 | .0450  | 1143 |                           |     |                           |                                                         |  |  |  |  |  |  |  |  |  |

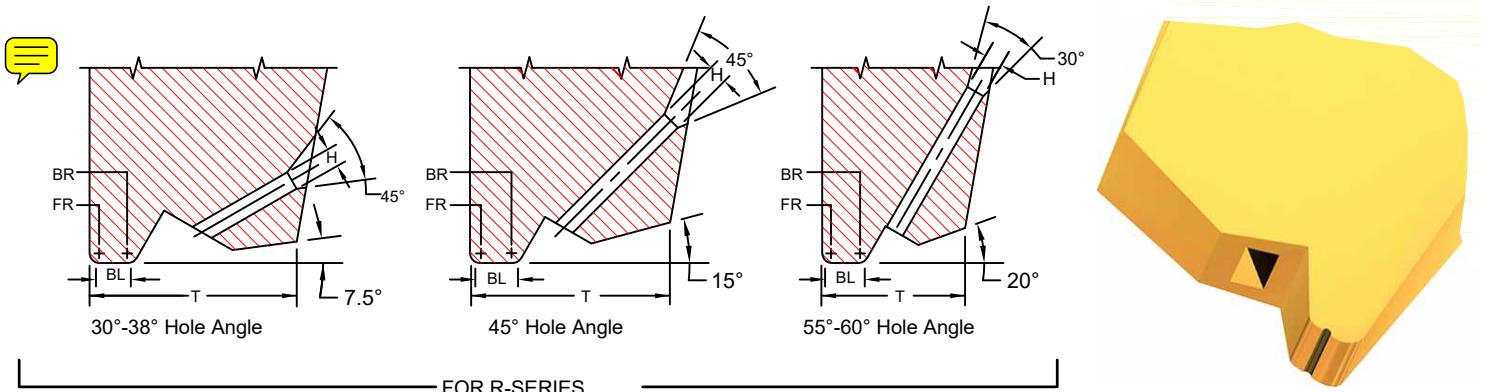
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

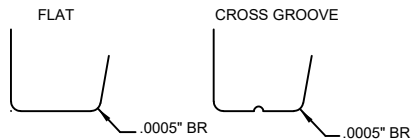
# SERIES R & R-V

## RIBBON WIRE

FOR MANUAL AND SEMI-AUTOMATIC BONDERS



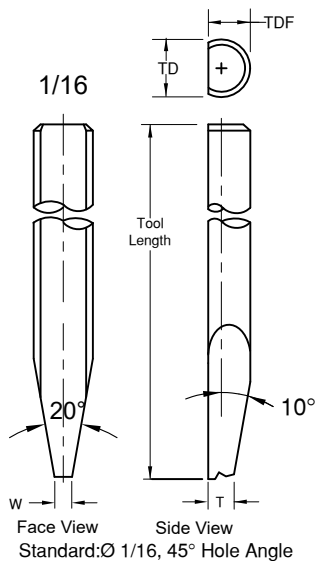
|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

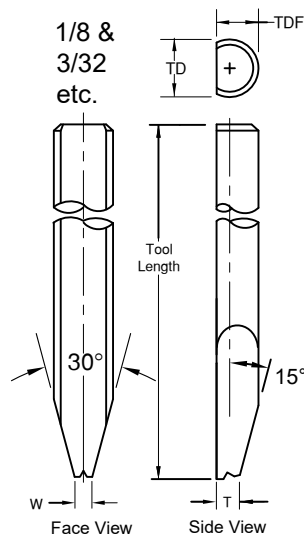
### R-SERIES

Ribbon Width: .0020" through .030"  
Ribbon Thickness: .00025" through .0020"



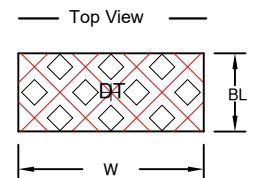
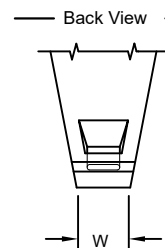
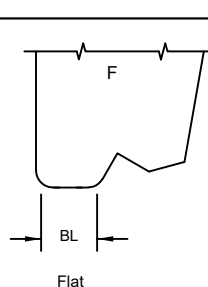
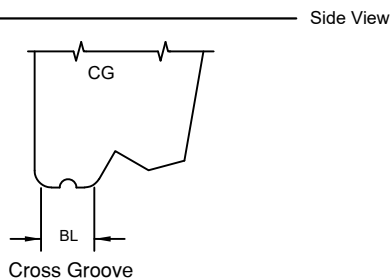
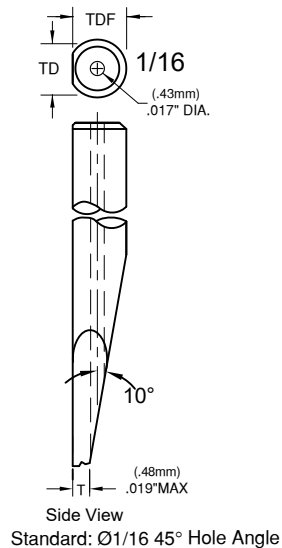
### R-SERIES

Large Ø



### R-V SERIES VERTICAL FEED DEEP ACCESS

Ribbon Width: .0020" through .030"  
Ribbon Thickness: .00025" through .0020"



Diamond Tip=DT  
preferably for large Tools  
Minimum of Groove  
Radius=.00025  
Groove to Groove=.0015

# SERIES R& R-V

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER:** M-R-O-D-1/16-1-45-CG-.5x5-2-M- \*

**SYMBOL EXPLANATION:**

|                                                            |   |   |   |   |   |   |   |   |   |    |    |    |
|------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|
| 1. <b>MATERIAL:</b>                                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| M = Ceramic                                                |   |   |   |   |   |   |   |   |   |    |    |    |
| C = Tungsten Carbide                                       |   |   |   |   |   |   |   |   |   |    |    |    |
| T = Titanium                                               |   |   |   |   |   |   |   |   |   |    |    |    |
| All other: See Material Selection Guide                    |   |   |   |   |   |   |   |   |   |    |    |    |
| 2. <b>SERIES:</b> R                                        |   |   |   |   |   |   |   |   |   |    |    |    |
| 3. <b>WIRE FEED:</b> O = Standard Feed                     |   |   |   |   |   |   |   |   |   |    |    |    |
| V = Vertical Feed                                          |   |   |   |   |   |   |   |   |   |    |    |    |
| 4. <b>FRONT/BACK RADIUS:</b> See Radius Option Chart       |   |   |   |   |   |   |   |   |   |    |    |    |
| *For special Radius sizes insert an X Please specify FR/BR |   |   |   |   |   |   |   |   |   |    |    |    |
| 5. <b>SHANK DIA.:</b> Please Specify Diameter              |   |   |   |   |   |   |   |   |   |    |    |    |
| 6. <b>TOOL LENGTH:</b> Please Specify Length               |   |   |   |   |   |   |   |   |   |    |    |    |
| 7. <b>HOLE ANGLE:</b> 30°, 38°, 45°, 52° 55°, 60°          |   |   |   |   |   |   |   |   |   |    |    |    |

(12) See Tool Option

(11) **FOOT FINISH:**

M = Matte finish (FR, BR, & Bond Flat)

P = Polish finish (FR, BR, & Bond Flat)

MP = Polish finish (FR, BR), and Matte finish (Bond Flat)

(10) **Bond Length:** See Standard Chart  
Example: BL of .0020 = 2  
Note: We do not recommend bond lengths any larger than .005".

(9) **RIBBON SIZE:** See Standard Chart  
Example: .0005 x .005 = .5 x 5  
Thickness x Width

(8) **FOOT TYPE:** F = Flat  
CG = Cross Groove  
DT = Diamond Tip  
(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-R-O-X-1/16-3/4-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

| STANDARD CHART R RIBBON WIRE: FOR RIBBON THICKNESS: .00025" THROUGH .0020" WIDTHS: .002" THROUGH .030" |     |                       |        |        |     |           |     |            |     |            |     |        |     |  |  |
|--------------------------------------------------------------------------------------------------------|-----|-----------------------|--------|--------|-----|-----------|-----|------------|-----|------------|-----|--------|-----|--|--|
| RIBBON WIDTH                                                                                           |     | RIBBON THICKNESS      |        | BL     |     | T(30°38°) |     | T(45° 52°) |     | T(55° 60°) |     | W      |     |  |  |
| in.                                                                                                    | μ   | in.                   | μ      | in.    | μ   | in.       | μ   | in.        | μ   | in.        | μ   | in.    | μ   |  |  |
| <b>Tolerance</b>                                                                                       |     |                       |        | ±.0002 | ±5  | ±.0005    | ±13 | ±.0005     | ±13 | ±.0005     | ±13 | ±.0002 | ±5  |  |  |
| .0020                                                                                                  | 51  | .00025 through .00125 | 6.4 32 | .0010  | 25  | .0120     | 305 | .0110      | 279 | .0080      | 203 | .0055  | 140 |  |  |
|                                                                                                        |     |                       |        | .0015  | 38  | .0130     | 330 | .0110      | 279 | .0090      | 229 |        |     |  |  |
|                                                                                                        |     |                       |        | .0020  | 51  | .0130     | 330 | .0120      | 305 | .0090      | 229 |        |     |  |  |
|                                                                                                        |     |                       |        | .0025  | 64  | .0140     | 356 | .0120      | 305 | .0100      | 254 |        |     |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0140     | 356 | .0130      | 330 | .0100      | 254 |        |     |  |  |
| .0030                                                                                                  | 76  | .00025 through .00125 | 6.4 32 | .0010  | 25  | .0160     | 406 | .0130      | 330 | .0090      | 229 | .0065  | 165 |  |  |
|                                                                                                        |     |                       |        | .0015  | 38  | .0160     | 406 | .0130      | 330 | .0100      | 254 |        |     |  |  |
|                                                                                                        |     |                       |        | .0020  | 51  | .0160     | 406 | .0140      | 356 | .0100      | 254 |        |     |  |  |
|                                                                                                        |     |                       |        | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
| .0040                                                                                                  | 102 | .00025 through .00125 | 6.4 32 | .0020  | 51  | .0160     | 406 | .0140      | 356 | .0100      | 254 | .0075  | 191 |  |  |
|                                                                                                        |     |                       |        | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
| .0050                                                                                                  | 127 | .0005 through .0020   | 13 51  | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 | .0085  | 216 |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0045  | 113 | .0190     | 478 | .0160      | 406 | .0130      | 330 |        |     |  |  |
| .0070                                                                                                  | 178 | .0005 through .0020   | 13 51  | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 | .0125  | 318 |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0045  | 113 | .0190     | 478 | .0160      | 406 | .0130      | 330 |        |     |  |  |
| .0100                                                                                                  | 254 | .0005 through .0020   | 13 51  | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 | .0155  | 394 |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0045  | 113 | .0190     | 478 | .0160      | 406 | .0130      | 330 |        |     |  |  |
| .0120                                                                                                  | 305 | .0005 through .0020   | 13 51  | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 | .0175  | 445 |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0045  | 113 | .0190     | 478 | .0160      | 406 | .0130      | 330 |        |     |  |  |
| .0150                                                                                                  | 381 | .0005 through .0020   | 13 51  | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 | .0205  | 521 |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0045  | 113 | .0190     | 478 | .0160      | 406 | .0130      | 330 |        |     |  |  |
| .0200                                                                                                  | 508 | .0005 through .0020   | 13 51  | .0025  | 64  | .0170     | 432 | .0140      | 356 | .0110      | 279 | .0255  | 648 |  |  |
|                                                                                                        |     |                       |        | .0030  | 76  | .0170     | 432 | .0140      | 356 | .0110      | 279 |        |     |  |  |
|                                                                                                        |     |                       |        | .0035  | 89  | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0040  | 102 | .0180     | 457 | .0150      | 381 | .0120      | 305 |        |     |  |  |
|                                                                                                        |     |                       |        | .0045  | 113 | .0190     | 478 | .0160      | 406 | .0130      | 330 |        |     |  |  |

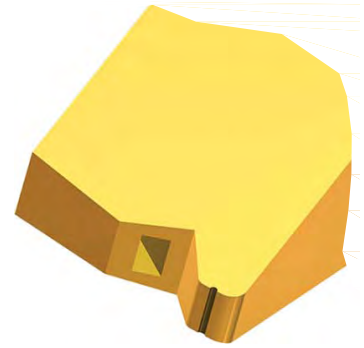
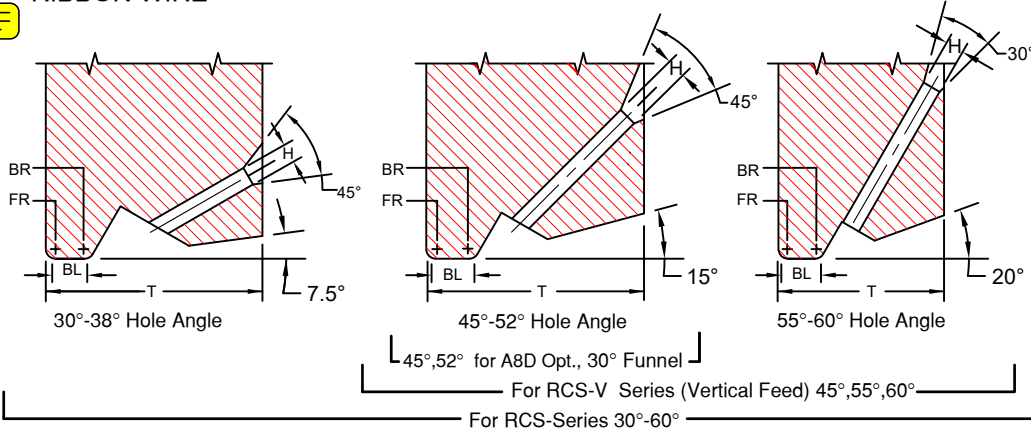
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

"T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES RCS & RCS-V

FOR MANUAL AND SEMI-AUTOMATIC BONDERS

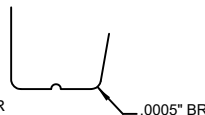
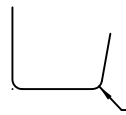
## RIBBON WIRE



|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

FLAT

CROSS GROOVE

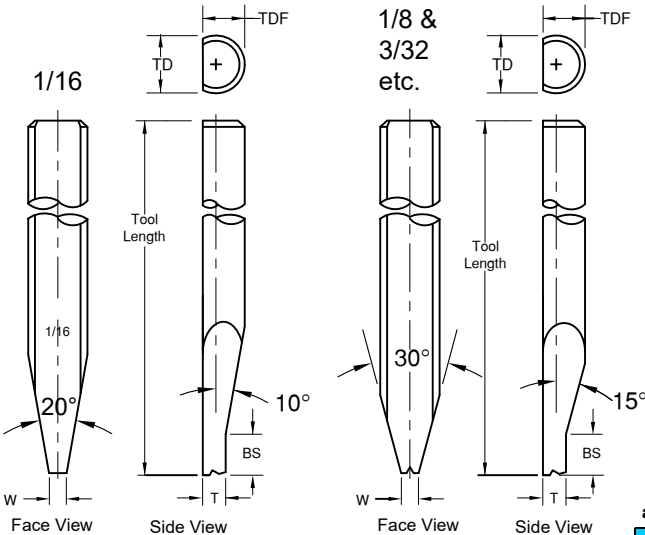


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see Tech Tip

### RCS-SERIES RIBBON WIRE

Ribbon Width: .0020" through .030"

Ribbon Thickness: .00025" through .0020"

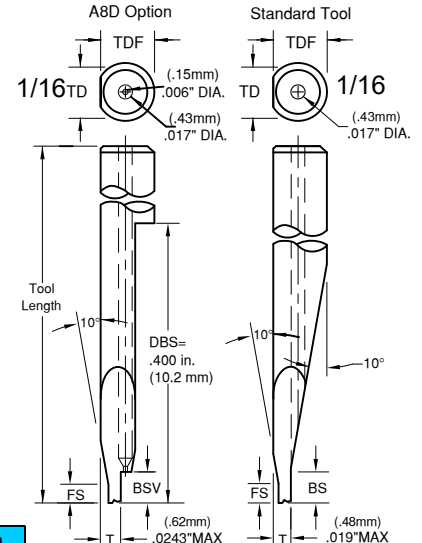


Standard: Ø 1/16, 45° to 52° Hole Angle : BS=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

### RCS-V SERIES VERTICAL FEED DEEP ACCESS

Ribbon Width: .0020" through .030"

Ribbon Thickness: .00025" through .0020"



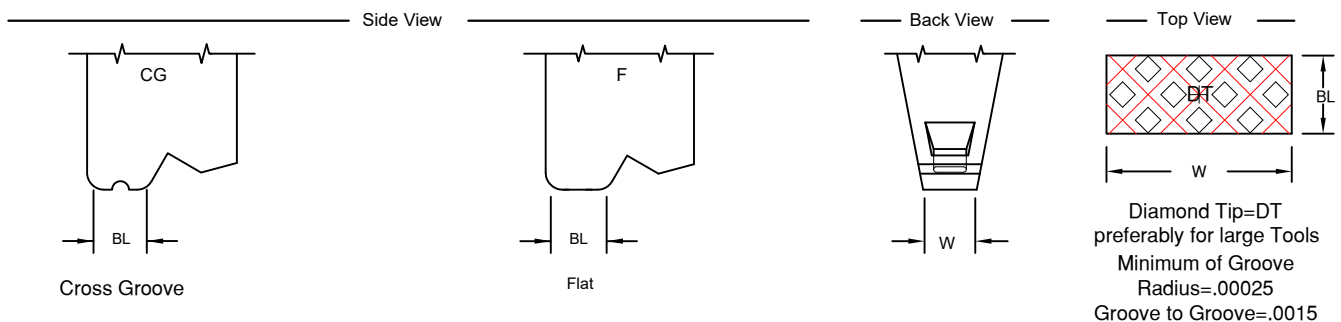
**NOTE:** We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See in **Tool Options** for illustration. To order just add A8D in space 11. Not suitable for F&K and Hesse Mechatronics machine

#### A8D Option

available for ribbon widths up to .005

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |

Standard: Ø1/16 45° to 52° Hole Angle :  
**FS=.015"** (.38mm) **BS=.045"** (1.14mm)  
Standard: (FS&BS) supplied unless otherwise specified. See Tool Option #A3  
**No FS if T=MAX**



# SERIES RCS & RCS-V

RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M-RCS-O-D-1/16-1-45-CG-.5x5-2-M-\*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11 12

1. **MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
2. **SERIES:** RCS
3. **WIRE FEED:** O = Standard Feed  
V = Vertical Feed
4. **FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
5. **SHANK DIA.:** Please Specify Diameter
6. **TOOL LENGTH:** Please Specify Length
7. **HOLE ANGLE:** for RCS (30°, 38°, 45°, 52°, 55°, 60°) for RCS-V (45°, 55°, 60°)  
for RCS-V with A8D Opt.(45°, 52°)
- (12) See Tool Option
- (11) **FOOT FINISH:**
  - M = Matte finish (FR, BR, & Bond Flat)
  - P = Polish finish (FR, BR, & Bond Flat)
  - MP = Matte finish (Bond Flat)
- (10) **Bond Length:** See Standard Chart  
Example: BL of .0020 = 2  
Note: We do not recommend bond lengths any larger than .005".
- (9) **RIBBON SIZE:** See Standard Chart  
Example: .0005 x .005 = .5 x 5  
Thickness x Width
- (8) **FOOT TYPE:**
  - F = Flat
  - CG = Cross Groove
  - DT = Diamond Tip
  - (Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RCS-O-X-1/16-3/4-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax. = .0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

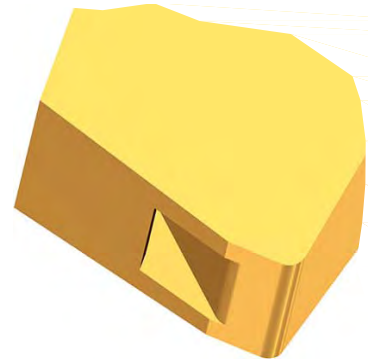
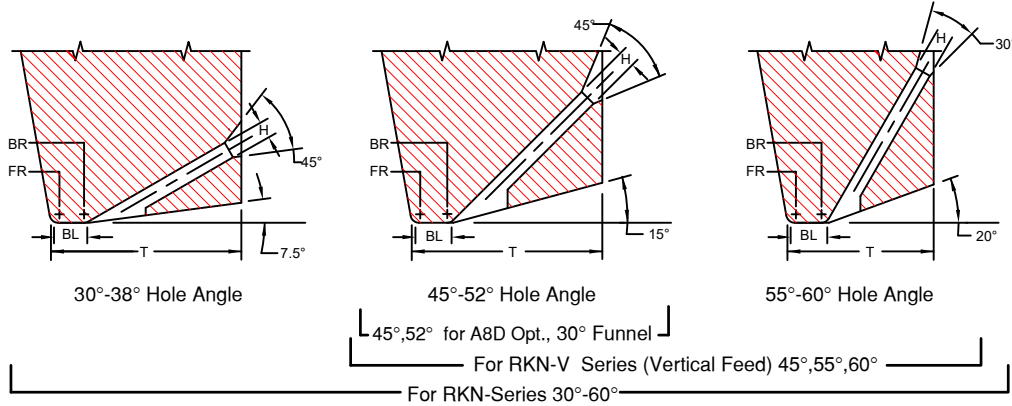
| Size Restrictions<br>for Vertical Feed Tools                                |                         |                          |
|-----------------------------------------------------------------------------|-------------------------|--------------------------|
| STANDARD                                                                    |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0150                   | .0190                    |
| 3/32                                                                        | .0300                   | .0210                    |
| A8D Option, RW up to .0070                                                  |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0070                   | .0243                    |
| A8D Option, RW .0080 and larger                                             |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0120                   | .0190                    |
| Larger Tool Ø, Ribbon Width and "T"<br>Dimensions<br>available upon request |                         |                          |
| RW = Ribbon Width                                                           |                         |                          |

| STANDARD CHART  |     | RCS                         |                   | FOR RIBBON THICKNESS: .00025" THROUGH .0020"<br>WIDTHS: .002" THROUGH .030" |  |            |  |            |  |            |  |           |     |           |  |
|-----------------|-----|-----------------------------|-------------------|-----------------------------------------------------------------------------|--|------------|--|------------|--|------------|--|-----------|-----|-----------|--|
| RIBBON<br>WIDTH |     | RIBBON<br>THICKNESS         |                   | BL                                                                          |  | T(30°38°)  |  | T(45° 52°) |  | T(55° 60°) |  | W         |     |           |  |
| in. μ           |     | in. μ                       |                   | in. μ                                                                       |  | in. μ      |  | in. μ      |  | in. μ      |  | in. μ     |     |           |  |
| Tolerance       |     |                             |                   | ±.0002 ±5                                                                   |  | ±.0005 ±13 |  | ±.0005 ±13 |  | ±.0005 ±13 |  | ±.0002 ±5 |     |           |  |
| .0020           | 51  | .00025<br>through<br>.00125 | 6.4<br><br><br>32 | .0010 25                                                                    |  | .0130 330  |  | .0110 279  |  | .0090 229  |  | .0055     | 140 |           |  |
|                 |     |                             |                   | .0015 38                                                                    |  | .0130 330  |  | .0110 279  |  | .0090 229  |  |           |     |           |  |
|                 |     |                             |                   | .0020 51                                                                    |  | .0140 356  |  | .0120 305  |  | .0100 254  |  |           |     |           |  |
|                 |     |                             |                   | .0025 64                                                                    |  | .0140 356  |  | .0120 305  |  | .0100 254  |  |           |     |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0150 381  |  | .0130 330  |  | .0105 267  |  |           |     |           |  |
| .0030           | 76  | .00025<br>through<br>.00125 | 6.4<br><br><br>32 | .0010 25                                                                    |  | .0150 381  |  | .0130 330  |  | .0110 279  |  | .0065     | 165 |           |  |
|                 |     |                             |                   | .0015 38                                                                    |  | .0150 381  |  | .0140 356  |  | .0110 279  |  |           |     |           |  |
|                 |     |                             |                   | .0020 51                                                                    |  | .0160 406  |  | .0140 356  |  | .0120 305  |  |           |     |           |  |
|                 |     |                             |                   | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  |           |     |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
| .0040           | 102 | .00025<br>through<br>.00125 | 6.4<br><br><br>32 | .0020 51                                                                    |  | .0160 406  |  | .0140 356  |  | .0120 305  |  | .0075     | 191 |           |  |
|                 |     |                             |                   | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  |           |     |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0005 through                                                               |  | .0020 51   |  | .0025 64   |  | .0160 406  |  |           |     | .0150 381 |  |
| .0050           | 127 | .0005<br>through<br>.0020   | 13<br><br><br>51  | .0020 51                                                                    |  | .0160 406  |  | .0140 356  |  | .0120 305  |  | .0085     | 216 |           |  |
|                 |     |                             |                   | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  |           |     |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0035 89                                                                    |  | .0170 432  |  | .0155 394  |  | .0130 330  |  |           |     |           |  |
| .0070           | 178 | .0005<br>through<br>.0020   | 13<br><br><br>51  | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  | .0125     | 318 |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0035 89                                                                    |  | .0170 432  |  | .0155 394  |  | .0130 330  |  |           |     |           |  |
|                 |     |                             |                   | .0040 102                                                                   |  | .0170 432  |  | .0160 406  |  | .0140 356  |  |           |     |           |  |
| .0100           | 254 | .0005<br>through<br>.0020   | 13<br><br><br>51  | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  | .0155     | 394 |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0035 89                                                                    |  | .0170 432  |  | .0155 394  |  | .0130 330  |  |           |     |           |  |
|                 |     |                             |                   | .0040 102                                                                   |  | .0170 432  |  | .0160 406  |  | .0140 356  |  |           |     |           |  |
| .0120           | 305 | .0005<br>through<br>.0020   | 13<br><br><br>51  | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  | .0175     | 445 |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0035 89                                                                    |  | .0170 432  |  | .0155 394  |  | .0130 330  |  |           |     |           |  |
|                 |     |                             |                   | .0040 102                                                                   |  | .0170 432  |  | .0160 406  |  | .0140 356  |  |           |     |           |  |
| .0150           | 381 | .0005<br>through<br>.0020   | 13<br><br><br>51  | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  | .0205     | 521 |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0035 89                                                                    |  | .0170 432  |  | .0155 394  |  | .0130 330  |  |           |     |           |  |
|                 |     |                             |                   | .0040 102                                                                   |  | .0170 432  |  | .0160 406  |  | .0140 356  |  |           |     |           |  |
| .0200           | 508 | .0005<br>through<br>.0020   | 13<br><br><br>51  | .0025 64                                                                    |  | .0160 406  |  | .0150 381  |  | .0120 305  |  | .0255     | 648 |           |  |
|                 |     |                             |                   | .0030 76                                                                    |  | .0160 406  |  | .0155 394  |  | .0125 318  |  |           |     |           |  |
|                 |     |                             |                   | .0035 89                                                                    |  | .0170 432  |  | .0155 394  |  | .0130 330  |  |           |     |           |  |
|                 |     |                             |                   | .0040 102                                                                   |  | .0170 432  |  | .0160 406  |  | .0140 356  |  |           |     |           |  |

# SERIES RKN & RKN-V

## RIBBON WIRE

FOR AUTOMATIC BONDERS

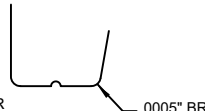


Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

FLAT

CROSS GROOVE

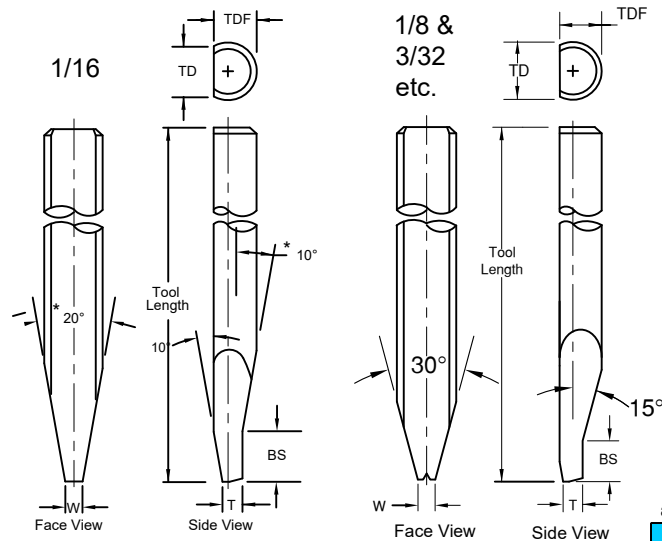


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

### RKN-SERIES RIBBON WIRE

Ribbon Width: .0020" through .030"  
Ribbon Thickness: .00025" through .0020"

For all large Ø



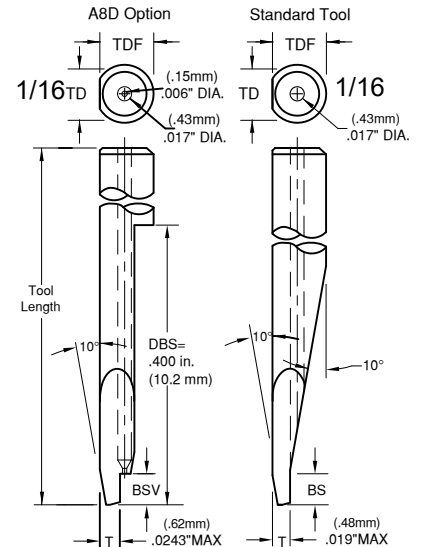
Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

Ribbon Width: .0020" through .030", Ribbon Thickness: .00025" through .0020"

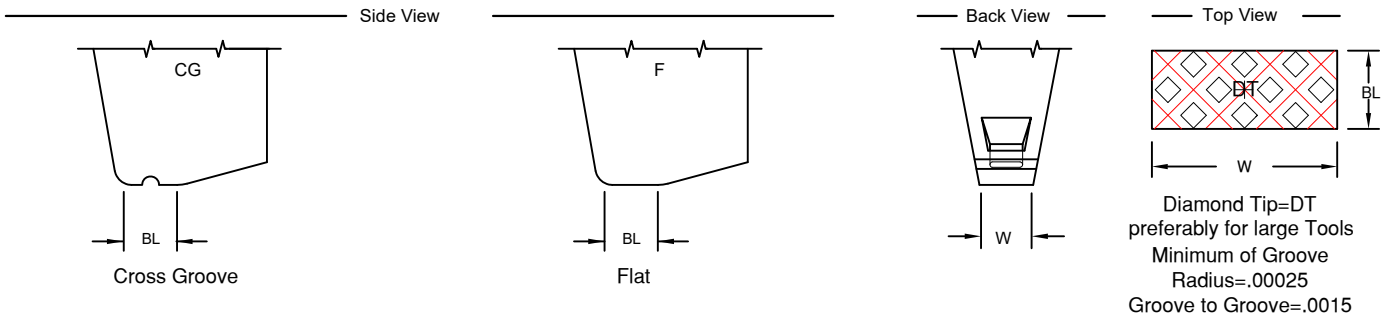
NOTE: We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See Tool Option for illustration. To order just add A8D in space 12. Not suitable for F&K and Hesse Mechatronics machine

### A8D Option available for ribbon widths up to .005

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |



Standard: Ø1/16 45° to 52° Hole Angle : BS"=.045" (1.14mm)  
Standard: (BS) supplied unless otherwise specified. See Tool Options  
**No Front Angle if T=MAX**



# SERIES RKN & RKN-V

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: M-RKN-O-D-1/16-1-45-CG-.5x5-2-M-\*

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11 12

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
- SERIES:** RKN
- WIRE FEED:**
  - O = Standard Feed
  - V = Vertical Feed
- FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
- SHANK DIA.:** Please Specify Diameter
- TOOL LENGTH:** Please Specify Length
- HOLE ANGLE:** for RKN (30°, 38°, 45°, 52°, 55°, 60°, °) for RKN-V (45°, 55°, 60°, °)  
for RKN-V with A8D Opt.(45°, 52°)
- (12) See Tool Option**
- (11) FOOT FINISH:**
  - M = Matte finish (FR, BR, & Bond Flat)
  - P = Polish finish (FR, BR, & Bond Flat)
  - MP = Polish finish (FR, BR), and Matte finish (Bond Flat)
- (10) Bond Length:** See Standard Chart  
Example: BL of .0020 = 2  
Note: We do not recommend bond lengths any larger than .005".
- (9) RIBBON SIZE:** See Standard Chart  
Example: .0005 x .005 = .5 x 5  
Thickness x Width
- (8) FOOT TYPE:**
  - F = Flat
  - CG = Cross Groove
  - DT = Diamond Tip
  - (Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RKN-O-X-1/16-3/4-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| Size Restrictions<br>for Vertical Feed Tools                                |                         |                          |
|-----------------------------------------------------------------------------|-------------------------|--------------------------|
| STANDARD                                                                    |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0150                   | .0190                    |
| 3/32                                                                        | .0300                   | .0210                    |
| A8D Option, RW up to .0070                                                  |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0070                   | .0243                    |
| A8D Option, RW .0080 and larger                                             |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0120                   | .0190                    |
| Larger Tool Ø, Ribbon Width and "T"<br>Dimensions<br>available upon request |                         |                          |
| RW = Ribbon Width                                                           |                         |                          |

| STANDARD CHART  |                     | RKN                         |           | FOR RIBBON THICKNESS: .00025" THROUGH .0020"<br>WIDTHS: .002" THROUGH .030" |            |        |       |        |     |        |     |       |     |
|-----------------|---------------------|-----------------------------|-----------|-----------------------------------------------------------------------------|------------|--------|-------|--------|-----|--------|-----|-------|-----|
| RIBBON<br>WIDTH | RIBBON<br>THICKNESS | BL                          | T(30°38°) | T(45° 52°)                                                                  | T(55° 60°) | W      |       |        |     |        |     |       |     |
| in. μ           | in. μ               | in. μ                       | in. μ     | in. μ                                                                       | in. μ      | in. μ  | in. μ |        |     |        |     |       |     |
| Tolerance       |                     | ±.0002                      | ±5        | ±.0005                                                                      | ±13        | ±.0005 | ±13   | ±.0005 | ±13 | ±.0002 | ±5  |       |     |
| .0020           | 51                  | .00025<br>through<br>.00125 | 6.4<br>32 | .0010                                                                       | 25         | .0130  | 330   | .0110  | 279 | .0090  | 229 | .0055 | 140 |
|                 |                     |                             |           | .0015                                                                       | 38         | .0130  | 330   | .0120  | 305 | .0090  | 229 |       |     |
|                 |                     |                             |           | .0020                                                                       | 51         | .0130  | 330   | .0120  | 305 | .0090  | 229 |       |     |
|                 |                     |                             |           | .0025                                                                       | 64         | .0140  | 356   | .0120  | 305 | .0100  | 254 |       |     |
|                 |                     |                             |           | .0030                                                                       | 76         | .0140  | 356   | .0130  | 330 | .0100  | 254 |       |     |
| .0030           | 76                  | .00025<br>through<br>.00125 | 6.4<br>32 | .0010                                                                       | 25         | .0160  | 406   | .0130  | 330 | .0100  | 254 | .0065 | 165 |
|                 |                     |                             |           | .0015                                                                       | 38         | .0170  | 432   | .0140  | 356 | .0100  | 254 |       |     |
|                 |                     |                             |           | .0020                                                                       | 51         | .0170  | 432   | .0140  | 356 | .0110  | 279 |       |     |
|                 |                     |                             |           | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 |       |     |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
| .0040           | 102                 | .00025<br>through<br>.00125 | 6.4<br>32 | .0020                                                                       | 51         | .0170  | 432   | .0140  | 356 | .0110  | 279 | .0075 | 191 |
|                 |                     |                             |           | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 |       |     |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
| .0050           | 127                 | .0005<br>through<br>.0020   | 13<br>51  | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 | .0085 | 216 |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
|                 |                     |                             |           | .0045                                                                       | 113        | .0200  | 508   | .0165  | 419 | .0135  | 346 |       |     |
| .0070           | 178                 | .0005<br>through<br>.0020   | 13<br>51  | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 | .0125 | 318 |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
|                 |                     |                             |           | .0045                                                                       | 113        | .0200  | 508   | .0165  | 419 | .0135  | 346 |       |     |
| .0100           | 254                 | .0005<br>through<br>.0020   | 13<br>51  | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 | .0155 | 394 |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
|                 |                     |                             |           | .0045                                                                       | 113        | .0200  | 508   | .0165  | 419 | .0135  | 346 |       |     |
| .0120           | 305                 | .0005<br>through<br>.0020   | 13<br>51  | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 | .0175 | 445 |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
|                 |                     |                             |           | .0045                                                                       | 113        | .0200  | 508   | .0165  | 419 | .0135  | 346 |       |     |
| .0150           | 381                 | .0005<br>through<br>.0020   | 13<br>51  | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 | .0205 | 521 |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
|                 |                     |                             |           | .0045                                                                       | 113        | .0200  | 508   | .0165  | 419 | .0135  | 346 |       |     |
| .0200           | 508                 | .0005<br>through<br>.0020   | 13<br>51  | .0025                                                                       | 64         | .0180  | 457   | .0150  | 381 | .0110  | 279 | .0255 | 648 |
|                 |                     |                             |           | .0030                                                                       | 76         | .0180  | 457   | .0155  | 394 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0035                                                                       | 89         | .0190  | 483   | .0160  | 406 | .0120  | 305 |       |     |
|                 |                     |                             |           | .0040                                                                       | 102        | .0195  | 495   | .0160  | 406 | .0130  | 330 |       |     |
|                 |                     |                             |           | .0045                                                                       | 113        | .0200  | 508   | .0165  | 419 | .0135  | 346 |       |     |

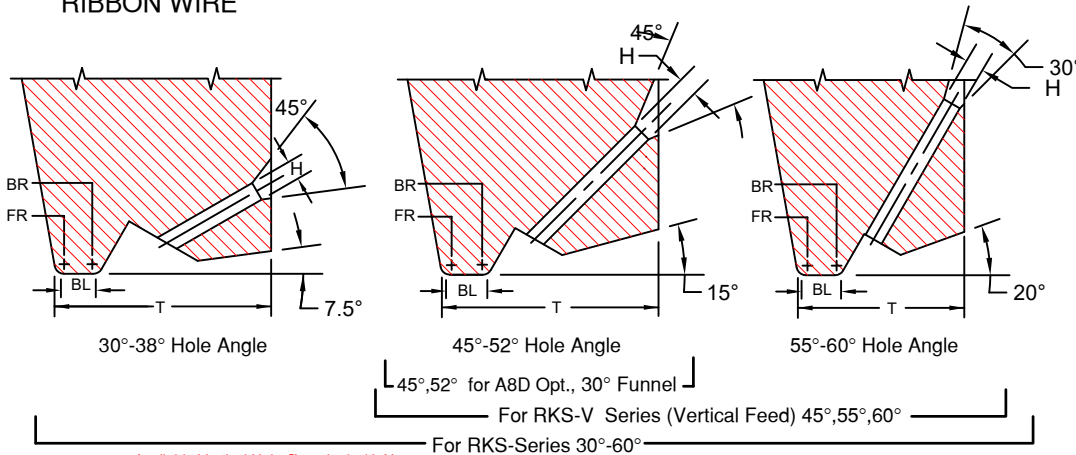
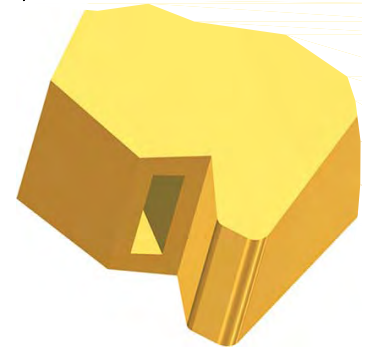
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

"T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES RKS & RKS-V

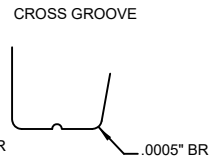
## RIBBON WIRE

FOR MANUAL AND SEMI-AUTOMATIC BONDERS



Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

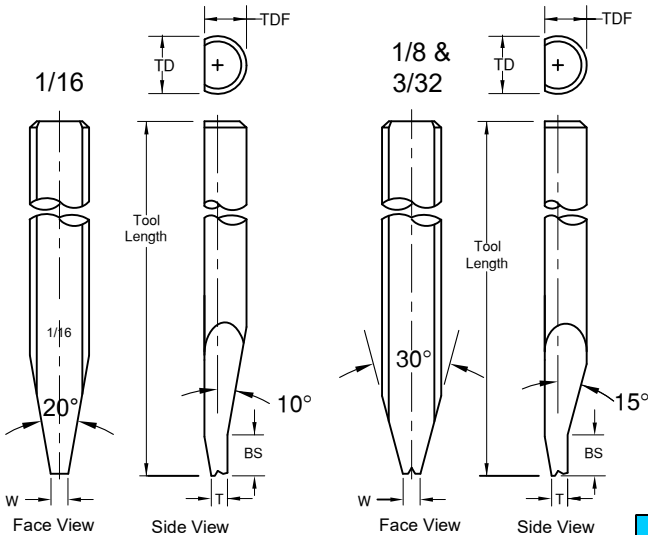


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

### RKS-SERIES

Ribbon Width: .0020" through .030"  
Ribbon Thickness: .00025" through .0020"

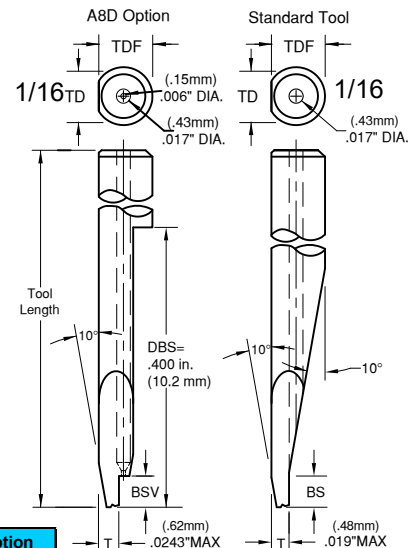
For large Ø



Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

### RKS-V SERIES VERTICAL FEED DEEP ACCESS

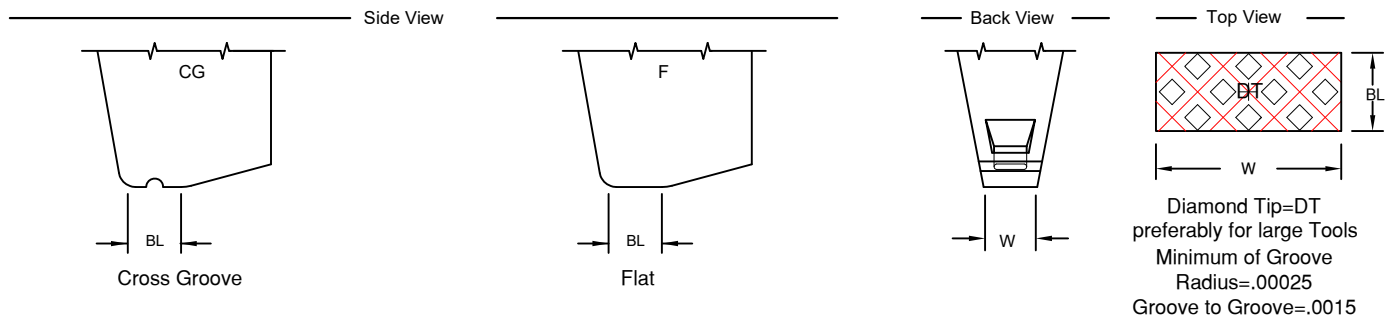
NOTE: We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See Tool Option for illustration. To order just add A8D in space 12. Not suitable for F&K and Hesse Mechatronics machine



#### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |

Standard: Ø1/16 45° to 52° Hole Angle :  
BS"=.045" (1.14mm)  
Standard: (BS) supplied unless otherwise specified. See Tool Options  
**No Front Angle if T=MAX**



# SERIES RKS & RKS-V

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M-RKS-O-D-1/16-1-45-CG-.5x5-2-M-\*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11 12

1. **MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection
2. **SERIES:** RKS
3. **WIRE FEED:** O = Standard Feed  
V = Vertical Feed
4. **FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR
5. **SHANK DIA.:** Please Specify Diameter
6. **TOOL LENGTH:** Please Specify Length
7. **HOLE ANGLE:** for RKS (30°, 38°, 45°, 52°, 55°, 60°) for RKS-V (45°, 55°, 60°)  
for RKS-V with A8D Opt.(45°, 52°)
- (12) See Tool Option
- (11) **FOOT FINISH:**
  - M = Matte finish (FR, BR, & Bond Flat)
  - P = Polish finish (FR, BR, & Bond Flat)
  - MP = Polish finish (FR, BR), and Matte finish (Bond Flat)
- (10) **Bond Length:** See Standard Chart  
Example: BL of .0020 = 2  
Note: We do not recommend bond lengths any larger than .005".
- (9) **RIBBON SIZE:** See Standard Chart  
Example: .0005 x .005 = .5 x 5  
Thickness x Width
- (8) **FOOT TYPE:** F = Flat  
CG = Cross Groove  
DT = Diamond Tip  
(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RKS-O-X-1/16-3/4-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           |                 | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           |                 | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| Size Restrictions<br>for Vertical Feed Tools                                |                         |                          |
|-----------------------------------------------------------------------------|-------------------------|--------------------------|
| STANDARD                                                                    |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0150                   | .0190                    |
| 3/32                                                                        | .0300                   | .0210                    |
| A8D Option, RW up to .0070                                                  |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0070                   | .0243                    |
| A8D Option, RW .0080 and larger                                             |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0120                   | .0190                    |
| Larger Tool Ø, Ribbon Width and "T"<br>Dimensions<br>available upon request |                         |                          |
| RW = Ribbon Width                                                           |                         |                          |

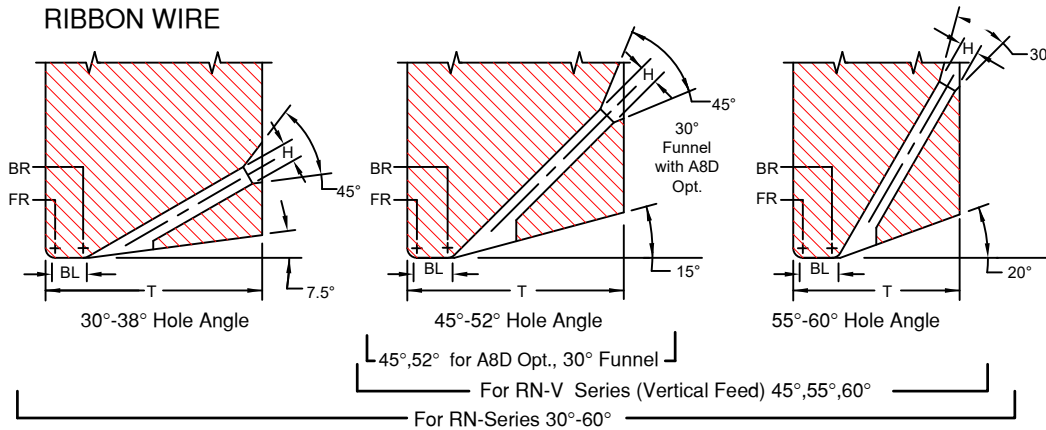
| STANDARD CHART   |                     | RKS                         |           |            |     |            |     |            |     |           |     | FOR RIBBON THICKNESS: .00025" THROUGH .0020" |     |     |   |
|------------------|---------------------|-----------------------------|-----------|------------|-----|------------|-----|------------|-----|-----------|-----|----------------------------------------------|-----|-----|---|
|                  |                     |                             |           |            |     |            |     |            |     |           |     | WIDTHS: .002" THROUGH .030"                  |     |     |   |
| RIBBON<br>WIDTH  | RIBBON<br>THICKNESS | BL                          |           | T(30°38°)  |     | T(45° 52°) |     | T(55° 60°) |     | W         |     |                                              |     |     |   |
| in.              | μ                   | in.                         | μ         | in.        | μ   | in.        | μ   | in.        | μ   | in.       | μ   | in.                                          | μ   | in. | μ |
| <b>Tolerance</b> |                     | ±.0002 ±5                   |           | ±.0005 ±13 |     | ±.0005 ±13 |     | ±.0005 ±13 |     | ±.0002 ±5 |     |                                              |     |     |   |
| .0020            | 51                  | .00025<br>through<br>.00125 | 6.4<br>32 | .0010      | 25  | .0130      | 330 | .0110      | 279 | .0090     | 229 | .0055                                        | 140 |     |   |
|                  |                     |                             |           | .0015      | 38  | .0130      | 330 | .0110      | 279 | .0090     | 229 |                                              |     |     |   |
|                  |                     |                             |           | .0020      | 51  | .0140      | 356 | .0120      | 305 | .0100     | 254 |                                              |     |     |   |
|                  |                     |                             |           | .0025      | 64  | .0140      | 356 | .0120      | 305 | .0100     | 254 |                                              |     |     |   |
|                  |                     |                             |           | .0030      | 76  | .0150      | 381 | .0130      | 330 | .0105     | 267 |                                              |     |     |   |
| .0030            | 76                  | .00025<br>through<br>.00125 | 6.4<br>32 | .0010      | 25  | .0150      | 381 | .0130      | 330 | .0110     | 279 | .0065                                        | 165 |     |   |
|                  |                     |                             |           | .0015      | 38  | .0160      | 406 | .0140      | 356 | .0110     | 279 |                                              |     |     |   |
|                  |                     |                             |           | .0020      | 51  | .0160      | 406 | .0140      | 356 | .0120     | 305 |                                              |     |     |   |
|                  |                     |                             |           | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 |                                              |     |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
| .0040            | 102                 | .00025<br>through<br>.00125 | 6.4<br>32 | .0020      | 51  | .0160      | 406 | .0140      | 356 | .0120     | 305 | .0075                                        | 191 |     |   |
|                  |                     |                             |           | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 |                                              |     |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
| .0050            | 127                 | .0005<br>through<br>.0020   | 13<br>51  | .0020      | 51  | .0160      | 406 | .0140      | 356 | .0120     | 305 | .0085                                        | 216 |     |   |
|                  |                     |                             |           | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 |                                              |     |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
| .0070            | 178                 | .0005<br>through<br>.0020   | 13<br>51  | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 | .0125                                        | 318 |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0045      | 113 | .0190      | 479 | .0165      | 422 | .0135     | 347 |                                              |     |     |   |
| .0100            | 254                 | .0005<br>through<br>.0020   | 13<br>51  | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 | .0155                                        | 394 |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0045      | 113 | .0190      | 479 | .0165      | 422 | .0135     | 347 |                                              |     |     |   |
| .0120            | 305                 | .0005<br>through<br>.0020   | 13<br>51  | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 | .0175                                        | 445 |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0045      | 113 | .0190      | 479 | .0165      | 422 | .0135     | 347 |                                              |     |     |   |
| .0150            | 381                 | .0005<br>through<br>.0020   | 13<br>51  | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 | .0205                                        | 521 |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0045      | 113 | .0190      | 479 | .0165      | 422 | .0135     | 347 |                                              |     |     |   |
| .0200            | 508                 | .0005<br>through<br>.0020   | 13<br>51  | .0025      | 64  | .0170      | 432 | .0150      | 381 | .0120     | 305 | .0255                                        | 648 |     |   |
|                  |                     |                             |           | .0030      | 76  | .0170      | 432 | .0155      | 394 | .0125     | 318 |                                              |     |     |   |
|                  |                     |                             |           | .0035      | 89  | .0180      | 457 | .0155      | 394 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0040      | 102 | .0180      | 457 | .0160      | 406 | .0130     | 330 |                                              |     |     |   |
|                  |                     |                             |           | .0045      | 113 | .0190      | 479 | .0165      | 422 | .0135     | 347 |                                              |     |     |   |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only  
"T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES RN & RN-V

RIBBON WIRE

FOR AUTOMATIC BONDERS



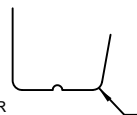
Available Vertical Hole Ø marked with X

|      | TD    |      | TDF   |      | For Vertical Hole |
|------|-------|------|-------|------|-------------------|
|      | in.   | mm   | in.   | mm   |                   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                   |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                 |
|      | .0784 | 1.99 | .0630 | 1.60 |                   |
|      | .0784 | 1.99 | .0720 | 1.83 | X                 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 | X                 |
|      | .1180 | 3.00 | .0985 | 2.50 |                   |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                   |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                   |

FLAT



CROSS GROOVE

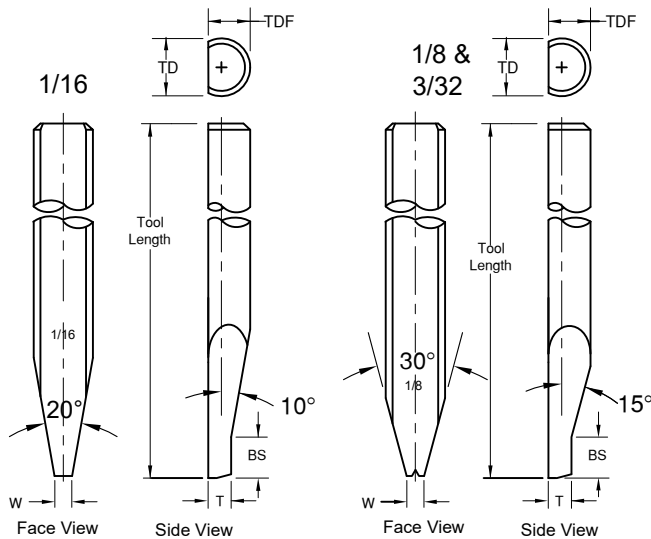


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

## RN-SERIES

Ribbon Width: .0020" through .030"  
Ribbon Thickness: .00025" through .0020"

For large Ø

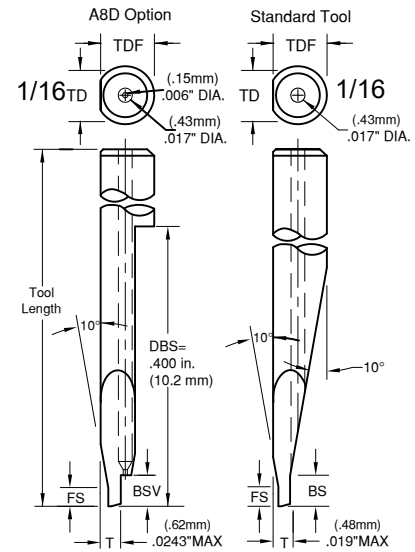


Standard: Ø 1/16, 45° to 52° Hole Angle : BS"=.045" (1.14mm) .  
Supplies only to Standard size Ø1/16, **larger tool Ø are different.**  
Standard: (BS) supplied unless otherwise specified. See Tool Options #A3

## RN-V SERIES VERTICAL FEED DEEP ACCESS

Ribbon Width: .0020" through .030", Ribbon Thickness: .00025" through .0020"

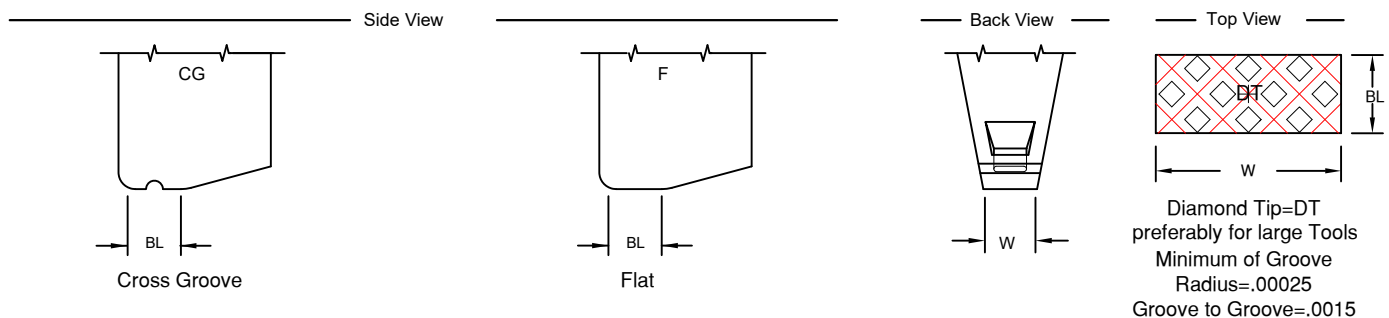
NOTE: We recommend our A8D option for enhanced wire control. Our standard vertical feed has slightly more clearance but less wire control. See Tool Option for illustration. To order just add A8D in space 12. Not suitable for F&K and Hesse Mechatronics machine



### A8D Option

| Hole Angle | BSV  |      |
|------------|------|------|
|            | in.  | mm   |
| 45°        | .035 | .89  |
| 52°        | .050 | 1.27 |

Standard: Ø1/16 45° to 52° Hole Angle :  
**FS=.015"** (.38mm) **BS"=.045"** (1.14mm)  
Standard: (FS&BS) supplied unless otherwise specified. See Tool Options  
**No FS if T=MAX**



# SERIES RN & RN-V

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M- RN-O-D-1/16-1-45-CG-.5x5-2-M- \*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11 12

1. **MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** RN \_\_\_\_\_

3. **WIRE FEED:** O = Standard Feed \_\_\_\_\_  
V = Vertical Feed \_\_\_\_\_

4. **FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR

5. **SHANK DIA.:** Please Specify Diameter \_\_\_\_\_

6. **TOOL LENGTH:** Please Specify Length \_\_\_\_\_

7. **HOLE ANGLE:** for RN (30°, 38°, 45°, 52°, 55°, 60°) for RN-V (45°, 55°, 60°)  
for RN-V with A8D Opt.(45°, 52°)

(12) See Tool Option

(11) **FOOT FINISH:**  
**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Polish finish (FR, BR), and Matte finish (Bond Flat)

(10) **Bond Length:** See Standard Chart  
Example: BL of .0020 = 2  
Note: We do not recommend bond lengths any larger than .005".

(9) **RIBBON SIZE:** See Standard Chart  
Example: .0005 x .005 = .5 x 5  
Thickness x Width

(8) **FOOT TYPE:** **F** = Flat  
**CG** = Cross Groove  
**DT** = Diamond Tip  
(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RN-O-X-1/16-3/4-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |

For Vertical Feed: Tmax. for Dia. 1/16 = .0190 and for A8D: Tmax=.0243, Supplies only to Standard size Ø1/16, larger tool Ø are different.

| Size Restrictions<br>for Vertical Feed Tools                                |                         |                          |
|-----------------------------------------------------------------------------|-------------------------|--------------------------|
| STANDARD                                                                    |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0150                   | .0190                    |
| 3/32                                                                        | .0300                   | .0210                    |
| A8D Option, RW up to .0070                                                  |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0070                   | .0243                    |
| A8D Option, RW .0080 and larger                                             |                         |                          |
| TD                                                                          | Maximum<br>Ribbon Width | Maximum<br>"T" Dimension |
| 1/16                                                                        | .0120                   | .0190                    |
| Larger Tool Ø, Ribbon Width and "T"<br>Dimensions<br>available upon request |                         |                          |
| RW = Ribbon Width                                                           |                         |                          |

| STANDARD CHART |     | RN                    |        | FOR RIBBON THICKNESS: .00025" THROUGH .0020" |       |             |       |             |     |             |     |            |     |
|----------------|-----|-----------------------|--------|----------------------------------------------|-------|-------------|-------|-------------|-----|-------------|-----|------------|-----|
| RIBBON WIDTH   |     | RIBBON THICKNESS      |        | BL                                           |       | T(30°38°)   |       | T(45° 52°)  |     | T(55° 60°)  |     | W          |     |
| in. μ          |     | in. μ                 |        | in. μ                                        |       | in. μ       |       | in. μ       |     | in. μ       |     | in. μ      |     |
| Tolerance      |     |                       |        | ±.0002 ±.05                                  |       | ±.0005 ±.13 |       | ±.0005 ±.13 |     | ±.0005 ±.13 |     | ±.0002 ±.5 |     |
| .0020          | 51  | .00025 through .00125 | 6.4 32 | .0010                                        | 25    | .0140       | 356   | .0110       | 279 | .0090       | 229 | .0055      | 140 |
|                |     |                       |        | .0015                                        | 38    | .0140       | 356   | .0110       | 279 | .0090       | 229 |            |     |
|                |     |                       |        | .0020                                        | 51    | .0150       | 381   | .0120       | 305 | .0090       | 229 |            |     |
|                |     |                       |        | .0025                                        | 64    | .0150       | 381   | .0120       | 305 | .0100       | 254 |            |     |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0130       | 330 | .0100       | 254 |            |     |
| .0030          | 76  | .00025 through .00125 | 6.4 32 | .0010                                        | 25    | .0150       | 381   | .0130       | 330 | .0100       | 254 | .0065      | 165 |
|                |     |                       |        | .0015                                        | 38    | .0150       | 381   | .0140       | 356 | .0100       | 254 |            |     |
|                |     |                       |        | .0020                                        | 51    | .0160       | 406   | .0140       | 356 | .0110       | 279 |            |     |
|                |     |                       |        | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 |            |     |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
| .0040          | 102 | .00025 through .00125 | 6.4 32 | .0020                                        | 51    | .0160       | 406   | .0140       | 356 | .0110       | 279 | .0075      | 191 |
|                |     |                       |        | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 |            |     |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0005 through .0020                          | 13 51 | .0020       | 51    | .0160       | 406 | .0140       | 356 |            |     |
| .0025          | 64  | .0160                 | 406    | .0140                                        |       | 356         | .0110 | 279         |     |             |     |            |     |
| .0030          | 76  | .0160                 | 406    | .0150                                        |       | 381         | .0120 | 305         |     |             |     |            |     |
| .0035          | 89  | .0170                 | 432    | .0150                                        |       | 381         | .0120 | 305         |     |             |     |            |     |
| .0070          | 178 | .0005 through .0020   | 13 51  | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 | .0125      | 318 |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0035                                        | 89    | .0170       | 432   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0040                                        | 102   | .0170       | 432   | .0160       | 406 | .0130       | 330 |            |     |
| .0100          | 254 | .0005 through .0020   | 13 51  | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 | .0155      | 394 |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0035                                        | 89    | .0170       | 432   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0040                                        | 102   | .0170       | 432   | .0160       | 406 | .0130       | 330 |            |     |
| .0120          | 305 | .0005 through .0020   | 13 51  | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 | .0175      | 445 |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0035                                        | 89    | .0170       | 432   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0040                                        | 102   | .0170       | 432   | .0160       | 406 | .0130       | 330 |            |     |
| .0150          | 381 | .0005 through .0020   | 13 51  | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 | .0205      | 521 |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0035                                        | 89    | .0170       | 432   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0040                                        | 102   | .0170       | 432   | .0160       | 406 | .0130       | 330 |            |     |
| .0200          | 508 | .0005 through .0020   | 13 51  | .0025                                        | 64    | .0160       | 406   | .0140       | 356 | .0110       | 279 | .0255      | 648 |
|                |     |                       |        | .0030                                        | 76    | .0160       | 406   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0035                                        | 89    | .0170       | 432   | .0150       | 381 | .0120       | 305 |            |     |
|                |     |                       |        | .0040                                        | 102   | .0170       | 432   | .0160       | 406 | .0130       | 330 |            |     |

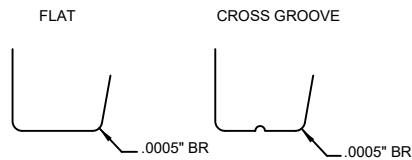
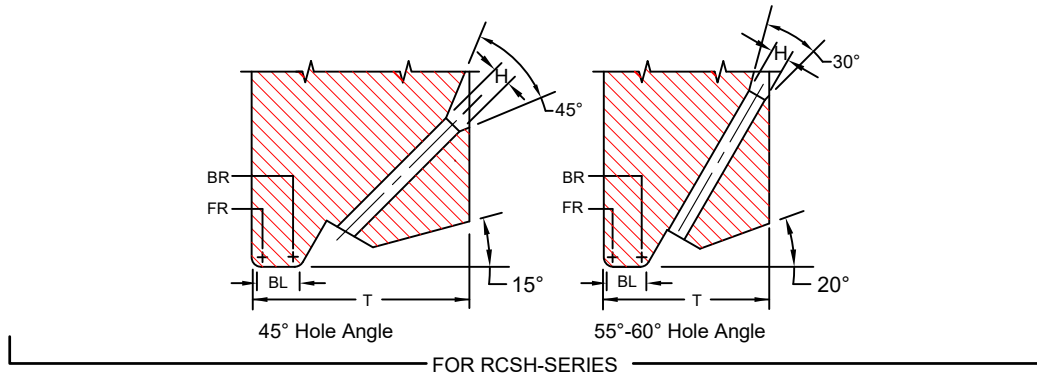
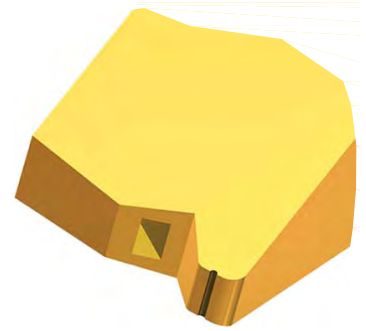
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

"T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES RCSH

Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

FOR MANUAL AND SEMI-AUTOMATIC BONDERS

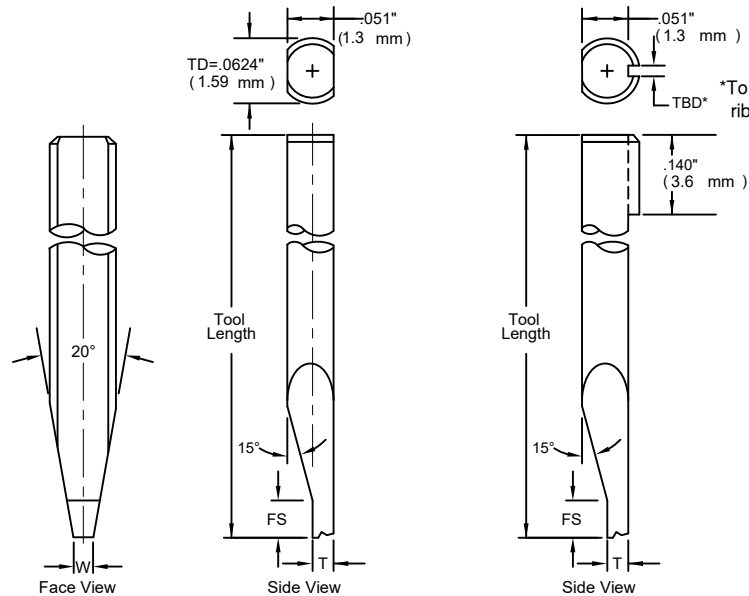


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

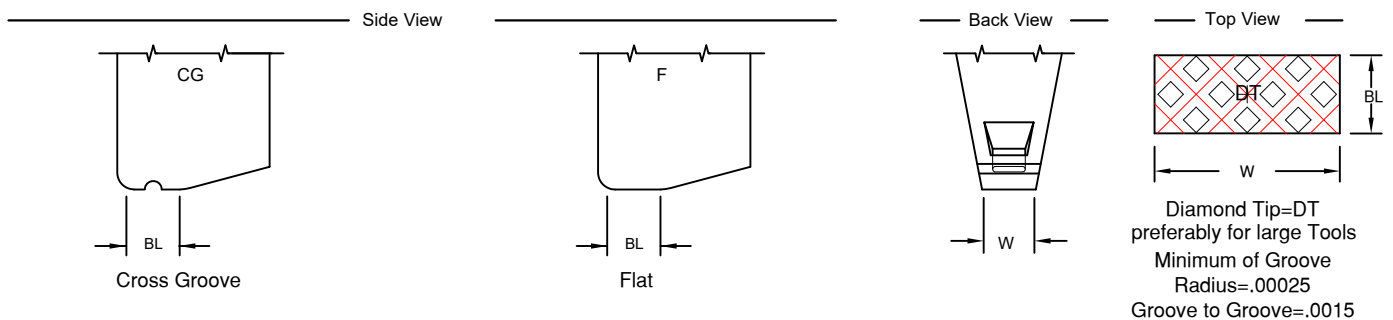
## RCSH-SERIES RIBBON WIRE

Ribbon Width: .0020" through .0200"  
Ribbon Thickness: .00025" through .0020"

\* S1 Option



Standard: Ø 1/16, 45°, 55°, 60° Hole Angle : FS"=.015" (.38 mm) .



# SERIES RCSH

## RIBBON WIRE

## ORDERING INFORMATION RIBBON BONDING WEDGES FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M-RCSH-D-1/16-1-45-CG-.5x5-2-M-\*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11

1. **MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** RCSH \_\_\_\_\_  
3. **FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X. Please specify FR/BR

4. **SHANK DIA.:** Please Specify Diameter \_\_\_\_\_

5. **TOOL LENGTH:** Please Specify Length \_\_\_\_\_

6. **HOLE ANGLE:** for RCSH (45°, 55°, 60°) \_\_\_\_\_

(11) S1 and other Option  
See Tool Options

### (10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) **Bond Length:** See Standard Chart  
Example: BL of .0020 = 2  
Note: We do not recommend  
bond lengths any larger than .005".

(8) **RIBBON SIZE:** See Standard Chart  
Example: .0005 x .005 = .5 x 5  
Thickness x Width

(7) **FOOT TYPE:** F = Flat  
CG = Cross Groove  
DT = Diamond Tip  
(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RCSH-X-1/16-1"-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           |                 | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |

| STANDARD<br>CHART |     | RCSH                        |           | FOR RIBBON THICKNESS: |     | .00025" THROUGH .0020" |     | WIDTHS:    |     | .002" THROUGH .030" |     |
|-------------------|-----|-----------------------------|-----------|-----------------------|-----|------------------------|-----|------------|-----|---------------------|-----|
| RIBBON<br>WIDTH   |     | RIBBON<br>THICKNESS         |           | BL                    |     | T(45°)                 |     | T(55° 60°) |     | W                   |     |
| in.               | μ   | in.                         | μ         | in.                   | μ   | in.                    | μ   | in.        | μ   | in.                 | μ   |
| Tolerance         |     |                             |           | ±.0002                | ±5  | ±.0005                 | ±13 | ±.0005     | ±13 | ±.0002              | ±5  |
| .0020             | 51  | .00025<br>through<br>.00125 | 6.4<br>32 | .0010                 | 25  | .0090                  | 229 | .0080      | 203 | .0055               | 140 |
|                   |     |                             |           | .0015                 | 38  | .0100                  | 254 | .0080      | 203 |                     |     |
|                   |     |                             |           | .0020                 | 51  | .0110                  | 279 | .0090      | 229 |                     |     |
|                   |     |                             |           | .0025                 | 64  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0030                 | 76  | .0115                  | 292 | .0100      | 254 |                     |     |
| .0030             | 76  | .00025<br>through<br>.00125 | 6.4<br>32 | .0010                 | 25  | .0090                  | 229 | .0080      | 203 | .0065               | 165 |
|                   |     |                             |           | .0015                 | 38  | .0100                  | 254 | .0080      | 203 |                     |     |
|                   |     |                             |           | .0020                 | 51  | .0110                  | 279 | .0090      | 229 |                     |     |
|                   |     |                             |           | .0025                 | 64  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0030                 | 76  | .0115                  | 292 | .0100      | 254 |                     |     |
| .0040             | 102 | .00025<br>through<br>.00125 | 6.4<br>32 | .0020                 | 51  | .0110                  | 279 | .0090      | 229 | .0075               | 191 |
|                   |     |                             |           | .0025                 | 64  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0030                 | 76  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
| .0050             | 127 | .0005<br>through<br>.0020   | 13<br>51  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0085               | 216 |
|                   |     |                             |           | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0045                 | 114 | .0130                  | 330 | .0110      | 279 |                     |     |
| .0070             | 178 | .0005<br>through<br>.0020   | 13<br>51  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0125               | 318 |
|                   |     |                             |           | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0045                 | 114 | .0130                  | 330 | .0110      | 279 |                     |     |
| .0100             | 254 | .0005<br>through<br>.0020   | 13<br>51  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0155               | 394 |
|                   |     |                             |           | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0045                 | 114 | .0130                  | 330 | .0110      | 279 |                     |     |
| .0120             | 305 | .0005<br>through<br>.0020   | 13<br>51  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0175               | 445 |
|                   |     |                             |           | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0045                 | 114 | .0130                  | 330 | .0110      | 279 |                     |     |
| .0150             | 381 | .0005<br>through<br>.0020   | 13<br>51  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0205               | 521 |
|                   |     |                             |           | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0045                 | 114 | .0130                  | 330 | .0110      | 279 |                     |     |
| .0200             | 508 | .0005<br>through<br>.0020   | 13<br>51  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0255               | 648 |
|                   |     |                             |           | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |           | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |           | .0045                 | 114 | .0130                  | 330 | .0110      | 279 |                     |     |

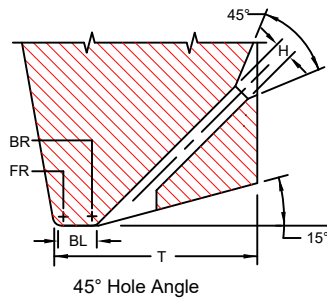
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

"T" To be determined according to the size of FR and BR and Hole Bore Length

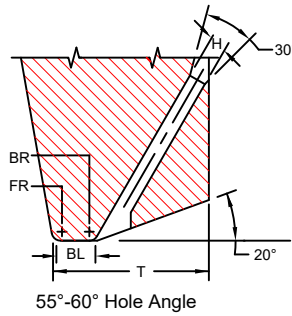
# SERIES RKNH

FOR AUTOMATIC BONDERS

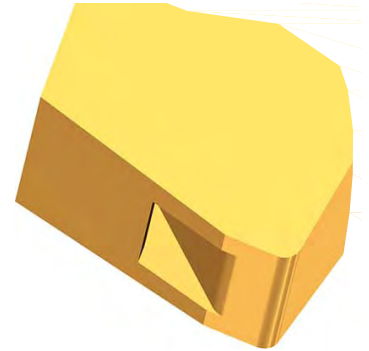
Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics



45° Hole Angle



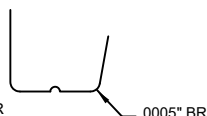
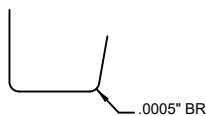
55°-60° Hole Angle



FOR RKNH-SERIES

FLAT

CROSS GROOVE



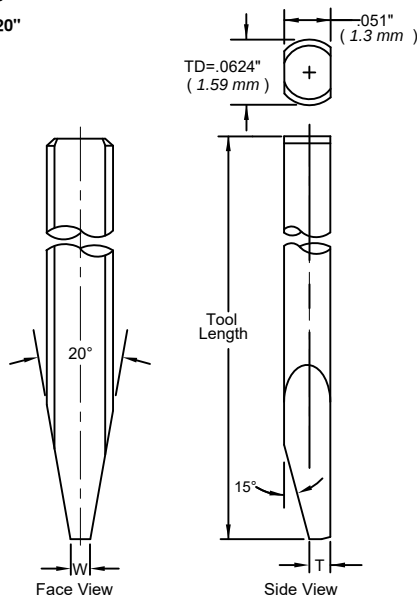
We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

## RKNH-SERIES RIBBON WIRE

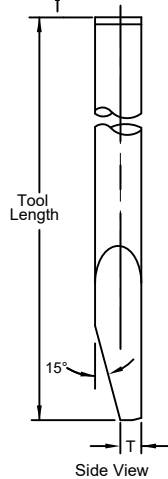
Ribbon Width: .0020" through .0200"

Ribbon Thickness: .00025" through .0020"

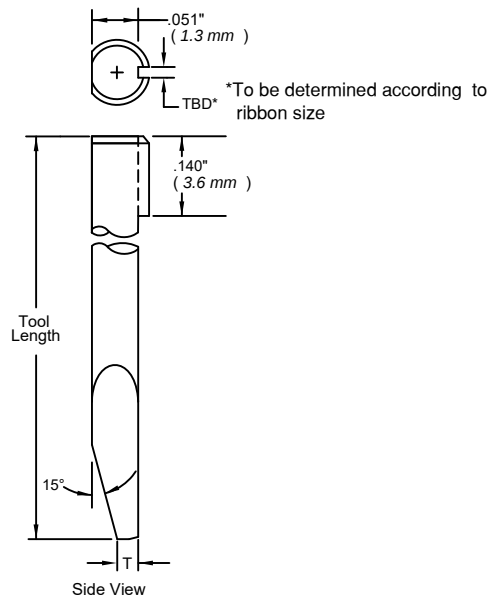
\* S1 Option



Face View



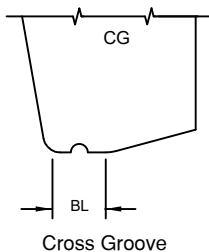
Side View



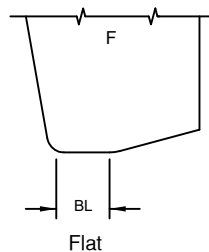
Side View

Standard: Ø 1/16, 45°, 55°, 60° Hole Angle

Side View

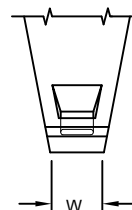


Cross Groove

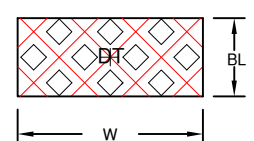


Flat

Back View



Top View



Diamond Tip=DT  
preferably for large Tools  
Minimum of Groove  
Radius=.00025  
Groove to Groove=.0015

# SERIES RKNH

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M-RKNH-D-1/16-1"-45-CG-.5x5-2-M-\*  
**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11

1. **MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** RKNH \_\_\_\_\_

3. **FRONT/BACK RADIUS:** See Radius Option Chart  
\*For special Radius sizes insert an X Please specify FR/BR

4. **SHANK DIA.:** Please Specify Diameter \_\_\_\_\_

5. **TOOL LENGTH:** Please Specify Length \_\_\_\_\_

6. **HOLE ANGLE:** for RKNH (45°,55°,60°) \_\_\_\_\_

(11) S1 and other Option  
See Tool Options

### (10) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(9) **Bond Length:** See Standard Chart

Example: BL of .0020 = 2

Note: We do not recommend  
bond lengths any larger than .005".

(8) **RIBBON SIZE:** See Standard Chart

Example: .0005 x .005 = .5 x 5

Thickness x Width

(7) **FOOT TYPE:** F = Flat

CG = Cross Groove

DT = Diamond Tip

(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RKNH-X-1/16-1"-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |          | A           | B           | C           | D           | E           | F           | G           | H           | I           | J           | K           | L           | M           | N           |
|---------------------------|-----------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                           | FRONT<br>RADIUS | in.<br>μ | .0005<br>13 | .0005<br>13 | .0010<br>25 | .0010<br>25 | .0010<br>25 | .0015<br>38 | .0015<br>38 | .0015<br>38 | .0015<br>38 | .0020<br>51 | .0020<br>51 | .0020<br>51 | .0020<br>51 | .0020<br>51 |
|                           | BACK<br>RADIUS  | in.<br>μ | 0<br>0      | .0005<br>13 | 0<br>0      | .0005<br>13 | .0010<br>25 | 0<br>0      | .0005<br>13 | .0010<br>25 | .0015<br>38 | 0<br>0      | .0005<br>13 | .0010<br>25 | .0015<br>38 | .0020<br>51 |

| STANDARD CHART |     | RKNH                  |        | FOR RIBBON THICKNESS: .00025" THROUGH .0020" WIDTHS: .002" THROUGH .030" |     |          |     |            |     |          |     |
|----------------|-----|-----------------------|--------|--------------------------------------------------------------------------|-----|----------|-----|------------|-----|----------|-----|
| RIBBON WIDTH   |     | RIBBON THICKNESS      |        | BL                                                                       |     | T(45°)   |     | T(55° 60°) |     | W        |     |
| in.    μ       |     | in.    μ              |        | in.    μ                                                                 |     | in.    μ |     | in.    μ   |     | in.    μ |     |
| Tolerance      |     |                       |        | ±.0002                                                                   | ±5  | ±.0005   | ±13 | ±.0005     | ±13 | ±.0002   | ±5  |
| .0020          | 51  | .00025 through .00125 | 6.4 32 | .0010                                                                    | 25  | .0090    | 229 | .0080      | 203 | .0055    | 140 |
|                |     |                       |        | .0015                                                                    | 38  | .0100    | 254 | .0080      | 203 |          |     |
|                |     |                       |        | .0020                                                                    | 51  | .0110    | 279 | .0090      | 229 |          |     |
|                |     |                       |        | .0025                                                                    | 64  | .0115    | 292 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115    | 292 | .0100      | 254 |          |     |
| .0030          | 76  | .00025 through .00125 | 6.4 32 | .0010                                                                    | 25  | .0090    | 229 | .0080      | 203 | .0065    | 165 |
|                |     |                       |        | .0015                                                                    | 38  | .0100    | 254 | .0080      | 203 |          |     |
|                |     |                       |        | .0020                                                                    | 51  | .0110    | 279 | .0090      | 229 |          |     |
|                |     |                       |        | .0025                                                                    | 64  | .0115    | 292 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115    | 292 | .0100      | 254 |          |     |
| .0040          | 102 | .00025 through .00125 | 6.4 32 | .0020                                                                    | 51  | .0110    | 279 | .0090      | 229 | .0075    | 191 |
|                |     |                       |        | .0025                                                                    | 64  | .0115    | 292 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115    | 292 | .0100      | 254 |          |     |
| .0050          | 127 | .0005 through .0020   | 13 51  | .0020                                                                    | 51  | .0110    | 279 | .0090      | 229 | .0085    | 216 |
|                |     |                       |        | .0025                                                                    | 64  | .0115    | 292 | .0090      | 229 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115    | 292 | .0100      | 254 |          |     |
|                |     |                       |        | .0035                                                                    | 89  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120    | 305 | .0100      | 254 |          |     |
| .0070          | 178 | .0005 through .0020   | 13 51  | .0030                                                                    | 76  | .0120    | 305 | .0100      | 254 | .0125    | 318 |
|                |     |                       |        | .0035                                                                    | 89  | .0125    | 318 | .0110      | 279 |          |     |
|                |     |                       |        | .0040                                                                    | 102 | .0125    | 318 | .0110      | 279 |          |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0120    | 305 | .0100      | 254 |          |     |
| .0100          | 254 | .0005 through .0020   | 13 51  | .0035                                                                    | 89  | .0125    | 318 | .0110      | 279 | .0155    | 394 |
|                |     |                       |        | .0040                                                                    | 102 | .0125    | 318 | .0110      | 279 |          |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0035                                                                    | 89  | .0125    | 318 | .0110      | 279 |          |     |
| .0120          | 305 | .0005 through .0020   | 13 51  | .0040                                                                    | 102 | .0125    | 318 | .0110      | 279 | .0175    | 445 |
|                |     |                       |        | .0025                                                                    | 64  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0035                                                                    | 89  | .0125    | 318 | .0110      | 279 |          |     |
| .0150          | 381 | .0005 through .0020   | 13 51  | .0040                                                                    | 102 | .0125    | 318 | .0110      | 279 | .0205    | 521 |
|                |     |                       |        | .0025                                                                    | 64  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0035                                                                    | 89  | .0125    | 318 | .0110      | 279 |          |     |
| .0200          | 508 | .0005 through .0020   | 13 51  | .0040                                                                    | 102 | .0125    | 318 | .0110      | 279 | .0255    | 648 |
|                |     |                       |        | .0025                                                                    | 64  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0030                                                                    | 76  | .0120    | 305 | .0100      | 254 |          |     |
|                |     |                       |        | .0035                                                                    | 89  | .0125    | 318 | .0110      | 279 |          |     |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only

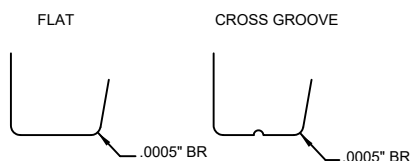
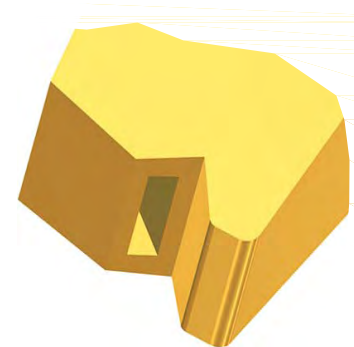
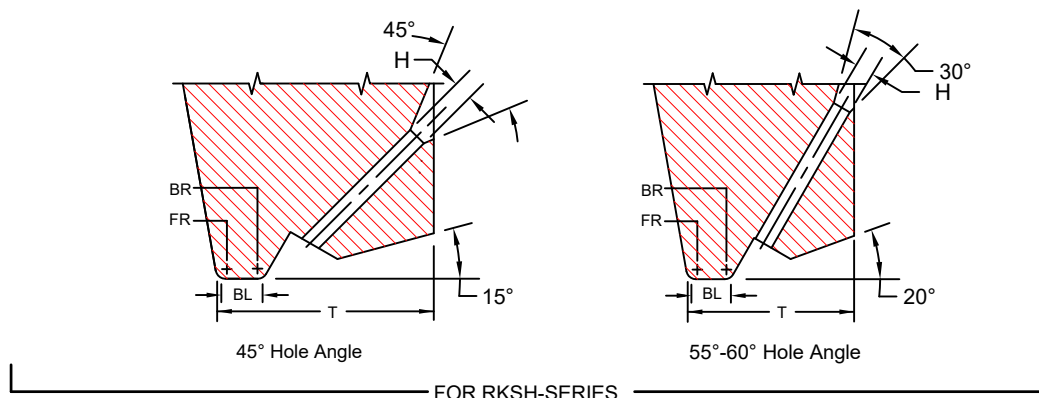
"T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES RKSH

FOR MANUAL AND SEMI-AUTOMATIC BONDERS



Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

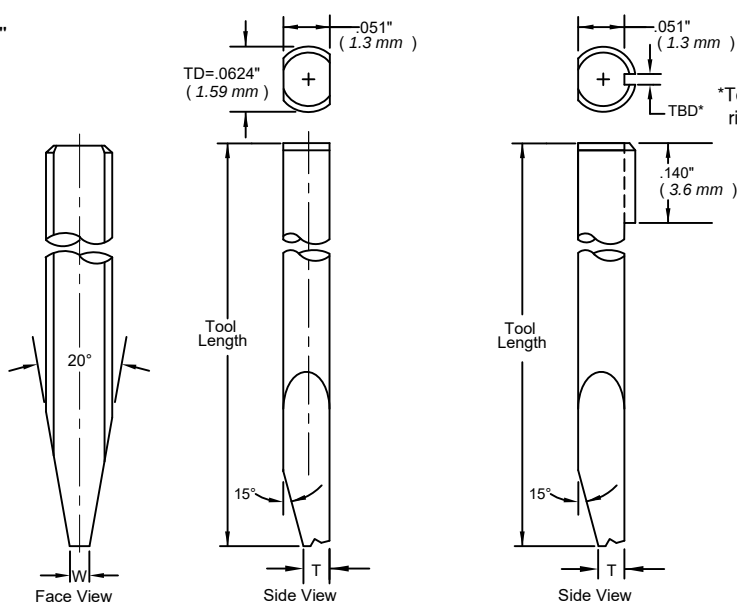


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

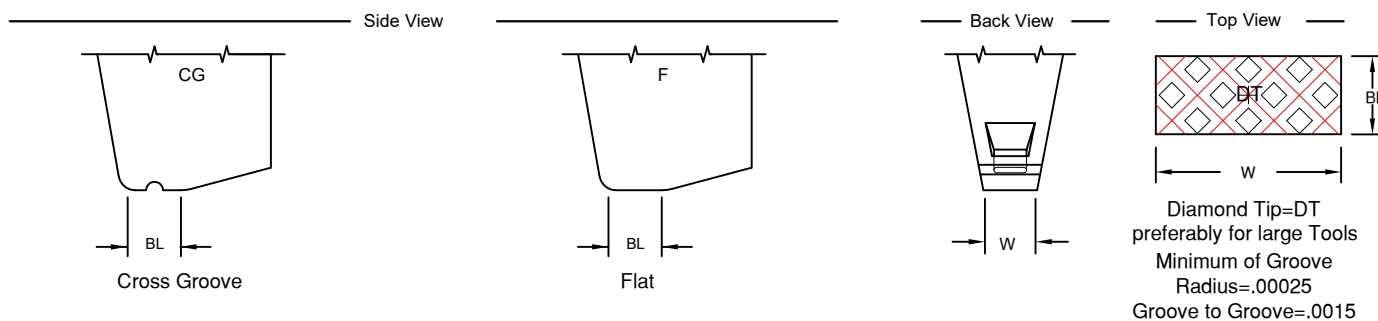
## RKSH-SERIES RIBBON WIRE

Ribbon Width: .0020" through .0200"  
Ribbon Thickness: .00025" through .0020"

\* S1 Option



Standard: Ø 1/16, Hole Angle : 45°, 55°, 60° .



# SERIES RKSH

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M-RKSH-D-1/16-1"-45-CG-.5x5-2-M-\*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11

**1. MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

**2. SERIES:** RKSH

**3. FRONT/BACK RADIUS:** See Radius Option Chart

\*For special Radius sizes insert an X Please specify FR/BR

**4. SHANK DIA.:** Please Specify Diameter

**5. TOOL LENGTH:** Please Specify Length

**6. HOLE ANGLE:** for RKSH (45°,55°,60°)



(11) S1 and other Option  
See Tool Options

**(10) FOOT FINISH:**

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

**(9) Bond Length:** See Standard Chart

Example: BL of .0020 = 2

Note: We do not recommend  
bond lengths any larger than .005".

**(8) RIBBON SIZE:** See Standard Chart

Example: .0005 x .005 = .5 x 5  
Thickness x Width

**(7) FOOT TYPE:** F = Flat  
CG = Cross Groove  
DT = Diamond Tip  
(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RKSH-X-1/16-1"-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |          | A           | B           | C           | D           | E           | F           | G           | H           | I           | J           | K           | L           | M           | N           |
|---------------------------|-----------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                           | FRONT<br>RADIUS | in.<br>μ | .0005<br>13 | .0005<br>13 | .0010<br>25 | .0010<br>25 | .0010<br>25 | .0015<br>38 | .0015<br>38 | .0015<br>38 | .0015<br>38 | .0020<br>51 | .0020<br>51 | .0020<br>51 | .0020<br>51 | .0020<br>51 |
|                           | BACK<br>RADIUS  | in.<br>μ | 0<br>0      | .0005<br>13 | 0<br>0      | .0005<br>13 | .0010<br>25 | 0<br>0      | .0005<br>13 | .0010<br>25 | .0015<br>38 | 0<br>0      | .0005<br>13 | .0010<br>25 | .0015<br>38 | .0020<br>51 |

| STANDARD CHART |     | RKSH                  |        | FOR RIBBON THICKNESS: .00025" THROUGH .0020" WIDTHS: .002" THROUGH .030" |     |        |     |            |     |        |     |
|----------------|-----|-----------------------|--------|--------------------------------------------------------------------------|-----|--------|-----|------------|-----|--------|-----|
| RIBBON WIDTH   |     | RIBBON THICKNESS      |        | BL                                                                       |     | T(45°) |     | T(55° 60°) |     | W      |     |
| in.            | μ   | in.                   | μ      | in.                                                                      | μ   | in.    | μ   | in.        | μ   | in.    | μ   |
| Tolerance      |     |                       |        | ±.0002                                                                   | ±5  | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5  |
| .0020          | 51  | .00025 through .00125 | 6.4 32 | .0010                                                                    | 25  | .0090  | 229 | .0080      | 203 | .0055  | 140 |
|                |     |                       |        | .0015                                                                    | 38  | .0100  | 254 | .0080      | 203 |        |     |
|                |     |                       |        | .0020                                                                    | 51  | .0110  | 279 | .0090      | 229 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0115  | 292 | .0100      | 254 |        |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115  | 292 | .0100      | 254 |        |     |
| .0030          | 76  | .00025 through .00125 | 6.4 32 | .0010                                                                    | 25  | .0090  | 229 | .0080      | 203 | .0065  | 165 |
|                |     |                       |        | .0015                                                                    | 38  | .0100  | 254 | .0080      | 203 |        |     |
|                |     |                       |        | .0020                                                                    | 51  | .0110  | 279 | .0090      | 229 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0115  | 292 | .0100      | 254 |        |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115  | 292 | .0100      | 254 |        |     |
| .0040          | 102 | .00025 through .00125 | 6.4 32 | .0020                                                                    | 51  | .0110  | 279 | .0090      | 229 | .0075  | 191 |
|                |     |                       |        | .0025                                                                    | 64  | .0115  | 292 | .0100      | 254 |        |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115  | 292 | .0100      | 254 |        |     |
| .0050          | 127 | .0005 through .0020   | 13 51  | .0020                                                                    | 51  | .0110  | 279 | .0090      | 229 | .0085  | 216 |
|                |     |                       |        | .0025                                                                    | 64  | .0115  | 292 | .0090      | 229 |        |     |
|                |     |                       |        | .0030                                                                    | 76  | .0115  | 292 | .0100      | 254 |        |     |
|                |     |                       |        | .0035                                                                    | 89  | .0120  | 305 | .0100      | 254 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120  | 305 | .0100      | 254 |        |     |
| .0070          | 178 | .0005 through .0020   | 13 51  | .0030                                                                    | 76  | .0120  | 305 | .0100      | 254 | .0125  | 318 |
|                |     |                       |        | .0035                                                                    | 89  | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0040                                                                    | 102 | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120  | 305 | .0100      | 254 |        |     |
| .0100          | 254 | .0005 through .0020   | 13 51  | .0030                                                                    | 76  | .0120  | 305 | .0100      | 254 | .0155  | 394 |
|                |     |                       |        | .0035                                                                    | 89  | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0040                                                                    | 102 | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120  | 305 | .0100      | 254 |        |     |
| .0120          | 305 | .0005 through .0020   | 13 51  | .0030                                                                    | 76  | .0120  | 305 | .0100      | 254 | .0175  | 445 |
|                |     |                       |        | .0035                                                                    | 89  | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0040                                                                    | 102 | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120  | 305 | .0100      | 254 |        |     |
| .0150          | 381 | .0005 through .0020   | 13 51  | .0030                                                                    | 76  | .0120  | 305 | .0100      | 254 | .0205  | 521 |
|                |     |                       |        | .0035                                                                    | 89  | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0040                                                                    | 102 | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120  | 305 | .0100      | 254 |        |     |
| .0200          | 508 | .0005 through .0020   | 13 51  | .0030                                                                    | 76  | .0120  | 305 | .0100      | 254 | .0255  | 648 |
|                |     |                       |        | .0035                                                                    | 89  | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0040                                                                    | 102 | .0125  | 318 | .0110      | 279 |        |     |
|                |     |                       |        | .0025                                                                    | 64  | .0120  | 305 | .0100      | 254 |        |     |

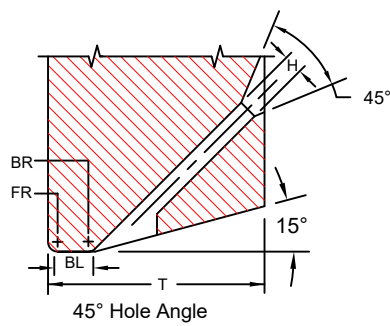
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

"T" To be determined according to the size of FR and BR and Hole Bore Length

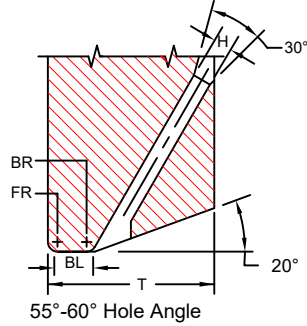
# SERIES RNH

Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

FOR AUTOMATIC BONDERS



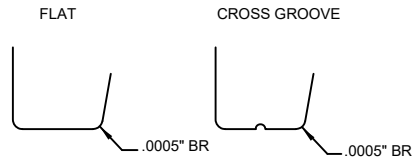
45° Hole Angle



55°-60° Hole Angle



FOR RNH-SERIES

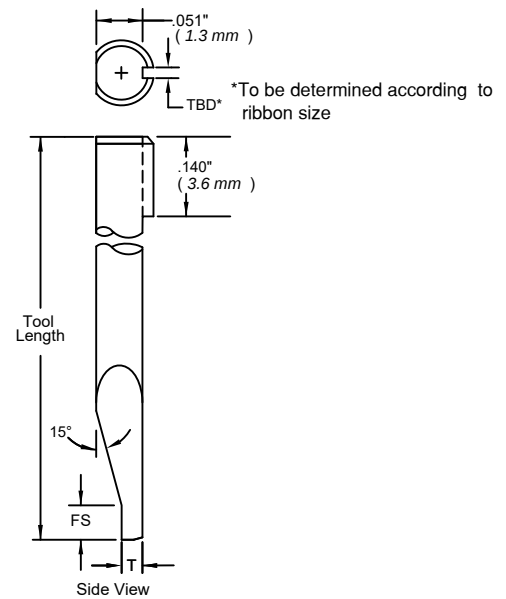
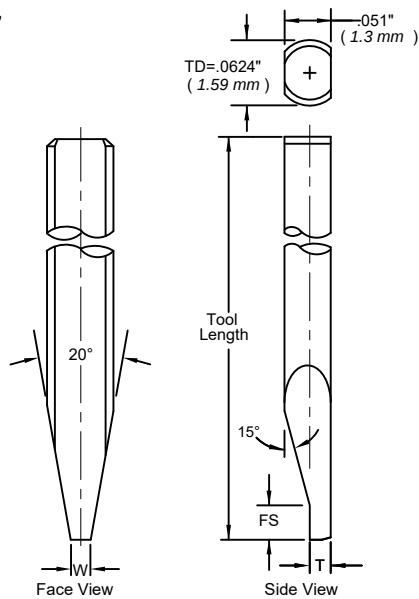


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tip**

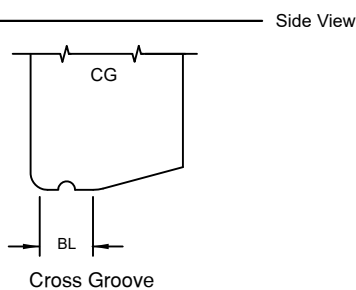
## RNH-SERIES RIBBON WIRE

Ribbon Width: .0020" through .0200"  
Ribbon Thickness: .00025" through .0020"

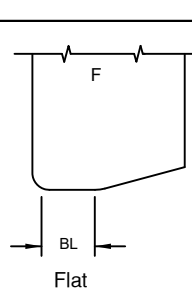
\* S1 Option



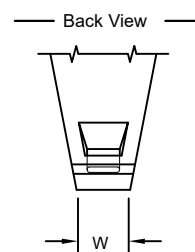
Standard:  $\varnothing$  1/16, Hole Angle: 45°, 55°, 60°, FS"=.015" (.38 mm)



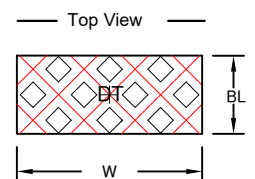
Cross Groove



Flat



Back View



Diamond Tip=DT preferably for large Tools  
Minimum of Groove Radius=.00025  
Groove to Groove=.0015

# SERIES RNH

## RIBBON WIRE

ORDERING INFORMATION  
RIBBON BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** M-RNH-D-1/16-1"-45-CG-.5x5-2-M-\*

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10 11

**1. MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

**2. SERIES:** RNH

**3. FRONT/BACK RADIUS:** See Radius Option Chart

\*For special Radius sizes insert an X Please specify FR/BR

**4. SHANK DIA.:** Please Specify Diameter

**5. TOOL LENGTH:** Please Specify Length

**6. HOLE ANGLE:** for RNH (45°,55°,60°)



(11) S1 and other Option  
See Tool Options

**(10) FOOT FINISH:**

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

**(9) Bond Length:** See Standard Chart

Example: BL of .0020 = 2  
Note: We do not recommend  
bond lengths any larger than .005".

**(8) RIBBON SIZE:** See Standard Chart

Example: .0005 x .005 = .5 x 5  
Thickness x Width

**(7) FOOT TYPE:** F

= Flat  
CG = Cross Groove  
DT = Diamond Tip  
(Please specify Ribbon size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals. Example: M-RNH-X-1/16-1"-45-CG-.5x5-2-M-A7 (X) FR=.0012, BR=.0007

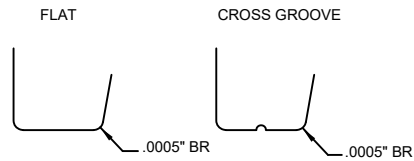
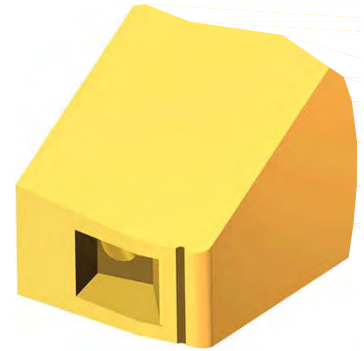
| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           |                 | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           |                 | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

| STANDARD<br>CHART |     | RNH                         |     | FOR RIBBON THICKNESS: |     | .00025" THROUGH .0020" |     | WIDTHS:    |     | .002" THROUGH .030" |     |
|-------------------|-----|-----------------------------|-----|-----------------------|-----|------------------------|-----|------------|-----|---------------------|-----|
| RIBBON<br>WIDTH   |     | RIBBON<br>THICKNESS         |     | BL                    |     | T(45°)                 |     | T(55° 60°) |     | W                   |     |
| in.               | μ   | in.                         | μ   | in.                   | μ   | in.                    | μ   | in.        | μ   | in.                 | μ   |
| Tolerance         |     |                             |     | ±.0002                | ±5  | ±.0005                 | ±13 | ±.0005     | ±13 | ±.0002              | ±5  |
| .0020             | 51  | .00025<br>through<br>.00125 | 6.4 | .0010                 | 25  | .0090                  | 229 | .0080      | 203 | .0055               | 140 |
|                   |     |                             |     | .0015                 | 38  | .0100                  | 254 | .0080      | 203 |                     |     |
|                   |     |                             |     | .0020                 | 51  | .0110                  | 279 | .0090      | 229 |                     |     |
|                   |     |                             |     | .0025                 | 64  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0030                 | 76  | .0115                  | 292 | .0100      | 254 |                     |     |
| .0030             | 76  | .00025<br>through<br>.00125 | 6.4 | .0010                 | 25  | .0090                  | 229 | .0080      | 203 | .0065               | 165 |
|                   |     |                             |     | .0015                 | 38  | .0100                  | 254 | .0080      | 203 |                     |     |
|                   |     |                             |     | .0020                 | 51  | .0110                  | 279 | .0090      | 229 |                     |     |
|                   |     |                             |     | .0025                 | 64  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0030                 | 76  | .0115                  | 292 | .0100      | 254 |                     |     |
| .0040             | 102 | .00025<br>through<br>.00125 | 6.4 | .0020                 | 51  | .0110                  | 279 | .0090      | 229 | .0075               | 191 |
|                   |     |                             |     | .0025                 | 64  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0030                 | 76  | .0115                  | 292 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
| .0050             | 127 | .0005<br>through<br>.0020   | 13  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0085               | 216 |
|                   |     |                             |     | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0045                 | 113 | .0130                  | 331 | .0115      | 292 |                     |     |
| .0070             | 178 | .0005<br>through<br>.0020   | 13  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0125               | 318 |
|                   |     |                             |     | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0045                 | 113 | .0130                  | 331 | .0115      | 292 |                     |     |
| .0100             | 254 | .0005<br>through<br>.0020   | 13  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0155               | 394 |
|                   |     |                             |     | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0045                 | 113 | .0130                  | 331 | .0115      | 292 |                     |     |
| .0120             | 305 | .0005<br>through<br>.0020   | 13  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0175               | 445 |
|                   |     |                             |     | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0045                 | 113 | .0130                  | 331 | .0115      | 292 |                     |     |
| .0150             | 381 | .0005<br>through<br>.0020   | 13  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0205               | 521 |
|                   |     |                             |     | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0045                 | 113 | .0130                  | 331 | .0115      | 292 |                     |     |
| .0200             | 508 | .0005<br>through<br>.0020   | 13  | .0025                 | 64  | .0120                  | 305 | .0100      | 254 | .0255               | 648 |
|                   |     |                             |     | .0030                 | 76  | .0120                  | 305 | .0100      | 254 |                     |     |
|                   |     |                             |     | .0035                 | 89  | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0040                 | 102 | .0125                  | 318 | .0110      | 279 |                     |     |
|                   |     |                             |     | .0045                 | 113 | .0130                  | 331 | .0115      | 292 |                     |     |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only

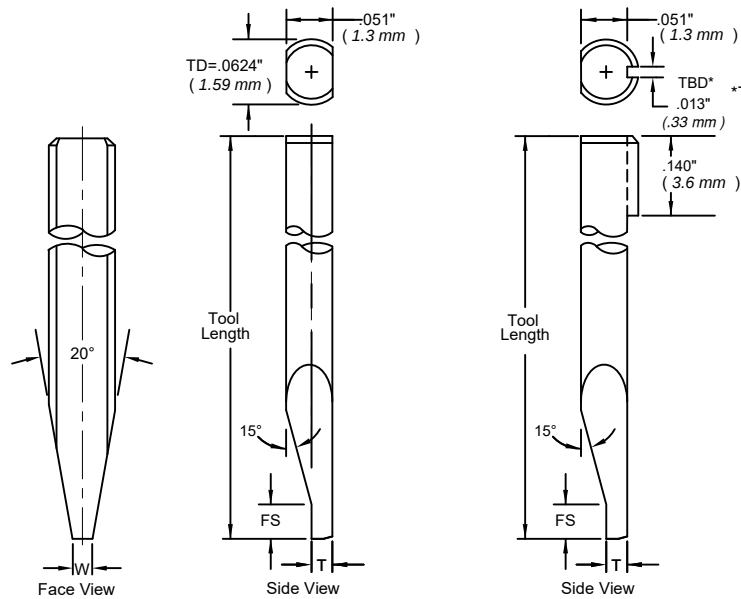
"T" To be determined according to the size of FR and BR and Hole Bore Length

FOR AUTOMATIC BONDERS



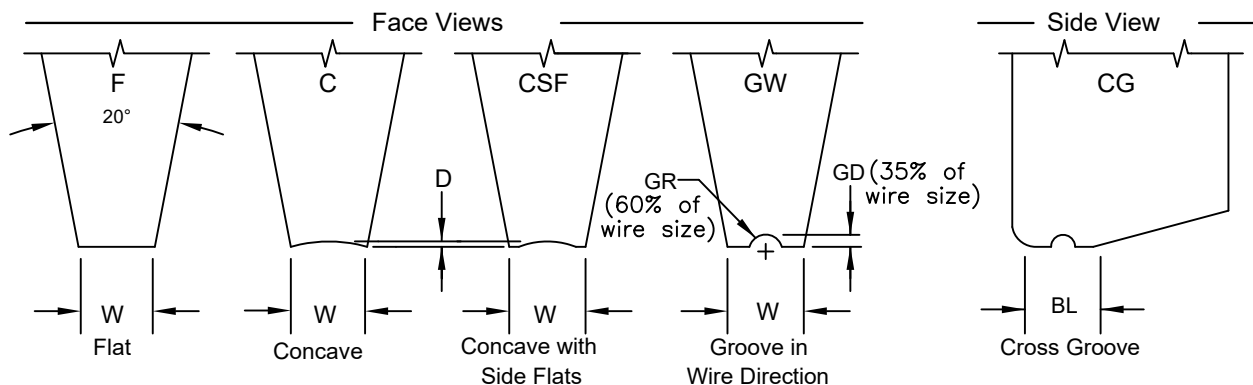
## CLH-SERIES

### S1 Option



\*To be determined according to ribbon size

Standard: Ø 1/16, Hole Angle: 45°, 55°, 60°, FS"=.015" (.38 mm)



# SERIES CLH

SMALL WIRE

ORDERING INFORMATION  
SMALL WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER: M-CLH-D-1/16-3/4-45-CG-2020-M-\***

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10

1. **MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** CLH \_\_\_\_\_

3. **FRONT/BACK RADIUS:** See Radius Option Chart \_\_\_\_\_  
\*For special Radius sizes insert an X Please specify FR/BR

4. **SHANK DIA.:** Please Specify Diameter \_\_\_\_\_

5. **TOOL LENGTH:** Please Specify Length \_\_\_\_\_

6. **HOLE ANGLE:** 45°, 55°, 60 \_\_\_\_\_

(10) S1 and other Option  
See Tool Options

(9) **FOOT FINISH:**  
**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(8) **TOOL SIZE:** See Standard Chart

(7) **FOOT TYPE:**  
**F** = Flat  
**C** = Concave  
**CSF** = Concave with Side Flats  
(CSF not available with ceramic tools)  
**CG** = Cross Groove  
**GW** = Groove in wire direction  
(Please specify wire size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.  
Example: M-CLH-X-1/16-3/4-45-F-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

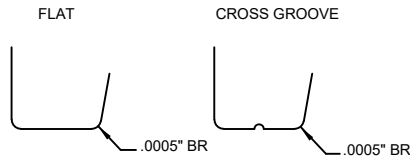
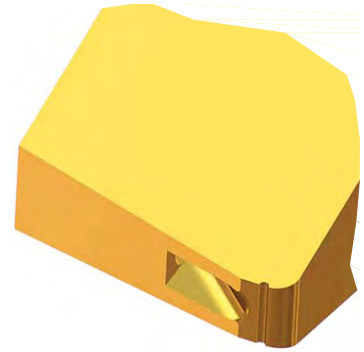
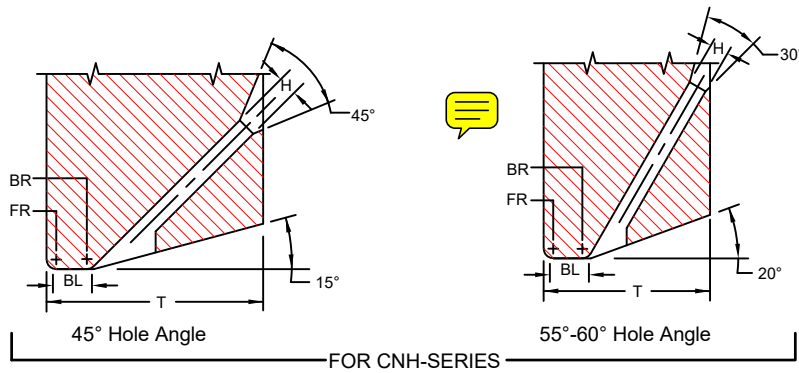
| STANDARD CHART |        |    |        |     |        |      |        |     |            |     |        | CLH SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |                           |
|----------------|--------|----|--------|-----|--------|------|--------|-----|------------|-----|--------|----------------------------------------------------------|---------------------------|
| TS             | H      |    | BL     |     | D      |      | T 45°  |     | T(55° 60°) |     | W      |                                                          | SUGGESTED WD              |
| Units          | in.    | μ  | in.    | μ   | in.    | μ    | in.    | μ   | in.        | μ   | in.    | μ                                                        | in. μ                     |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0005 | ±13                                                      |                           |
| 1505           | .0015  | 38 | .0005  | 13  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64                                                       | .0005<br>through<br>.0007 |
| 1507           | .0015  | 38 | .0007  | 18  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64                                                       |                           |
| 1510           | .0015  | 38 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64                                                       |                           |
| 1513           | .0015  | 38 | .0013  | 33  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64                                                       |                           |
| 1515           | .0015  | 38 | .0015  | 38  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64                                                       |                           |
| 1520           | .0015  | 38 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0025  | 64                                                       | .0007<br>through<br>.0010 |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5                                                       |                           |
| 2010           | .0020  | 51 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0090      | 229 | *.0040 | 102                                                      |                           |
| 2015           | .0020  | 51 | .0015  | 38  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102                                                      |                           |
| 2020           | .0020  | 51 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102                                                      |                           |
| 2025           | .0020  | 51 | .0025  | 64  | .0002  | 5    | .0120  | 305 | .0110      | 279 | .0040  | 102                                                      | .0013                     |
| 2030           | .0020  | 51 | .0030  | 76  | .0002  | 5    | .0120  | 305 | .0110      | 279 | .0040  | 102                                                      |                           |
| 2520           | .0025  | 64 | .0020  | 51  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0040  | 102                                                      |                           |
| 2525           | .0025  | 64 | .0025  | 64  | .0002  | 5    | .0130  | 330 | .0120      | 305 | .0040  | 102                                                      |                           |
| 2530           | .0025  | 64 | .0030  | 76  | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0050  | 127                                                      |                           |
| 2535           | .0025  | 64 | .0035  | 89  | .0002  | 5    | .0140  | 356 | .0130      | 330 | .0050  | 127                                                      | .0015                     |
| 2540           | .0025  | 64 | .0040  | 102 | .0002  | 5    | .0150  | 381 | .0130      | 330 | .0050  | 127                                                      |                           |
| 3020           | .0030  | 76 | .0020  | 51  | .0003  | 8    | .0140  | 356 | .0120      | 305 | .0050  | 127                                                      |                           |
| 3025           | .0030  | 76 | .0025  | 64  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0050  | 127                                                      |                           |
| 3030           | .0030  | 76 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0050  | 127                                                      |                           |
| 3035           | .0030  | 76 | .0035  | 89  | .0003  | 8    | .0150  | 381 | .0140      | 356 | .0050  | 127                                                      | .0020                     |
| 3040           | .0030  | 76 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0050  | 127                                                      |                           |
| 3525           | .0035  | 89 | .0025  | 64  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152                                                      |                           |
| 3530           | .0035  | 89 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152                                                      |                           |
| 3535           | .0035  | 89 | .0035  | 89  | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152                                                      |                           |
| 3540           | .0035  | 89 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152                                                      | .0020                     |
| 3545           | .0035  | 89 | .0045  | 114 | .0003  | 8    | .0170  | 432 | .0150      | 381 | .0060  | 152                                                      |                           |
| 3550           | .0035  | 89 | .0050  | 127 | .0003  | 8    | .0170  | 432 | .0150      | 381 | .0060  | 152                                                      |                           |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only  
TOOL SIZE=TS, WIRE DIAMETER=WD, "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES CNH

Double Flat , Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

FOR AUTOMATIC BONDERS

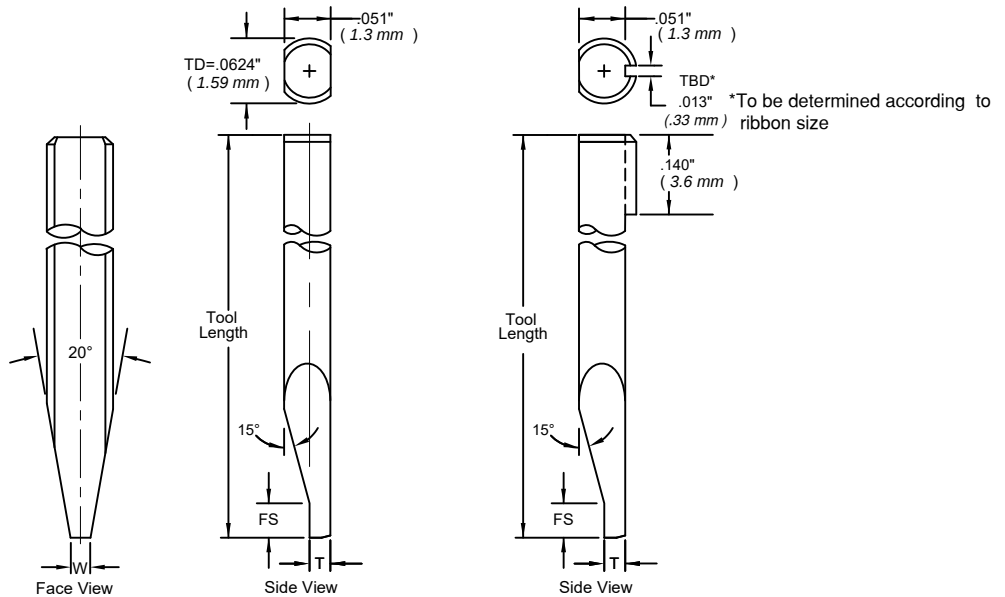


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tips**

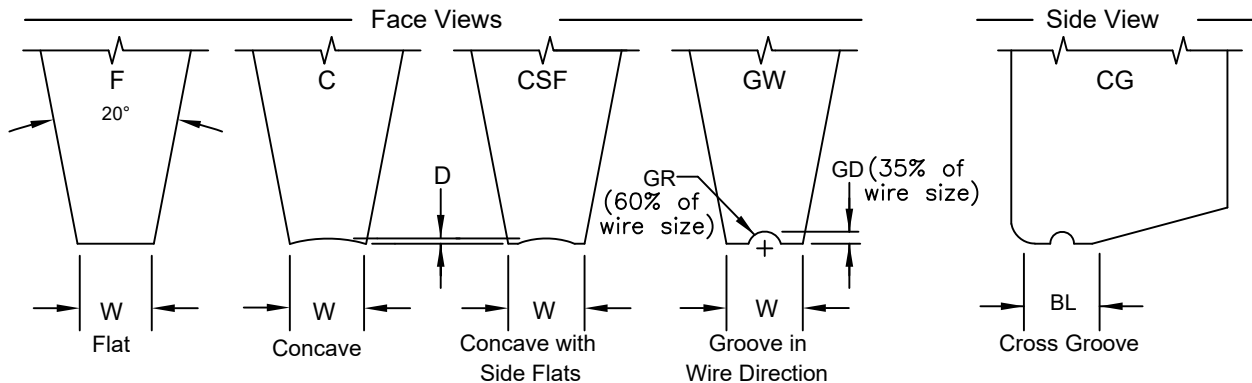
## CNH-SERIES

WIREØ .0005" through .0020

## S1 Option



Standard: Ø 1/16, Hole Angle: 45°, 55°, 60°, FS=.015" (.38 mm)



# SERIES CNH

## SMALL WIRE

ORDERING INFORMATION  
SMALL WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: **M-CN-H-D-1/16-3/4-45-CG-2020-M-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10

1. MATERIAL:

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

2. SERIES: CNH

3. FRONT/BACK RADIUS: See Radius Option Chart

\*For special Radius sizes insert an X Please specify FR/BR

4. SHANK DIA.: Please Specify Diameter

5. TOOL LENGTH: Please Specify Length

6. HOLE ANGLE: 45°, 55°, 60°

(10) S1 and other Option  
See Tool Options

(9) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(8) TOOL SIZE: See Standard Chart

(7) FOOT TYPE:

F = Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-CN-H-X-1/16-3/4-45-F-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

| STANDARD CHART CNH SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |        |    |        |     |        |      |        |     |            |     |        |     | SUGGESTED WD              |          |
|-------------------------------------------------------------------------|--------|----|--------|-----|--------|------|--------|-----|------------|-----|--------|-----|---------------------------|----------|
| TS                                                                      | H      |    | BL     |     | D      |      | T 45°  |     | T(55° 60°) |     | W      |     |                           |          |
| Units                                                                   | in.    | μ  | in.    | μ   | in.    | μ    | in.    | μ   | in.        | μ   | in.    | μ   | in.                       | μ        |
| Tolerance                                                               | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0005 | ±13 |                           |          |
| 1505                                                                    | .0015  | 38 | .0005  | 13  | .0002  | 5    | .0080  | 203 | .0075      | 191 | .0025  | 64  | .0005<br>through<br>.0007 | 13<br>18 |
| 1507                                                                    | .0015  | 38 | .0007  | 18  | .0002  | 5    | .0080  | 203 | .0075      | 191 | .0025  | 64  |                           |          |
| 1510                                                                    | .0015  | 38 | .0010  | 25  | .0002  | 5    | .0090  | 229 | .0080      | 203 | .0025  | 64  |                           |          |
| 1513                                                                    | .0015  | 38 | .0013  | 33  | .0002  | 5    | .0090  | 229 | .0080      | 203 | .0025  | 64  |                           |          |
| 1515                                                                    | .0015  | 38 | .0015  | 38  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64  |                           |          |
| 1520                                                                    | .0015  | 38 | .0020  | 51  | .0002  | 5    | .0100  | 254 | .0090      | 229 | .0025  | 64  | .0007<br>through<br>.0010 | 18<br>25 |
| Tolerance                                                               | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5  |                           |          |
| 2010                                                                    | .0020  | 51 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0090      | 229 | .0040  | 102 |                           |          |
| 2015                                                                    | .0020  | 51 | .0015  | 38  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102 |                           |          |
| 2020                                                                    | .0020  | 51 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102 |                           |          |
| 2025                                                                    | .0020  | 51 | .0025  | 64  | .0002  | 5    | .0120  | 305 | .0110      | 279 | .0040  | 102 | .0013                     | 33       |
| 2030                                                                    | .0020  | 51 | .0030  | 76  | .0002  | 5    | .0120  | 305 | .0110      | 279 | .0040  | 102 |                           |          |
| 2520                                                                    | .0025  | 64 | .0020  | 51  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102 |                           |          |
| 2525                                                                    | .0025  | 64 | .0025  | 64  | .0002  | 5    | .0130  | 330 | .0100      | 254 | .0040  | 102 |                           |          |
| 2530                                                                    | .0025  | 64 | .0030  | 76  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0050  | 127 |                           |          |
| 2535                                                                    | .0025  | 64 | .0035  | 89  | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0050  | 127 | .0015                     | 38       |
| 2540                                                                    | .0025  | 64 | .0040  | 102 | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0050  | 127 |                           |          |
| 3020                                                                    | .0030  | 76 | .0020  | 51  | .0003  | 8    | .0130  | 330 | .0110      | 279 | .0050  | 127 |                           |          |
| 3025                                                                    | .0030  | 76 | .0025  | 64  | .0003  | 8    | .0130  | 330 | .0120      | 305 | .0050  | 127 |                           |          |
| 3030                                                                    | .0030  | 76 | .0030  | 76  | .0003  | 8    | .0140  | 356 | .0120      | 305 | .0050  | 127 |                           |          |
| 3035                                                                    | .0030  | 76 | .0035  | 89  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0050  | 127 | .0020                     | 51       |
| 3040                                                                    | .0030  | 76 | .0040  | 102 | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0050  | 127 |                           |          |
| 3525                                                                    | .0035  | 89 | .0025  | 64  | .0003  | 8    | .0150  | 381 | .0120      | 305 | .0060  | 152 |                           |          |
| 3530                                                                    | .0035  | 89 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152 |                           |          |
| 3535                                                                    | .0035  | 89 | .0035  | 89  | .0003  | 8    | .0160  | 406 | .0130      | 330 | .0060  | 152 |                           |          |
| 3540                                                                    | .0035  | 89 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152 | .0020                     | 51       |
| 3545                                                                    | .0035  | 89 | .0045  | 114 | .0003  | 8    | .0170  | 432 | .0140      | 356 | .0060  | 152 |                           |          |
| 3550                                                                    | .0035  | 89 | .0050  | 127 | .0003  | 8    | .0170  | 432 | .0140      | 356 | .0060  | 152 |                           |          |

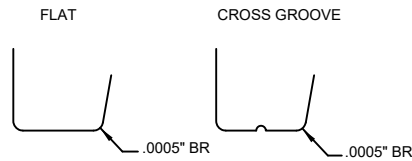
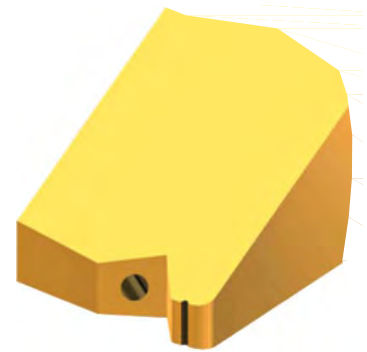
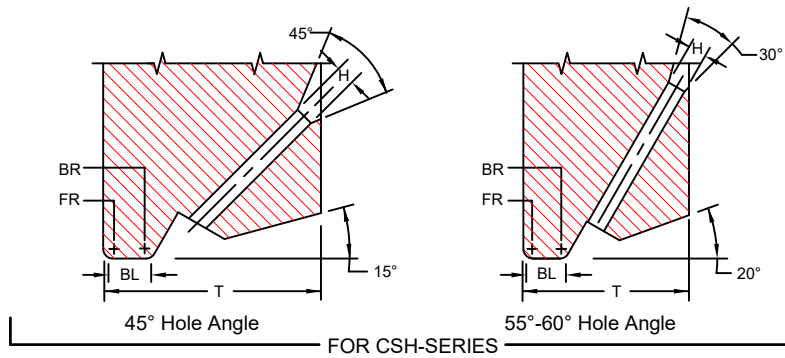
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER =WD \*T\* To be determined according to the size of FR and BR and Hole Bore Length

# SERIES CSH

FOR MANUAL AND SEMI-AUTOMATIC BONDERS

Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

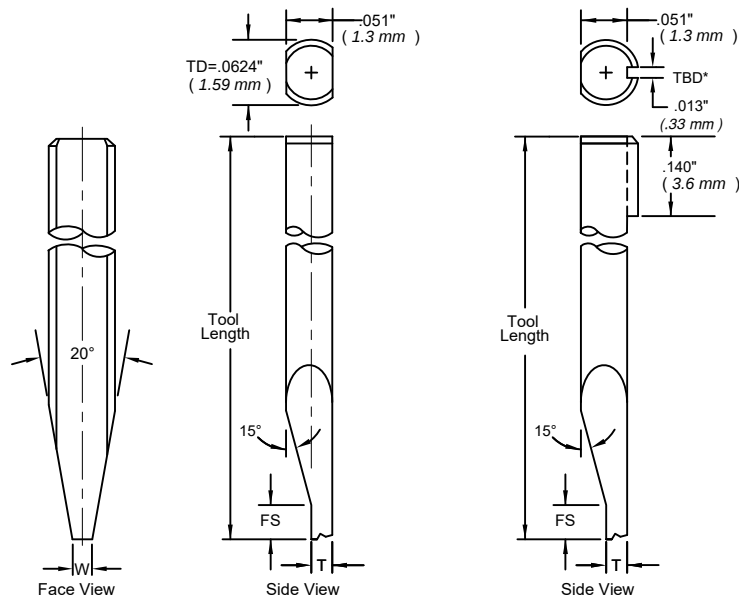


We recommend a .0005\"/>

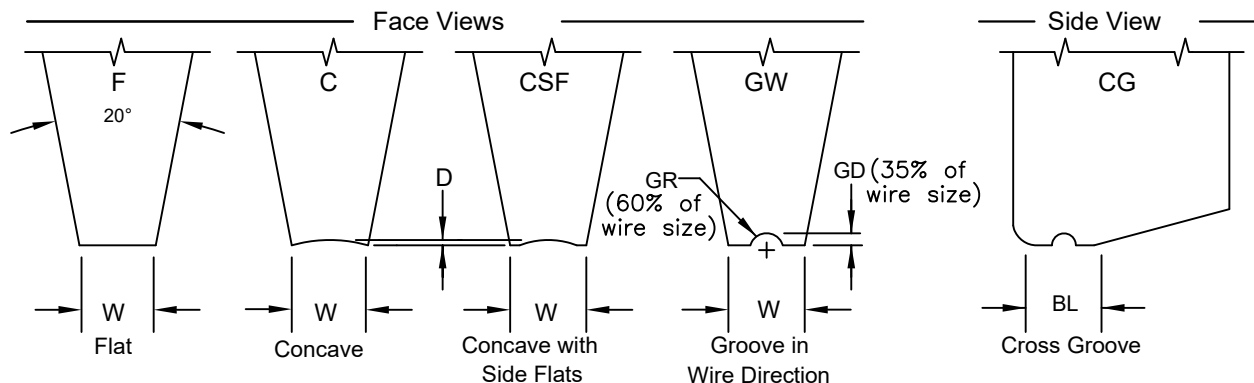
## CSH-SERIES

WIRE Ø .0005\"/>

## S1 Option



Standard: Ø 1/16, Hole Angle: 45°, 55°, 60°, FS = .015\"/>



# SERIES CSH

SMALL WIRE

ORDERING INFORMATION  
SMALL WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: **M-CSH-D-1/16-3/4-45-CG-2020-M-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10

1. MATERIAL: \_\_\_\_\_

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

2. SERIES: CSH \_\_\_\_\_

3. FRONT/BACK RADIUS: See Radius Option Chart \_\_\_\_\_

\*For special Radius sizes insert an X Please specify FR/BR

4. SHANK DIA.: Please Specify Diameter \_\_\_\_\_

5. TOOL LENGTH: Please Specify Length \_\_\_\_\_

6. HOLE ANGLE: 45°, 55°, 60 \_\_\_\_\_



(10) S1 and other Option  
See Tool Options

(9) FOOT FINISH:

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(8) TOOL SIZE: See Standard Chart

(7) FOOT TYPE: F

= Flat

C = Concave

CSF = Concave with Side Flats

(CSF not available with ceramic tools)

CG = Cross Groove

GW = Groove in wire direction

(Please specify wire size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-CSH-X-1/16-3/4-45-F-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

| STANDARD CHART |        |    |        |     |        |      |        |     |            |     |        | CSH SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |                           |          |  |
|----------------|--------|----|--------|-----|--------|------|--------|-----|------------|-----|--------|----------------------------------------------------------|---------------------------|----------|--|
| TS             | H      |    | BL     |     | D      |      | T 45°  |     | T(55° 60°) |     | W      |                                                          | SUGGESTED WD              |          |  |
| Units          | in.    | μ  | in.    | μ   | in.    | μ    | in.    | μ   | in.        | μ   | in.    | μ                                                        | in.                       | μ        |  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0005 | ±13                                                      |                           |          |  |
| 1505           | .0015  | 38 | .0005  | 13  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64                                                       | .0005<br>through<br>.0007 | 13<br>18 |  |
| 1507           | .0015  | 38 | .0007  | 18  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64                                                       |                           |          |  |
| 1510           | .0015  | 38 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64                                                       |                           |          |  |
| 1513           | .0015  | 38 | .0013  | 33  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64                                                       |                           |          |  |
| 1515           | .0015  | 38 | .0015  | 38  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64                                                       |                           |          |  |
| 1520           | .0015  | 38 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0025  | 64                                                       | .0007<br>through<br>.0010 | 18<br>25 |  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5                                                       |                           |          |  |
| 2010           | .0020  | 51 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0080      | 203 | *.0040 | 102                                                      |                           |          |  |
| 2015           | .0020  | 51 | .0015  | 38  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0040  | 102                                                      |                           |          |  |
| 2020           | .0020  | 51 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0040  | 102                                                      |                           |          |  |
| 2025           | .0020  | 51 | .0025  | 64  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102                                                      | .0013                     | 33       |  |
| 2030           | .0020  | 51 | .0030  | 76  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102                                                      |                           |          |  |
| 2520           | .0025  | 64 | .0020  | 51  | .0002  | 5    | .0130  | 330 | .0100      | 254 | .0040  | 102                                                      |                           |          |  |
| 2525           | .0025  | 64 | .0025  | 64  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0040  | 102                                                      |                           |          |  |
| 2530           | .0025  | 64 | .0030  | 76  | .0002  | 5    | .0140  | 356 | .0110      | 279 | .0050  | 127                                                      |                           |          |  |
| 2535           | .0025  | 64 | .0035  | 89  | .0002  | 5    | .0150  | 381 | .0120      | 305 | .0050  | 127                                                      | .0015                     | 38       |  |
| 2540           | .0025  | 64 | .0040  | 102 | .0002  | 5    | .0150  | 381 | .0120      | 305 | .0050  | 127                                                      |                           |          |  |
| 3020           | .0030  | 76 | .0020  | 51  | .0003  | 8    | .0130  | 330 | .0120      | 305 | .0050  | 127                                                      |                           |          |  |
| 3025           | .0030  | 76 | .0025  | 64  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0050  | 127                                                      |                           |          |  |
| 3030           | .0030  | 76 | .0030  | 76  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0050  | 127                                                      |                           |          |  |
| 3035           | .0030  | 76 | .0035  | 89  | .0003  | 8    | .0150  | 381 | .0140      | 356 | .0050  | 127                                                      | .0020                     | 51       |  |
| 3040           | .0030  | 76 | .0040  | 102 | .0003  | 8    | .0150  | 381 | .0140      | 356 | .0050  | 127                                                      |                           |          |  |
| 3525           | .0035  | 89 | .0025  | 64  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0060  | 152                                                      |                           |          |  |
| 3530           | .0035  | 89 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152                                                      |                           |          |  |
| 3535           | .0035  | 89 | .0035  | 89  | .0003  | 8    | .0150  | 381 | .0140      | 356 | .0060  | 152                                                      |                           |          |  |
| 3540           | .0035  | 89 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152                                                      |                           |          |  |
| 3545           | .0035  | 89 | .0045  | 114 | .0003  | 8    | .0160  | 406 | .0150      | 381 | .0060  | 152                                                      |                           |          |  |
| 3550           | .0035  | 89 | .0050  | 127 | .0003  | 8    | .0160  | 406 | .0150      | 381 | .0060  | 152                                                      |                           |          |  |

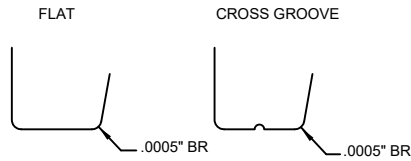
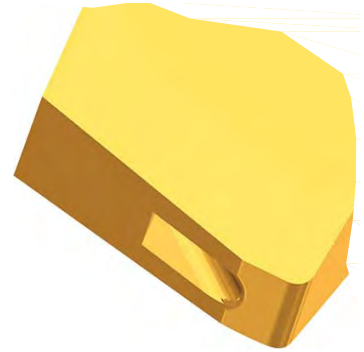
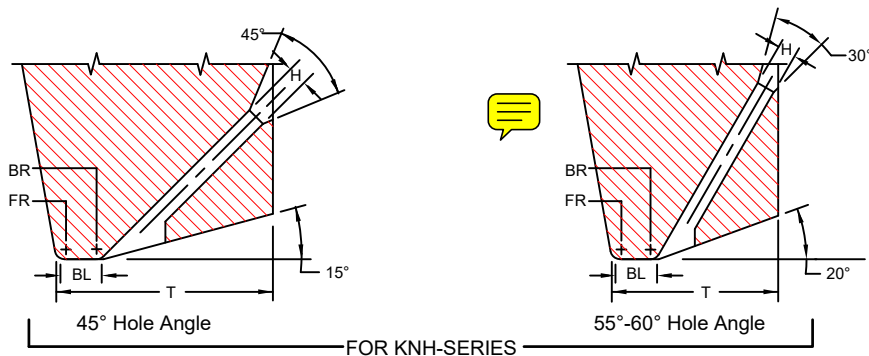
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES KNH

FOR AUTOMATIC BONDERS

Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

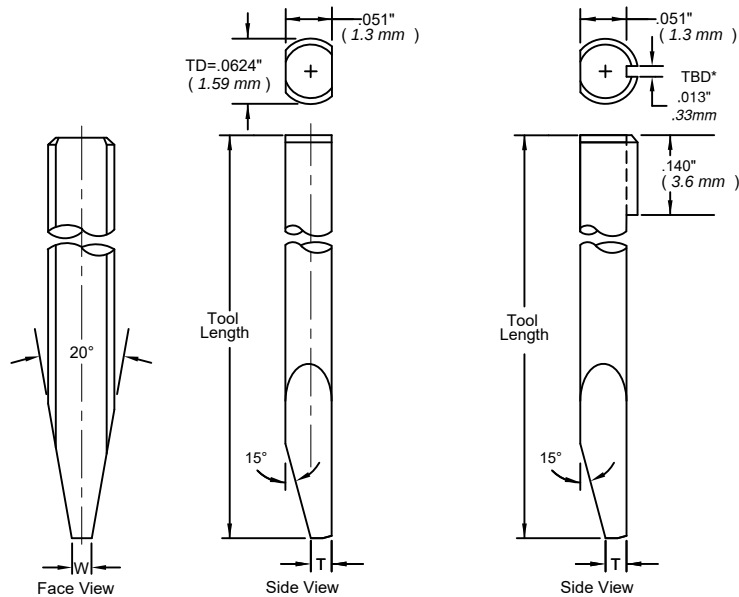


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tips**

## KNH-SERIES

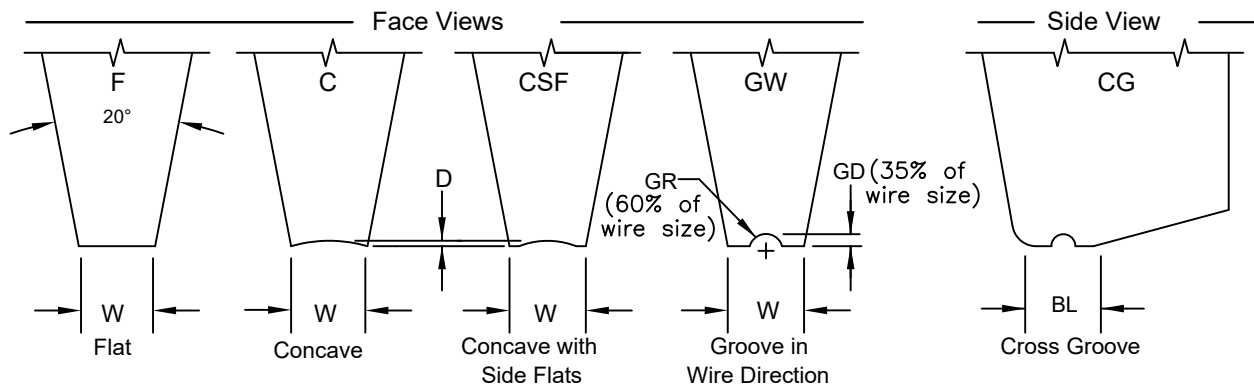
WIRE Ø .0005" through .0020

## S1 Option



\*To be determined according to ribbon size

Standard: Ø 1/16, Hole Angle: 45°, 55°, 60°



# SERIES KNH

## SMALL WIRE

ORDERING INFORMATION  
SMALL WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE

SAMPLE PART NUMBER: **M-KNH-D-1/16-3/4-45-CG-2020-M-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10

**1. MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

**2. SERIES:** KNH

**3. FRONT/BACK RADIUS:** See Radius Option Chart

\*For special Radius sizes insert an X Please specify FR/BR

**4. SHANK DIA.:** Please Specify Diameter

**5. TOOL LENGTH:** Please Specify Length

**6. HOLE ANGLE:** 45°, 55°, 60°



(10) S1 and other Option  
See Tool Options

**(9) FOOT FINISH:**

**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

(8) TOOL SIZE: See Standard Chart

**(7) FOOT TYPE:** F

= Flat  
C = Concave  
CSF = Concave with Side Flats  
(CSF not available with ceramic tools)  
CG = Cross Groove  
GW = Groove in wire direction  
(Please specify wire size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-KNH-X-1/16-3/4-45-F-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

| STANDARD CHART |        |    |        |     |        |      |        |     |            |     |        | KNH SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |                           |          |  |
|----------------|--------|----|--------|-----|--------|------|--------|-----|------------|-----|--------|----------------------------------------------------------|---------------------------|----------|--|
| TS             | H      |    | BL     |     | D      |      | T 45°  |     | T(55° 60°) |     | W      |                                                          | SUGGESTED WD              |          |  |
| Units          | in.    | μ  | in.    | μ   | in.    | μ    | in.    | μ   | in.        | μ   | in.    | μ                                                        | in.                       | μ        |  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0005 | ±13                                                      |                           |          |  |
| 1505           | .0015  | 38 | .0005  | 13  | .0002  | 5    | .0085  | 216 | .0075      | 191 | .0025  | 64                                                       | .0005<br>through<br>.0007 | 13<br>18 |  |
| 1507           | .0015  | 38 | .0007  | 18  | .0002  | 5    | .0085  | 216 | .0075      | 191 | .0025  | 64                                                       |                           |          |  |
| 1510           | .0015  | 38 | .0010  | 25  | .0002  | 5    | .0090  | 229 | .0080      | 203 | .0025  | 64                                                       |                           |          |  |
| 1513           | .0015  | 38 | .0013  | 33  | .0002  | 5    | .0090  | 229 | .0080      | 203 | .0025  | 64                                                       |                           |          |  |
| 1515           | .0015  | 38 | .0015  | 38  | .0002  | 5    | .0090  | 229 | .0080      | 203 | .0025  | 64                                                       |                           |          |  |
| 1520           | .0015  | 38 | .0020  | 51  | .0002  | 5    | .0100  | 254 | .0090      | 229 | .0025  | 64                                                       | .0007<br>through<br>.0010 | 18<br>25 |  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5                                                       |                           |          |  |
| 2010           | .0020  | 51 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0090      | 229 | *.0040 | 102                                                      |                           |          |  |
| 2015           | .0020  | 51 | .0015  | 38  | .0002  | 5    | .0100  | 254 | .0090      | 229 | .0040  | 102                                                      |                           |          |  |
| 2020           | .0020  | 51 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0040  | 102                                                      |                           |          |  |
| 2025           | .0020  | 51 | .0025  | 64  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102                                                      | .0013                     | 33       |  |
| 2030           | .0020  | 51 | .0030  | 76  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102                                                      |                           |          |  |
| 2520           | .0025  | 64 | .0020  | 51  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102                                                      |                           |          |  |
| 2525           | .0025  | 64 | .0025  | 64  | .0002  | 5    | .0120  | 305 | .0110      | 279 | .0040  | 102                                                      |                           |          |  |
| 2530           | .0025  | 64 | .0030  | 76  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0050  | 127                                                      |                           |          |  |
| 2535           | .0025  | 64 | .0035  | 89  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0050  | 127                                                      | .0015                     | 38       |  |
| 2540           | .0025  | 64 | .0040  | 102 | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0050  | 127                                                      |                           |          |  |
| 3020           | .0030  | 76 | .0020  | 51  | .0003  | 8    | .0130  | 330 | .0110      | 279 | .0050  | 127                                                      |                           |          |  |
| 3025           | .0030  | 76 | .0025  | 64  | .0003  | 8    | .0130  | 330 | .0120      | 305 | .0050  | 127                                                      |                           |          |  |
| 3030           | .0030  | 76 | .0030  | 76  | .0003  | 8    | .0140  | 356 | .0120      | 305 | .0050  | 127                                                      |                           |          |  |
| 3035           | .0030  | 76 | .0035  | 89  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0050  | 127                                                      | .0020                     | 51       |  |
| 3040           | .0030  | 76 | .0040  | 102 | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0050  | 127                                                      |                           |          |  |
| 3525           | .0035  | 89 | .0025  | 64  | .0003  | 8    | .0150  | 381 | .0120      | 305 | .0060  | 152                                                      |                           |          |  |
| 3530           | .0035  | 89 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152                                                      |                           |          |  |
| 3535           | .0035  | 89 | .0035  | 89  | .0003  | 8    | .0160  | 406 | .0130      | 330 | .0060  | 152                                                      |                           |          |  |
| 3540           | .0035  | 89 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152                                                      |                           |          |  |
| 3545           | .0035  | 89 | .0045  | 114 | .0003  | 8    | .0170  | 432 | .0140      | 356 | .0060  | 152                                                      |                           |          |  |
| 3550           | .0035  | 89 | .0050  | 127 | .0003  | 8    | .0170  | 432 | .0150      | 381 | .0060  | 152                                                      |                           |          |  |

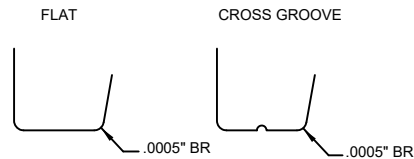
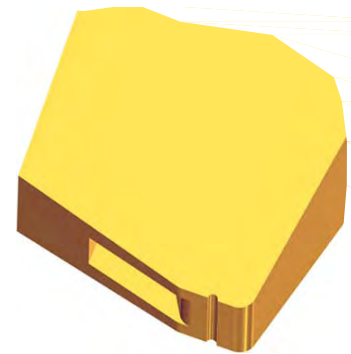
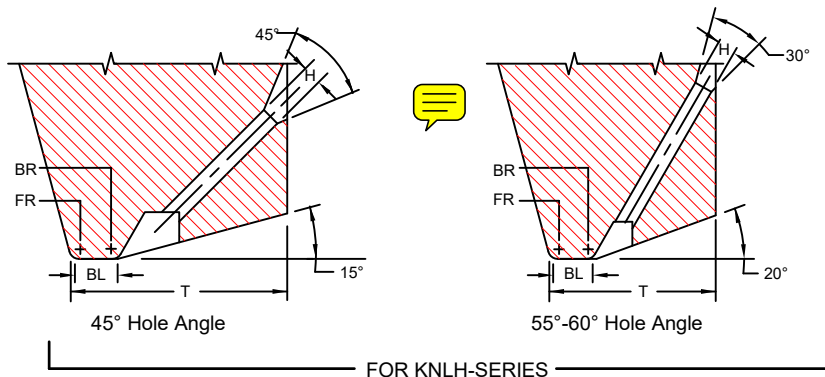
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES KNLH

FOR AUTOMATIC BONDERS

Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

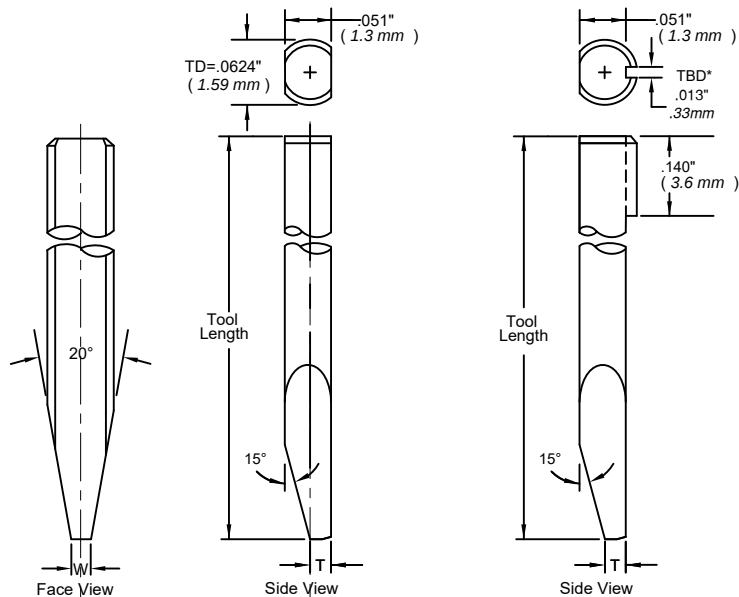


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tips**

## KNLH-SERIES

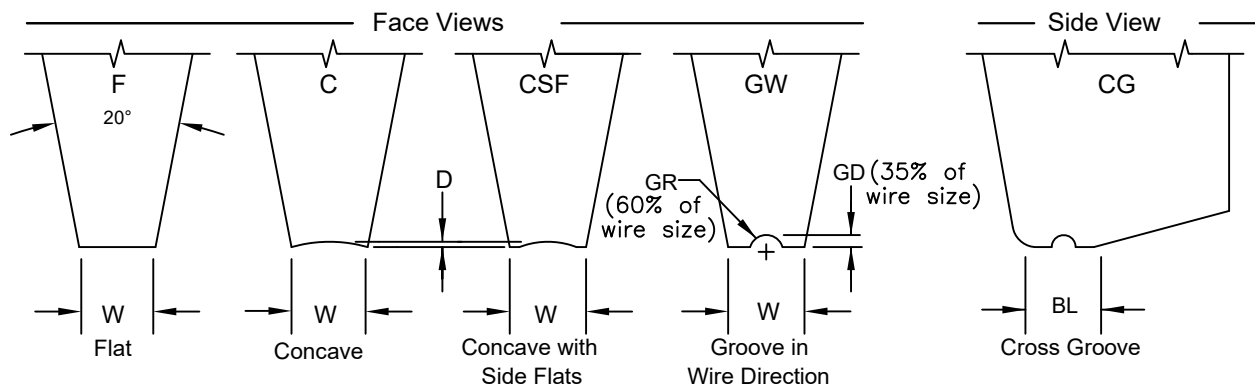
WIRE Ø .0005" through .0020

S1 Option



\*To be determined according to ribbon size

Standard: Ø 1/16, Hole Angle: 45°, 55°, 60°



# SERIES KNLH

## SMALL WIRE

## ORDERING INFORMATION SMALL WIRE BONDING WEDGES FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** **M-KNLH-D-1/16-3/4-45-CG-2020-M-\***

**SYMBOL EXPLANATION:** 1 2 3 4 5 6 7 8 9 10

1. **MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** KNLH \_\_\_\_\_

3. **FRONT/BACK RADIUS:** See Radius Option Chart \_\_\_\_\_  
\*For special Radius sizes insert an X Please specify FR/BR

4. **SHANK DIA.:** Please Specify Diameter \_\_\_\_\_

5. **TOOL LENGTH:** Please Specify Length \_\_\_\_\_

6. **HOLE ANGLE:** 45°, 55°, 60 \_\_\_\_\_

(10) S1 and other Option  
See Tool Options

(9) **FOOT FINISH:**  
**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Polish finish (FR, BR), and Matte finish (Bond Flat)

(8) **TOOL SIZE:** See Standard Chart

(7) **FOOT TYPE:** **F** = Flat  
**C** = Concave  
**CSF** = Concave with Side Flats (CSF not available with ceramic tools)  
**CG** = Cross Groove  
**GW** = Groove in wire direction (Please specify wire size)

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.

Example: M-KNLH-X-1/16-3/4-45-F-2020-M (X) FR=.0012, BR=.0007

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

| STANDARD CHART |        |    |        |     |        |      |        |     |            |     |        |     | KNLH SMALL WIRE:          |          | FOR WIRE DIAMETERS .0005" THROUGH .0020" |  |  |  |  |  |  |  |  |  |
|----------------|--------|----|--------|-----|--------|------|--------|-----|------------|-----|--------|-----|---------------------------|----------|------------------------------------------|--|--|--|--|--|--|--|--|--|
| TS             | H      |    | BL     |     | D      |      | T 45°  |     | T(55° 60°) |     | W      |     | SUGGESTED WD              |          |                                          |  |  |  |  |  |  |  |  |  |
| Units          | in.    | μ  | in.    | μ   | in.    | μ    | in.    | μ   | in.        | μ   | in.    | μ   | in.                       | μ        |                                          |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0005 | ±13 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 1505           | .0015  | 38 | .0005  | 13  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64  | .0005<br>through<br>.0007 | 13<br>18 |                                          |  |  |  |  |  |  |  |  |  |
| 1507           | .0015  | 38 | .0007  | 18  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64  |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 1510           | .0015  | 38 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64  |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 1513           | .0015  | 38 | .0013  | 33  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64  |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 1515           | .0015  | 38 | .0015  | 38  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64  |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 1520           | .0015  | 38 | .0020  | 51  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0025  | 64  |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| Tolerance      | ±.0002 | ±5 | ±.0002 | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5  |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2010           | .0020  | 51 | .0010  | 25  | .0002  | 5    | .0100  | 254 | .0090      | 229 | *.0040 | 102 | .0007<br>through<br>.0010 | 18<br>25 |                                          |  |  |  |  |  |  |  |  |  |
| 2015           | .0020  | 51 | .0015  | 38  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2020           | .0020  | 51 | .0020  | 51  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2025           | .0020  | 51 | .0025  | 64  | .0002  | 5    | .0130  | 330 | .0100      | 254 | .0040  | 102 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2030           | .0020  | 51 | .0030  | 76  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0040  | 102 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2520           | .0025  | 64 | .0020  | 51  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0040  | 102 | .0013                     | 33       |                                          |  |  |  |  |  |  |  |  |  |
| 2525           | .0025  | 64 | .0025  | 64  | .0002  | 5    | .0130  | 330 | .0120      | 305 | .0040  | 102 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2530           | .0025  | 64 | .0030  | 76  | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2535           | .0025  | 64 | .0035  | 89  | .0002  | 5    | .0140  | 356 | .0130      | 330 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 2540           | .0025  | 64 | .0040  | 102 | .0002  | 5    | .0150  | 381 | .0130      | 330 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3020           | .0030  | 76 | .0020  | 51  | .0003  | 8    | .0140  | 356 | .0120      | 305 | .0050  | 127 | .0015                     | 38       |                                          |  |  |  |  |  |  |  |  |  |
| 3025           | .0030  | 76 | .0025  | 64  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3030           | .0030  | 76 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3035           | .0030  | 76 | .0035  | 89  | .0003  | 8    | .0150  | 381 | .0140      | 356 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3040           | .0030  | 76 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0050  | 127 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3525           | .0035  | 89 | .0025  | 64  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152 | .0020                     | 51       |                                          |  |  |  |  |  |  |  |  |  |
| 3530           | .0035  | 89 | .0030  | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3535           | .0035  | 89 | .0035  | 89  | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3540           | .0035  | 89 | .0040  | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3545           | .0035  | 89 | .0045  | 114 | .0003  | 8    | .0170  | 432 | .0150      | 381 | .0060  | 152 |                           |          |                                          |  |  |  |  |  |  |  |  |  |
| 3550           | .0035  | 89 | .0050  | 127 | .0003  | 8    | .0170  | 432 | .0150      | 381 | .0060  | 152 |                           |          |                                          |  |  |  |  |  |  |  |  |  |

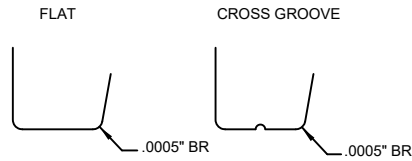
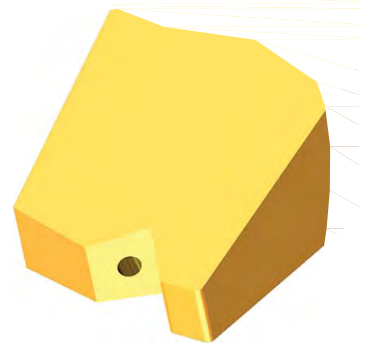
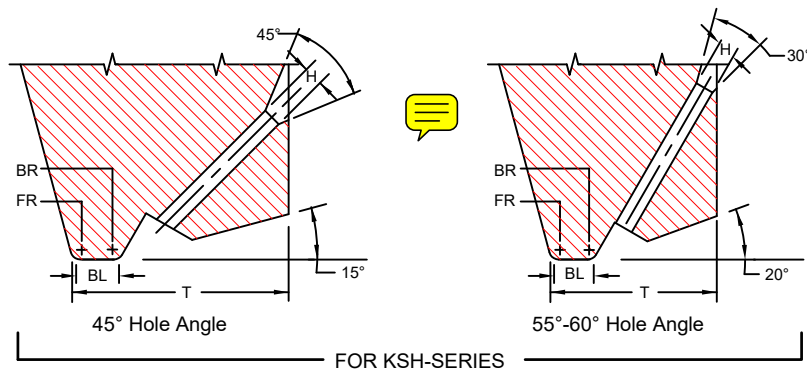
\*Other sizes available upon request \*All dimensions and tolerances are for reference only

TOOL SIZE=TS, WIRE DIAMETER =WD "T" To be determined according to the size of FR and BR and Hole Bore Length

# SERIES KSH

Double Flat ,Vertical Feed for Palomar (Hughes)  
Hesse Mechatronics

FOR MANUAL AND  
SEMI-AUTOMATIC BONDERS

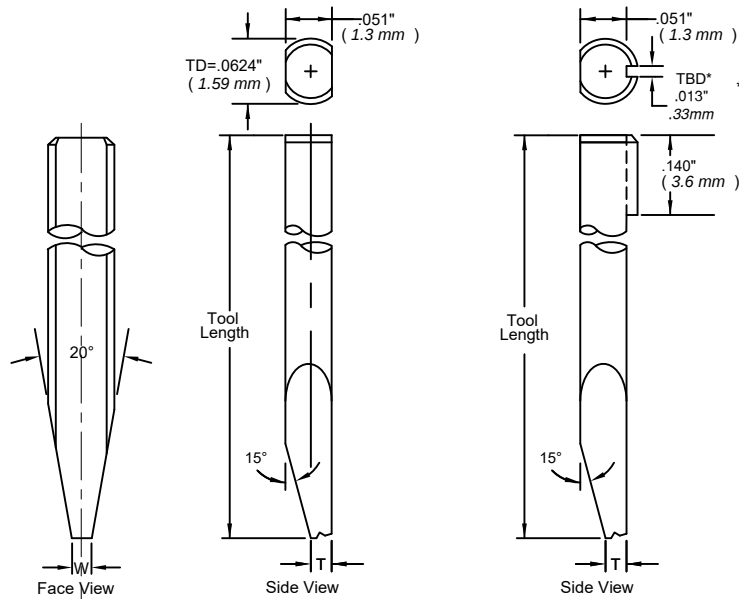


We recommend a .0005" back radius and a cross groove or a flat bond foot when ordering tools for gold wire thermosonic bonding. For more gold wire application information see **Tech Tips**

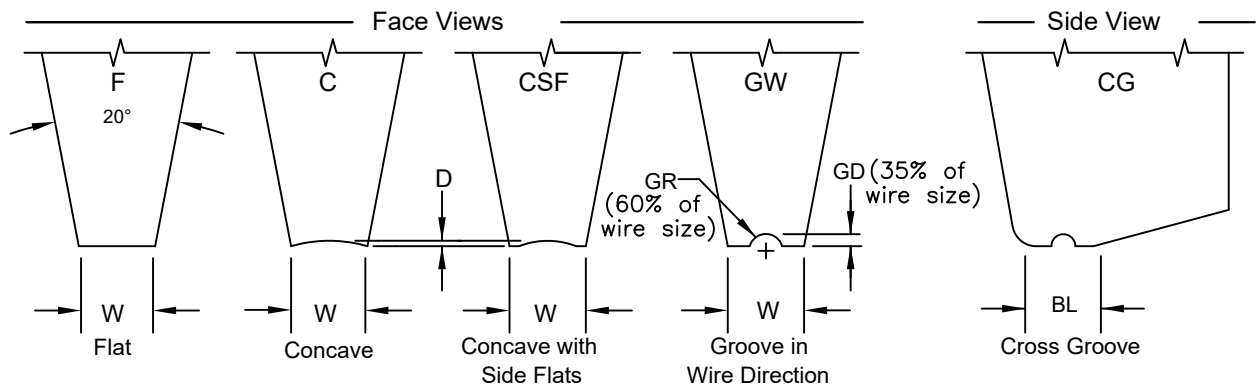
## KSH-SERIES

WIRE Ø .0005" through .0020

## S1 Option



Standard: Ø 1/16, Hole Angle: 45°, 55°, 60°



# SERIES KSH

## SMALL WIRE

## ORDERING INFORMATION SMALL WIRE BONDING WEDGES FOR GOLD AND ALUMINUM WIRE

**SAMPLE PART NUMBER:** **M-KSH-D-1/16-3/4-45-CG-2020-M-\***

**SYMBOL EXPLANATION:**

|                                                                                                                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10                                                                                                                                                                                                                                      |                                          |
|----------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 1. <b>MATERIAL:</b>                                                                                                        |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         |                                          |
| <b>M</b> = Ceramic<br><b>C</b> = Tungsten Carbide<br><b>T</b> = Titanium<br><b>All other:</b> See Material Selection Guide |   |   |   |   |   |   |   |   |   | (10) S1 and other Option<br>See Tool Options                                                                                                                                                                                            |                                          |
| 2. <b>SERIES:</b> KSH                                                                                                      |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         | (9) <b>FOOT FINISH:</b>                  |
|                                                                                                                            |   |   |   |   |   |   |   |   |   | <b>M</b> = Matte finish (FR, BR, & Bond Flat)<br><b>P</b> = Polish finish (FR, BR, & Bond Flat)<br><b>MP</b> = Polish finish (FR, BR), and Matte finish (Bond Flat)                                                                     |                                          |
| 3. <b>FRONT/BACK RADIUS:</b> See Radius Option Chart                                                                       |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         | (8) <b>TOOL SIZE:</b> See Standard Chart |
| *For special Radius sizes insert an X Please specify FR/BR                                                                 |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         |                                          |
| 4. <b>SHANK DIA.:</b> Please Specify Diameter                                                                              |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         |                                          |
| 5. <b>TOOL LENGTH:</b> Please Specify Length                                                                               |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         |                                          |
| 6. <b>HOLE ANGLE:</b> 45°, 55°, 60                                                                                         |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                         | (7) <b>FOOT TYPE:</b>                    |
|                                                                                                                            |   |   |   |   |   |   |   |   |   | <b>F</b> = Flat<br><b>C</b> = Concave<br><b>CSF</b> = Concave with Side Flats<br><b>(CSF not available with ceramic tools)</b><br><b>CG</b> = Cross Groove<br><b>GW</b> = Groove in wire direction<br><b>(Please specify wire size)</b> |                                          |

For special sizes or dimensions insert an (X) in the appropriate position of the part number then specify what (X) equals.  
 Example: M-KSH-X-1/16-3/4-45-F-2020-M (X) FR=.0012, BR=.0007

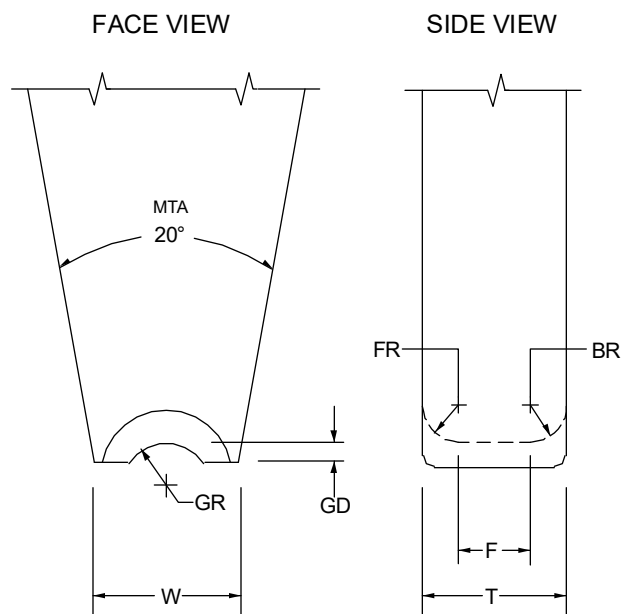
| STANDARD CHART |        |    | KSH SMALL WIRE: FOR WIRE DIAMETERS .0005" THROUGH .0020" |     |        |      |        |     |            |     |        |     |                           |          |
|----------------|--------|----|----------------------------------------------------------|-----|--------|------|--------|-----|------------|-----|--------|-----|---------------------------|----------|
| TS             | H      |    | BL                                                       |     | D      |      | T 45°  |     | T(55° 60°) |     | W      |     | SUGGESTED WD              |          |
| Units          | in.    | μ  | in.                                                      | μ   | in.    | μ    | in.    | μ   | in.        | μ   | in.    | μ   | in.                       | μ        |
| Tolerance      | ±.0002 | ±5 | ±.0002                                                   | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0005 | ±13 |                           |          |
| 1505           | .0015  | 38 | .0005                                                    | 13  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64  | .0005<br>through<br>.0007 | 13<br>18 |
| 1507           | .0015  | 38 | .0007                                                    | 18  | .0002  | 5    | .0090  | 229 | .0075      | 191 | .0025  | 64  |                           |          |
| 1510           | .0015  | 38 | .0010                                                    | 25  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64  |                           |          |
| 1513           | .0015  | 38 | .0013                                                    | 33  | .0002  | 5    | .0100  | 254 | .0080      | 203 | .0025  | 64  |                           |          |
| 1515           | .0015  | 38 | .0015                                                    | 38  | .0002  | 5    | .0100  | 254 | .0090      | 229 | .0025  | 64  |                           |          |
| 1520           | .0015  | 38 | .0020                                                    | 51  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0025  | 64  |                           |          |
| Tolerance      | ±.0002 | ±5 | ±.0002                                                   | ±5  | -.0001 | -2.5 | ±.0005 | ±13 | ±.0005     | ±13 | ±.0002 | ±5  |                           |          |
| 2010           | .0020  | 51 | .0010                                                    | 25  | .0002  | 5    | .0100  | 254 | .0090      | 229 | *.0040 | 102 | .0007<br>through<br>.0010 | 18<br>25 |
| 2015           | .0020  | 51 | .0015                                                    | 38  | .0002  | 5    | .0110  | 279 | .0090      | 229 | .0040  | 102 |                           |          |
| 2020           | .0020  | 51 | .0020                                                    | 51  | .0002  | 5    | .0110  | 279 | .0100      | 254 | .0040  | 102 |                           |          |
| 2025           | .0020  | 51 | .0025                                                    | 64  | .0002  | 5    | .0120  | 305 | .0100      | 254 | .0040  | 102 |                           |          |
| 2030           | .0020  | 51 | .0030                                                    | 76  | .0002  | 5    | .0120  | 305 | .0110      | 279 | .0040  | 102 |                           |          |
| 2520           | .0025  | 64 | .0020                                                    | 51  | .0002  | 5    | .0130  | 330 | .0110      | 279 | .0040  | 102 |                           |          |
| 2525           | .0025  | 64 | .0025                                                    | 64  | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0040  | 102 | .0013                     | 33       |
| 2530           | .0025  | 64 | .0030                                                    | 76  | .0002  | 5    | .0140  | 356 | .0120      | 305 | .0050  | 127 |                           |          |
| 2535           | .0025  | 64 | .0035                                                    | 89  | .0002  | 5    | .0150  | 381 | .0125      | 318 | .0050  | 127 |                           |          |
| 2540           | .0025  | 64 | .0040                                                    | 102 | .0002  | 5    | .0150  | 381 | .0125      | 318 | .0050  | 127 |                           |          |
| 3020           | .0030  | 76 | .0020                                                    | 51  | .0003  | 8    | .0130  | 330 | .0115      | 292 | .0050  | 127 |                           |          |
| 3025           | .0030  | 76 | .0025                                                    | 64  | .0003  | 8    | .0140  | 356 | .0115      | 292 | .0050  | 127 | .0015                     | 38       |
| 3030           | .0030  | 76 | .0030                                                    | 76  | .0003  | 8    | .0140  | 356 | .0125      | 318 | .0050  | 127 |                           |          |
| 3035           | .0030  | 76 | .0035                                                    | 89  | .0003  | 8    | .0150  | 381 | .0125      | 318 | .0050  | 127 |                           |          |
| 3040           | .0030  | 76 | .0040                                                    | 102 | .0003  | 8    | .0150  | 381 | .0135      | 343 | .0050  | 127 |                           |          |
| 3525           | .0035  | 89 | .0025                                                    | 64  | .0003  | 8    | .0140  | 356 | .0130      | 330 | .0060  | 152 |                           |          |
| 3530           | .0035  | 89 | .0030                                                    | 76  | .0003  | 8    | .0150  | 381 | .0130      | 330 | .0060  | 152 | .0020                     | 51       |
| 3535           | .0035  | 89 | .0035                                                    | 89  | .0003  | 8    | .0150  | 381 | .0140      | 356 | .0060  | 152 |                           |          |
| 3540           | .0035  | 89 | .0040                                                    | 102 | .0003  | 8    | .0160  | 406 | .0140      | 356 | .0060  | 152 |                           |          |
| 3545           | .0035  | 89 | .0045                                                    | 114 | .0003  | 8    | .0160  | 406 | .0150      | 381 | .0060  | 152 |                           |          |
| 3550           | .0035  | 89 | .0050                                                    | 127 | .0003  | 8    | .0160  | 406 | .0150      | 381 | .0060  | 152 |                           |          |

\*Other sizes available upon request \*All dimensions and tolerances are for reference only  
 TOOL SIZE=TS, WIRE DIAMETER=WD "T" To be determined according to the size of FR and BR and Hole Bore Length

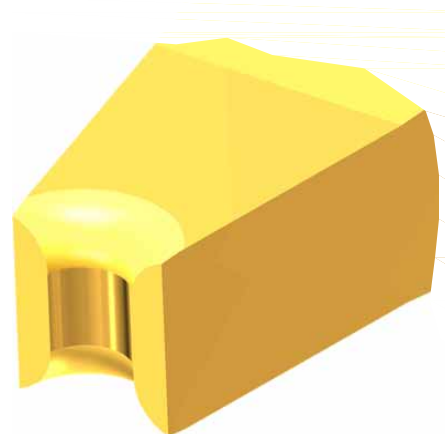
# SERIES G

LARGE WIRE, U GROOVE

FOR MANUAL, AUTOMATIC AND  
SEMI-AUTOMATIC BONDERS



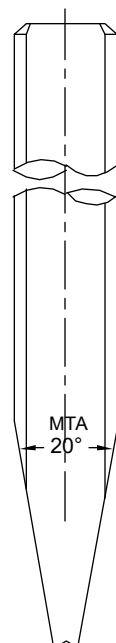
MTA = MAIN TAPER ANGLE  
SA = SIDE-VIEW ANGLE  
BA = BACK ANGLE  
FA = FRONT ANGLE



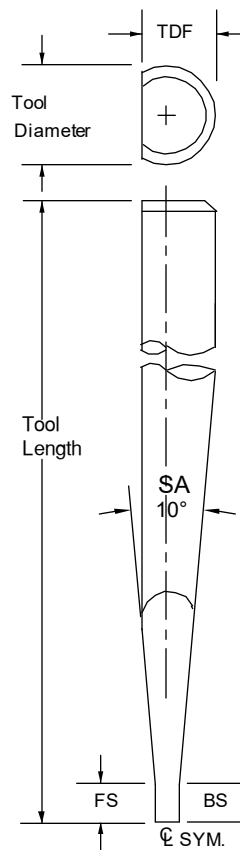
TDF" To be determined according to the "T" size

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | inch  | mm   | inch  | mm   |
| 1/16 | .0624 | 1.58 | .0460 | 1.17 |
| 1/16 | .0624 | 1.58 | .0590 | 1.50 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1100 | 2.79 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

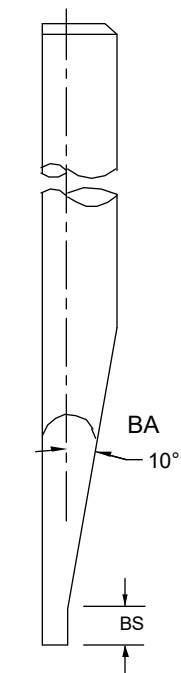
Standard Front Step and Back Step  
supplied unless otherwise specified.  
See **Tool Options** for other options.  
(A4, A5)



FACE VIEW



SIDE VIEW  
CENTER LINE  
(S=Standard)



SIDE VIEW  
'C' STYLE  
(O=Optional)

# SERIES G

U-GROOVE IN WIRE DIRECTION  
LARGE WIRE

ORDERING INFORMATION  
LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER: M-S-G-100-1-1/8-1.97-M- \***

**SYMBOL EXPLANATION:**

1. **MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection

2. **S=** Standard, Center line  
**O** = Optional, C Style

3. **PART NUMBER :** G  
Wire Ø (100 in µ) and Revision Number (1)

7. See Tool Options

6. **FOOT FINISH:**

M = Matte finish (FR, BR, & Bond Flat)  
P = Polish finish (FR, BR, & Bond Flat)  
MP = Polish finish (FR, BR), and  
Matte finish (Bond Flat)

5. **TOOL LENGTH:**

Please Specify Length

4. **SHANK DIA.:** Please Specify Length  
Select TD from chart on page

| STANDARD CHART        |       |     | G LARGE WIRE: FOR WIRE DIAMETERS .0040" THROUGH .0200" |     |        |     |        |     |        |     |         |      |        |      |        |      |       |     |
|-----------------------|-------|-----|--------------------------------------------------------|-----|--------|-----|--------|-----|--------|-----|---------|------|--------|------|--------|------|-------|-----|
| PART NUMBER           | F     |     | FR                                                     |     | BR     |     | GR     |     | GD     |     | FS & BS |      | T      |      | W      |      | WD    |     |
| Units                 | in.   | μ   |                                                        | μ   | in.    | μ   | in.    | μ   | in.    | μ   | in.     | μ    | in.    | μ    | in.    | μ    | in.   | μ   |
| Tolerance small Tools | (Ref) |     | ±.0002                                                 | ±5  | ±.0002 | ±5  | ±.0002 | ±5  | ±.0002 | ±5  | ±.0004  | ±10  | ±.0004 | ±10  | ±.0004 | ±10  |       |     |
| G-100-1               | .0051 | 130 | .0024                                                  | 61  | .0024  | 61  | .0024  | 61  | .0016  | 41  | .0390   | 991  | .0098  | 249  | .0098  | 249  | .0040 | 102 |
| G-100-2               | .0057 | 145 |                                                        |     |        |     |        |     |        |     |         |      | .0104  | 264  |        |      |       |     |
| G-100-3               | .0063 | 160 |                                                        |     |        |     |        |     |        |     |         |      | .0110  | 279  |        |      |       |     |
| G-100-4               | .0071 | 180 |                                                        |     |        |     |        |     |        |     |         |      | .0118  | 300  |        |      |       |     |
| G-125-1               | .0059 | 150 | .0030                                                  | 76  | .0030  | 76  | .0030  | 76  | .0020  | 51  | .0390   | 991  | .0118  | 300  | .0118  | 300  | .0050 | 127 |
| G-125-2               | .0069 | 175 |                                                        |     |        |     |        |     |        |     |         |      | .0128  | 325  |        |      |       |     |
| G-125-3               | .0079 | 201 |                                                        |     |        |     |        |     |        |     |         |      | .0138  | 351  |        |      |       |     |
| G-125-4               | .0089 | 226 |                                                        |     |        |     |        |     |        |     |         |      | .0148  | 376  |        |      |       |     |
| G-150-1               | .0067 | 170 | .0035                                                  | 89  | .0035  | 89  | .0035  | 89  | .0024  | 61  | .0390   | 991  | .0138  | 351  | .0138  | 351  | .0060 | 152 |
| G-150-2               | .0077 | 196 |                                                        |     |        |     |        |     |        |     |         |      | .0148  | 376  |        |      |       |     |
| G-150-3               | .0091 | 231 |                                                        |     |        |     |        |     |        |     |         |      | .0161  | 409  |        |      |       |     |
| G-150-4               | .0106 | 269 |                                                        |     |        |     |        |     |        |     |         |      | .0177  | 450  |        |      |       |     |
| G-175-1               | .0075 | 191 | .0041                                                  | 104 | .0041  | 104 | .0041  | 104 | .0028  | 71  | .0390   | 991  | .0157  | 399  | .0157  | 399  | .0070 | 178 |
| G-175-2               | .0091 | 231 |                                                        |     |        |     |        |     |        |     |         |      | .0173  | 439  |        |      |       |     |
| G-175-3               | .0106 | 269 |                                                        |     |        |     |        |     |        |     |         |      | .0189  | 480  |        |      |       |     |
| G-175-4               | .0124 | 315 |                                                        |     |        |     |        |     |        |     |         |      | .0207  | 526  |        |      |       |     |
| G-200-1               | .0083 | 211 | .0047                                                  | 119 | .0047  | 119 | .0047  | 119 | .0031  | 79  | .0390   | 991  | .0177  | 450  | .0197  | 500  | .0080 | 203 |
| G-200-2               | .0102 | 259 |                                                        |     |        |     |        |     |        |     |         |      | .0197  | 500  |        |      |       |     |
| G-200-3               | .0122 | 310 |                                                        |     |        |     |        |     |        |     |         |      | .0217  | 551  |        |      |       |     |
| G-200-4               | .0142 | 361 |                                                        |     |        |     |        |     |        |     |         |      | .0236  | 599  |        |      |       |     |
| G-250-1               | .0098 | 249 | .0059                                                  | 150 | .0059  | 150 | .0059  | 150 | .0039  | 99  | .0590   | 1499 | .0217  | 551  | .0217  | 551  | .0100 | 254 |
| G-250-2               | .0130 | 330 |                                                        |     |        |     |        |     |        |     |         |      | .0248  | 630  |        |      |       |     |
| G-250-3               | .0150 | 381 |                                                        |     |        |     |        |     |        |     |         |      | .0268  | 681  |        |      |       |     |
| G-250-4               | .0177 | 450 |                                                        |     |        |     |        |     |        |     |         |      | .0295  | 749  |        |      |       |     |
| G-300-1               | .0114 | 290 | .0071                                                  | 180 | .0071  | 180 | .0071  | 180 | .0047  | 119 | .0590   | 1499 | .0256  | 650  | .0236  | 599  | .0120 | 305 |
| G-300-2               | .0154 | 391 |                                                        |     |        |     |        |     |        |     |         |      | .0295  | 749  |        |      |       |     |
| G-300-3               | .0181 | 460 |                                                        |     |        |     |        |     |        |     |         |      | .0323  | 820  |        |      |       |     |
| G-300-4               | .0213 | 541 |                                                        |     |        |     |        |     |        |     |         |      | .0354  | 899  |        |      |       |     |
| G-350-1               | .0134 | 340 | .0083                                                  | 211 | .0083  | 211 | .0083  | 211 | .0055  | 140 | .0590   | 1499 | .0300  | 762  | .0276  | 701  | .0140 | 356 |
| G-350-2               | .0177 | 450 |                                                        |     |        |     |        |     |        |     |         |      | .0343  | 871  |        |      |       |     |
| G-350-3               | .0213 | 541 |                                                        |     |        |     |        |     |        |     |         |      | .0378  | 960  |        |      |       |     |
| G-350-4               | .0248 | 630 |                                                        |     |        |     |        |     |        |     |         |      | .0413  | 1049 |        |      |       |     |
| G-400-1               | .0150 | 381 | .0095                                                  | 241 | .0095  | 241 | .0095  | 241 | .0063  | 160 | .0590   | 1499 | .0339  | 861  | .0315  | 800  | .0160 | 406 |
| G-400-2               | .0205 | 521 |                                                        |     |        |     |        |     |        |     |         |      | .0394  | 1001 |        |      |       |     |
| G-400-3               | .0244 | 620 |                                                        |     |        |     |        |     |        |     |         |      | .0433  | 1100 |        |      |       |     |
| G-400-4*              | .0283 | 719 |                                                        |     |        |     |        |     |        |     |         |      | .0472  | 1199 |        |      |       |     |
| G-450-1               | .0177 | 450 | .0106                                                  | 269 | .0106  | 269 | .0106  | 269 | .0071  | 180 | .0590   | 1499 | .0390  | 991  | .0354  | 899  | .0180 | 457 |
| G-450-2*              | .0230 | 584 |                                                        |     |        |     |        |     |        |     |         |      | .0445  | 1130 |        |      |       |     |
| G-450-3*              | .0272 | 691 |                                                        |     |        |     |        |     |        |     |         |      | .0484  | 1229 |        |      |       |     |
| G-450-4*              | .0319 | 810 |                                                        |     |        |     |        |     |        |     |         |      | .0531  | 1349 |        |      |       |     |
| G-500-1               | .0197 | 500 | .0118                                                  | 300 | .0118  | 300 | .0118  | 300 | .0079  | 201 | .0590   | 1499 | .0433  | 1100 | .0394  | 1001 | .0200 | 508 |
| G-500-2*              | .0256 | 650 |                                                        |     |        |     |        |     |        |     |         |      | .0492  | 1250 |        |      |       |     |
| G-500-3*              | .0303 | 770 |                                                        |     |        |     |        |     |        |     |         |      | .0539  | 1369 |        |      |       |     |
| G-500-4*              | .0355 | 902 |                                                        |     |        |     |        |     |        |     |         |      | .0591  | 1501 |        |      |       |     |

\* = Must be "C" Style \*Other sizes available upon request \*All dimensions and tolerances are for reference only

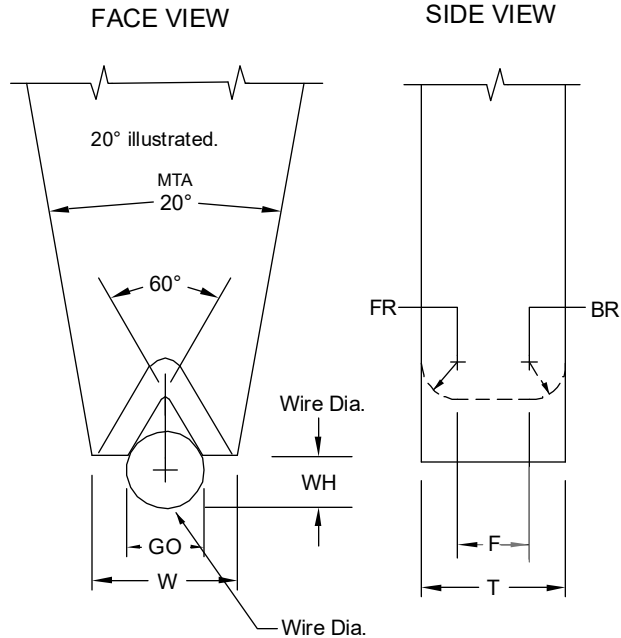
WIRE DIAMETER =WD

# SERIES GE

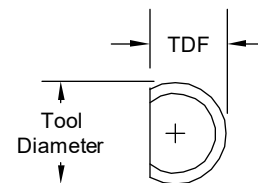
## LARGE WIRE, V GROOVE

FOR MANUAL, AUTOMATIC AND  
SEMI-AUTOMATIC BONDERS

20° OR 30° MAIN TAPER ANGLE  
(MTA)



MTA = MAIN TAPER ANGLE  
SA = SIDE-VIEW ANGLE  
BA = BACK ANGLE  
GO = GROOVE OPENING

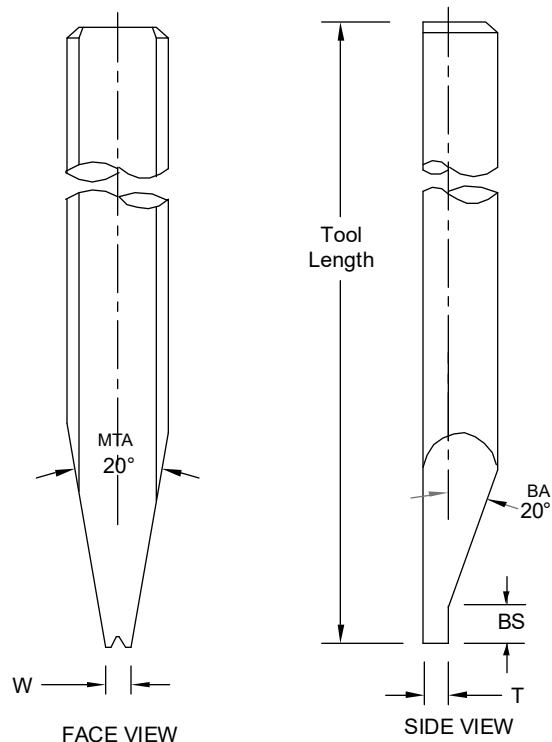


| Standard |       |      |       |      |
|----------|-------|------|-------|------|
|          | TD    |      | TDF   |      |
|          | in.   | mm   | in.   | mm   |
| 1/8      | .1249 | 3.17 | .1100 | 2.79 |

1/8" diameter tools illustrated.

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 |
|      | .0784 | 1.99 | .0630 | 1.60 |
|      | .0784 | 1.99 | .0720 | 1.83 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

Standard Back Step supplied unless  
otherwise specified. See **Tool Options**  
for other options. (A4, A5)



# SERIES GE

LARGE WIRE  
V-GROOVE IN WIRE DIRECTION

ORDERING INFORMATION  
LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER: M-GE-100-1-1/8-1.97-MP-\***

**SYMBOL EXPLANATION:**

1. **MATERIAL:** \_\_\_\_\_  
**M** = Ceramic  
**C** = Tungsten Carbide  
**T** = Titanium  
 All other: See Material Selection Guide
2. **PART NUMBER : GE** \_\_\_\_\_  
 Wire Ø (100 in µ) and Revision Number (1)
3. **SHANK DIA.:** Please Specify Diameter \_\_\_\_\_  
 Select TD from chart on page
4. **TOOL LENGTH:**  
 Please Specify Length
5. **FOOT FINISH:**  
**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Standard: Polish finish (FR, BR) and Matte finish (Bond Flat)
6. **See Tool Options**

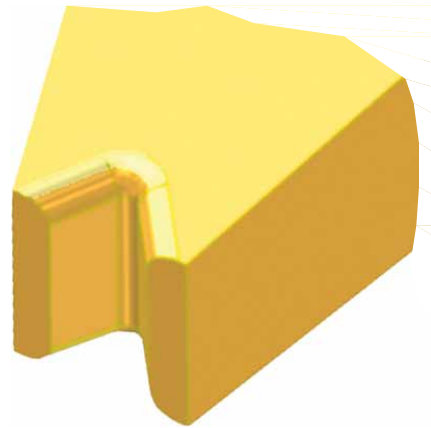
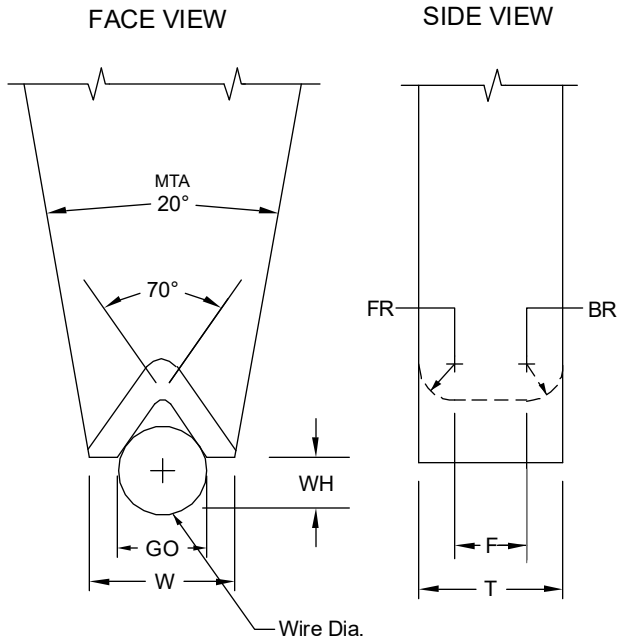
| GE SERIES: STANDARD CHART FOR WIRE DIAMETERS .0040 THROUGH .0200 |             |        |     |        |     |                   |           |        |     |        |      |        |      |        |      |               |     |
|------------------------------------------------------------------|-------------|--------|-----|--------|-----|-------------------|-----------|--------|-----|--------|------|--------|------|--------|------|---------------|-----|
| PART NUMBER                                                      | MTA ANGLE W | FR     |     | BR     |     | GD                |           | GO     |     | BS     |      | T      |      | W      |      | WIRE DIAMETER |     |
| Units                                                            | DEGREES     | in.    | µ   | in.    | µ   | in.               | µ         | in.    | µ   | in.    | µ    | in.    | µ    | in.    | µ    | in.           | µ   |
| Tolerance small Tools                                            | (Ref)       | ±.0002 | ±5  | ±.0002 | ±5  | ±.0005<br>-0.0002 | ±13<br>-5 | ±.0004 | ±10 | ±.0040 | ±102 | ±.0008 | ±20  | ±.0008 | ±20  |               |     |
| GE-100-1                                                         | 30°         | .0020  | 51  | .0020  | 51  | .0033             | 84        | .0044  | 112 | .0200  | 508  | .0106  | 270  | .0098  | 250  | .0040         | 102 |
| GE-125-1                                                         | 30°         | .0025  | 64  | .0025  | 64  | .0041             | 104       | .0055  | 140 | .0200  | 508  | .0138  | 350  | .0118  | 300  | .0050         | 127 |
| GE-150-1                                                         | 30°         | .0030  | 76  | .0030  | 76  | .0050             | 127       | .0066  | 168 | .0200  | 508  | .0157  | 400  | .0138  | 350  | .0060         | 152 |
| Tolerance large Tools                                            | (Ref)       | ±.0004 | ±10 | ±.0004 | ±13 | ±.0010<br>-0.0002 | ±25<br>-5 | ±.0006 | ±15 | ±.0040 | ±102 | ±.0010 | ±25  | ±.0010 | ±25  |               |     |
| GE-175-1                                                         | 30°         | .0035  | 89  | .0035  | 89  | .0058             | 147       | .0077  | 195 | .0200  | 508  | .0181  | 460  | .0157  | 400  | .0070         | 178 |
| GE-200-1                                                         | 30°         | .0040  | 102 | .0040  | 102 | .0066             | 168       | .0088  | 224 | .0200  | 508  | .0205  | 520  | .0177  | 450  | .0080         | 203 |
| GE-250-1                                                         | 20°         | .0050  | 127 | .0050  | 127 | .0083             | 211       | .0110  | 279 | .0390  | 991  | .0268  | 680  | .0217  | 550  | .0100         | 254 |
| GE-300-1                                                         | 20°         | .0060  | 152 | .0060  | 152 | .0098             | 249       | .0130  | 330 | .0390  | 991  | .0307  | 780  | .0256  | 650  | .0120         | 305 |
| GE-350-1                                                         | 20°         | .0070  | 178 | .0070  | 178 | .0116             | 295       | .0154  | 391 | .0390  | 991  | .0331  | 840  | .0295  | 750  | .0140         | 356 |
| GE-380-1                                                         | 20°         | .0075  | 191 | .0075  | 191 | .0124             | 315       | .0165  | 419 | .0590  | 1499 | .0346  | 880  | .0315  | 800  | .0150         | 381 |
| GE-400-1                                                         | 20°         | .0080  | 203 | .0080  | 203 | .0130             | 330       | .0173  | 439 | .0590  | 1499 | .0354  | 900  | .0335  | 850  | .0160         | 406 |
| GE-500-1                                                         | 20°         | .0098  | 249 | .0098  | 249 | .0170             | 432       | .0217  | 551 | .0590  | 1499 | .0445  | 1130 | .0413  | 1050 | .0200         | 508 |

WD=WIREØ GO= GROOVE OPENING PLEASE SPECIFY WIRE SIZE AND WIRE MATERIAL WHEN ORDERING  
 \*Other sizes available upon request \*All dimensions and tolerances are for reference only

# SERIES GF

## LARGE WIRE, V GROOVE

FOR MANUAL, AUTOMATIC AND  
SEMI-AUTOMATIC BONDERS



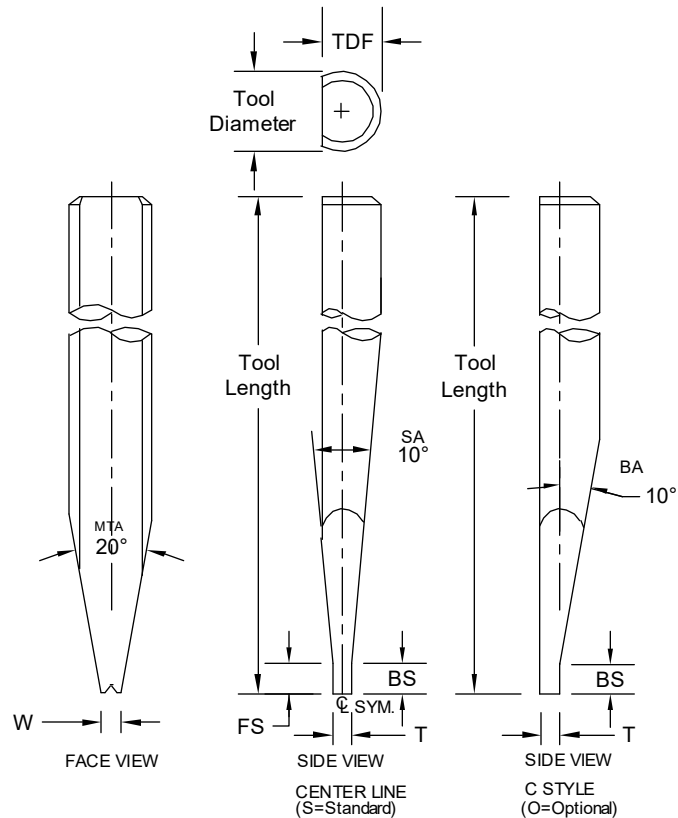
MTA = MAIN TAPER ANGLE  
SA = SIDE-VIEW ANGLE  
BA = BACK ANGLE  
GO = GROOVE OPENING

| Standard |       |      |       |      |
|----------|-------|------|-------|------|
|          | TD    |      | TDF   |      |
|          | in.   | mm   | in.   | mm   |
| 1/8      | .1249 | 3.17 | .1100 | 2.79 |

Illustrated Tool: Diameter 1/8"

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 |
|      | .0784 | 1.99 | .0630 | 1.60 |
|      | .0784 | 1.99 | .0720 | 1.83 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

Standard Front Step and Back Step  
supplied unless otherwise specified.  
See **Tool Options** for other options.  
(A4, A5)



# SERIES GF

LARGE WIRE

V-GROOVE IN WIRE DIRECTION

ORDERING INFORMATION  
LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER: M-S-GF-100-1-1/8-1.97-MP-\***

**SYMBOL EXPLANATION:**

1. **MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
2. **S= Standard, Center line**  
**O = Optional, C Style**
3. **PART NUMBER : GF**  
Wire Ø (100 in µ) and Revision Number (1)
4. **SHANK DIA.:** Please Specify Diameter  
Select TD from chart on page
5. **TOOL LENGTH:**  
Please Specify Length
6. **FOOT FINISH:**
  - M = Matte finish (FR, BR, & Bond Flat)
  - P = Polish finish (FR, BR, & Bond Flat)
  - MP= Standard: Polish finish (FR, BR) and Matte finish (Bond Flat)
7. **See Tool Options**

| STANDARD CHART GF LARGE WIRE: FOR WIRE DIAMETERS .0040" THROUGH .0200" |       |     |        |     |        |     |        |     |        |     |         |      |        |      |        |      |               |
|------------------------------------------------------------------------|-------|-----|--------|-----|--------|-----|--------|-----|--------|-----|---------|------|--------|------|--------|------|---------------|
| PART NUMBER                                                            | F     |     | FR     |     | BR     |     | GO     |     | WH     |     | FS & BS |      | T      |      | W      |      | WIRE DIAMETER |
| Units                                                                  | in.   | µ   | in.    | µ   | in.    | µ   | in.    | µ   | in.    | µ   | in.     | µ    | in.    | µ    | in.    | µ    | µ             |
| Tolerance small Tools                                                  | (Ref) |     | ±.0005 | ±8  | ±.0005 | ±8  | ±.0003 | ±8  | ±.0003 | ±5  | ±.0020  | ±51  | ±.0008 | ±5   | ±.0008 | ±10  |               |
| GF—100—1                                                               | .0074 | 188 | .0012  | 30  | .0012  | 30  | .0039  | 99  | .0027  | 69  | .0394   | 1001 | .0098  | 249  | .0078  | 198  | .0040 102     |
| GF—125—1                                                               | .0088 | 224 | .0015  | 38  | .0015  | 38  | .0054  | 137 | .0030  | 76  | .0394   | 1001 | .0118  | 300  | .0098  | 249  | .0050 127     |
| GF—150—1                                                               | .0102 | 259 | .0018  | 46  | .0018  | 46  | .0066  | 168 | .0035  | 89  | .0394   | 1001 | .0138  | 351  | .0118  | 300  | .0060 152     |
| GF—150—2                                                               | .0112 | 284 | .0018  | 46  | .0018  | 46  | .0066  | 168 | .0035  | 89  | .0394   | 1001 | .0148  | 376  | .0120  | 305  | .0060 152     |
| GF—150—3                                                               | .0125 | 318 | .0018  | 46  | .0018  | 46  | .0066  | 168 | .0035  | 89  | .0394   | 1001 | .0161  | 409  | .0120  | 305  | .0060 152     |
| GF—175—1                                                               | .0116 | 295 | .0021  | 53  | .0021  | 53  | .0076  | 193 | .0042  | 107 | .0394   | 1001 | .0158  | 401  | .0138  | 351  | .0070 178     |
| GF—200—1A                                                              | .0129 | 328 | .0024  | 61  | .0024  | 61  | .0087  | 221 | .0048  | 122 | .0394   | 1001 | .0177  | 450  | .0158  | 401  | .0080 203     |
| GF—200—1B                                                              | .0062 | 157 | .0028  | 71  | .0028  | 71  | .0087  | 221 | .0048  | 122 | .0394   | 1001 | .0118  | 300  | .0157  | 399  | .0080 203     |
| GF—200—1C                                                              | .0042 | 107 | .0028  | 71  | .0028  | 71  | .0087  | 221 | .0048  | 122 | .0394   | 1001 | .0098  | 249  | .0157  | 399  | .0080 203     |
| GF—200—1D                                                              | .0082 | 208 | .0028  | 71  | .0028  | 71  | .0087  | 221 | .0048  | 122 | .0394   | 1001 | .0138  | 351  | .0157  | 399  | .0080 203     |
| GF—250—1                                                               | .0157 | 399 | .0030  | 76  | .0030  | 76  | .0108  | 274 | .0060  | 152 | .0590   | 1499 | .0217  | 551  | .0196  | 498  | .0100 254     |
| GF—300—1                                                               | .0184 | 467 | .0036  | 91  | .0036  | 91  | .0130  | 330 | .0072  | 183 | .0590   | 1499 | .0256  | 650  | .0236  | 599  | .0120 305     |
| GF—350—1                                                               | .0215 | 546 | .0042  | 107 | .0042  | 107 | .0152  | 386 | .0084  | 213 | .0590   | 1499 | .0299  | 759  | .0276  | 701  | .0140 356     |
| GF—350—2                                                               | .0238 | 605 | .0042  | 107 | .0042  | 107 | .0152  | 386 | .0084  | 213 | .0590   | 1499 | .0322  | 818  | .0276  | 701  | .0140 356     |
| GF—380—1                                                               | .0233 | 592 | .0045  | 114 | .0045  | 114 | .0165  | 419 | .0088  | 224 | .0590   | 1499 | .0323  | 820  | .0300  | 762  | .0150 381     |
| GF—400—1                                                               | .0247 | 627 | .0048  | 122 | .0048  | 122 | .0174  | 442 | .0095  | 241 | .0590   | 1499 | .0343  | 871  | .0316  | 803  | .0160 406     |
| GF—450—1                                                               | .0282 | 716 | .0054  | 137 | .0054  | 137 | .0195  | 495 | .0108  | 274 | .0590   | 1499 | .0390  | 991  | .0354  | 899  | .0180 457     |
| GF—500—1                                                               | .0313 | 795 | .0060  | 152 | .0060  | 152 | .0217  | 551 | .0118  | 300 | .0590   | 1499 | .0433  | 1100 | .0394  | 1001 | .0200 508     |

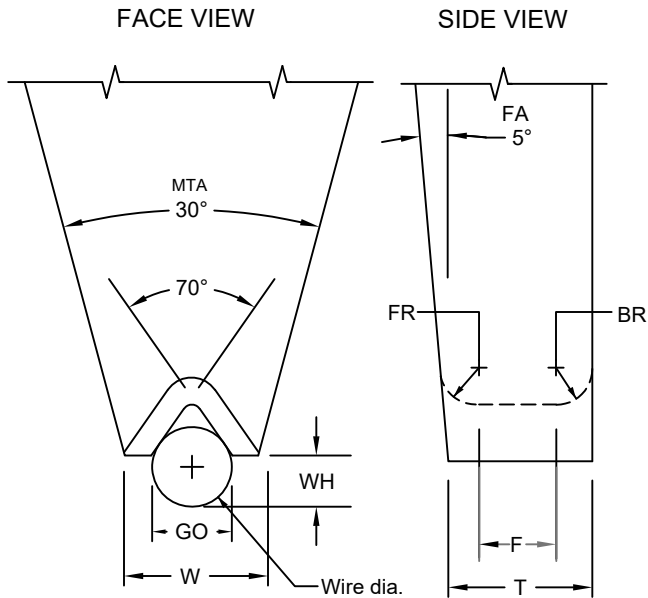
WD=WIREØ GO= GROOVE OPENING PLEASE SPECIFY WIRE SIZE AND WIRE MATERIAL WHEN ORDERING

\*Other sizes available upon request \*All dimensions and tolerances are for reference only

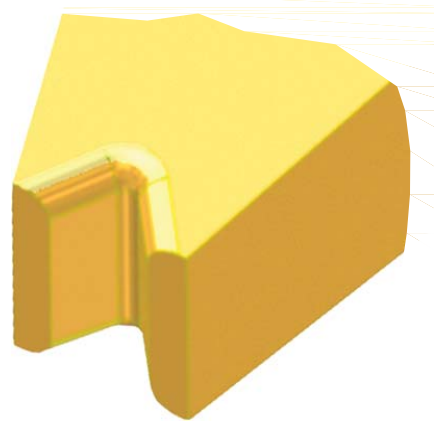
# SERIES GFK

LARGE WIRE, V GROOVE  
FOR F&K DELVOTEC

FOR MANUAL BONDERS AND SEMI-AUTOMATIC  
BONDERS-MODEL 5450 AUTOMATIC BONDERS-MODEL 6600

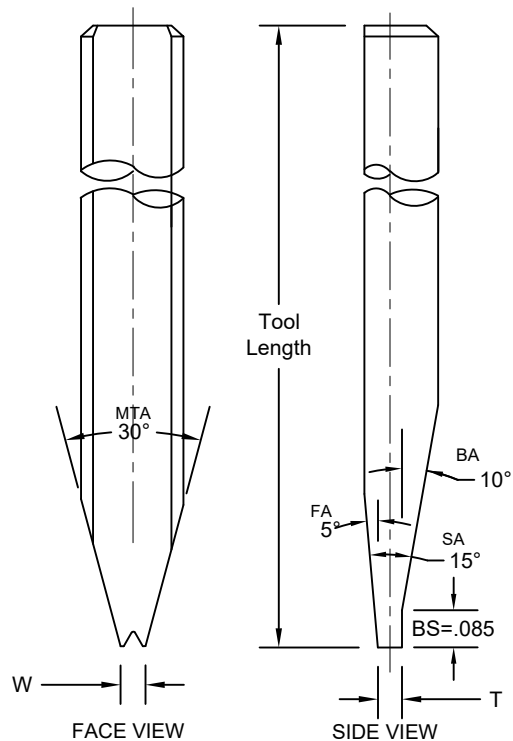
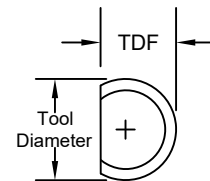


MTA = MAIN TAPER ANGLE  
SA = SIDE-VIEW ANGLE  
BA = BACK ANGLE  
FA = FRONT ANGLE  
GO= GROOVE OPENING



| TD  |       | TDF  |            |
|-----|-------|------|------------|
|     | in.   | mm   |            |
| 1/8 | .1249 | 3.17 | .1100 2.79 |

Standard Back Step supplied unless  
otherwise specified. See **Tool Options**  
for other options. (A4, A5)



# SERIES GFK

LARGE WIRE  
V-GROOVE IN WIRE DIRECTION

ORDERING INFORMATION  
LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



**SAMPLE PART NUMBER: M-GFK-100-1-1/8-1.97-MP-\***

**SYMBOL EXPLANATION:**

**1. MATERIAL:**

**M** = Ceramic  
**C** = Tungsten Carbide  
**T** = Titanium  
All other: See Material Selection Guide

**2. PART NUMBER : GFK**

Wire Ø (100 in µ) and Revision Number (1)

**3. SHANK DIA.:** Please Specify Diameter

**4. TOOL LENGTH:** Please Specify Length

**6. See Tool Options**

**5. FOOT FINISH:**

**M** = Matte finish (FR, BR, & Bond Flat)  
**P** = Polish finish (FR, BR, & Bond Flat)  
**MP** = Standard: Polish finish (FR, BR) and Matte finish (Bond Flat)

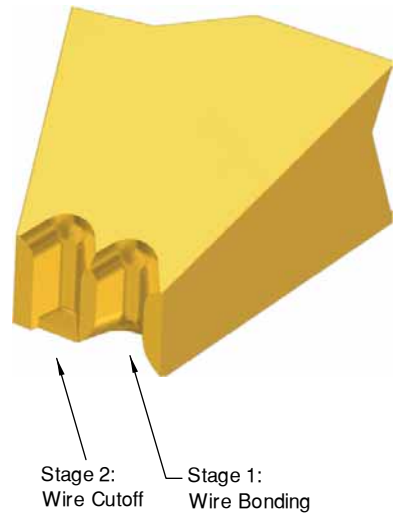
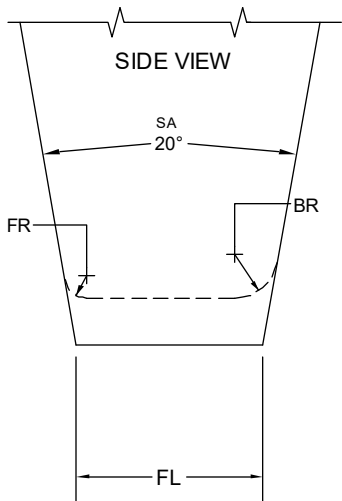
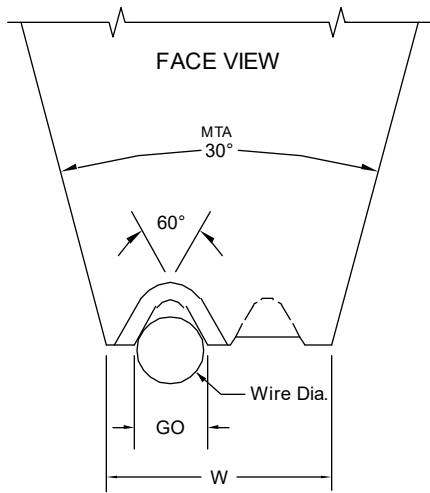
| GFK SERIES: STANDARD CHART FOR WIRE DIAMETERS .0040 THROUGH .0200 |       |     |        |     |        |     |                    |           |        |     |        |      |        |      |        |      |               |     |
|-------------------------------------------------------------------|-------|-----|--------|-----|--------|-----|--------------------|-----------|--------|-----|--------|------|--------|------|--------|------|---------------|-----|
| PART NUMBER                                                       | F     |     | FR     |     | BR     |     | GD                 |           | WH     |     | BS     |      | T      |      | W      |      | WIRE DIAMETER |     |
| Units                                                             | in.   | µ   | in.    | µ   | in.    | µ   | in.                | µ         | in.    | µ   | in.    | µ    | in.    | µ    | in.    | µ    | in.           | µ   |
| Tolerance small Tools                                             | (Ref) |     | ±.0003 | ±8  | ±.0003 | ±8  | +0.0005<br>-0.0002 | +13<br>-5 | ±.0002 | ±5  | ±.0020 | ± 51 | ±.0008 | ±20  | ±.0008 | ±20  |               |     |
| GFK—100—1                                                         | .0077 | 196 | .0012  | 30  | .0012  | 30  | .0027              | 69        | .0023  | 58  | .0850  | 2159 | .0098  | 249  | .0080  | 203  | .0040         | 102 |
| GFK—125—1                                                         | .0092 | 234 | .0015  | 38  | .0015  | 38  | .0034              | 86        | .0029  | 74  | .0850  | 2159 | .0118  | 300  | .0100  | 254  | .0050         | 127 |
| GFK—150—1                                                         | .0107 | 272 | .0018  | 46  | .0018  | 46  | .0040              | 102       | .0035  | 89  | .0850  | 2159 | .0138  | 351  | .0120  | 305  | .0060         | 152 |
| GFK—150—2                                                         | .0117 | 297 | .0018  | 46  | .0018  | 46  | .0040              | 102       | .0035  | 89  | .0850  | 2159 | .0148  | 376  | .0120  | 305  | .0060         | 152 |
| GFK—150—3                                                         | .0130 | 330 | .0018  | 46  | .0018  | 46  | .0040              | 102       | .0035  | 89  | .0850  | 2159 | .0161  | 409  | .0120  | 305  | .0060         | 152 |
| Tolerance large Tools                                             | (Ref) |     | ±.0005 | ±13 | ±.0005 | ±13 | +0.0010<br>-0.0002 | +25<br>-5 | ±.0004 | ±10 | ±.0020 | ± 51 | ±.0008 | ±20  | ±.0008 | ±20  |               |     |
| GFK—175—1                                                         | .0122 | 310 | .0021  | 53  | .0021  | 53  | .0048              | 122       | .0040  | 102 | .0850  | 2159 | .0158  | 401  | .0140  | 356  | .0070         | 178 |
| GFK—200—1A                                                        | .0136 | 345 | .0024  | 61  | .0024  | 61  | .0054              | 137       | .0046  | 117 | .0850  | 2159 | .0177  | 450  | .0160  | 406  | .0080         | 203 |
| GFK—200—1B                                                        | .0077 | 196 | .0024  | 61  | .0024  | 61  | .0054              | 137       | .0046  | 117 | .0850  | 2159 | .0118  | 300  | .0160  | 406  | .0080         | 203 |
| GFK—200—1C                                                        | .0057 | 145 | .0024  | 61  | .0024  | 61  | .0054              | 137       | .0046  | 117 | .0850  | 2159 | .0098  | 249  | .0160  | 406  | .0080         | 203 |
| GFK—200—1D                                                        | .0097 | 246 | .0024  | 61  | .0024  | 61  | .0054              | 137       | .0046  | 117 | .0850  | 2159 | .0138  | 351  | .0160  | 406  | .0080         | 203 |
| GFK—250—1                                                         | .0166 | 422 | .0030  | 76  | .0030  | 76  | .0075              | 191       | .0050  | 127 | .0850  | 2159 | .0217  | 551  | .0200  | 508  | .0100         | 254 |
| GFK—300—1                                                         | .0195 | 495 | .0036  | 91  | .0036  | 91  | .0090              | 229       | .0060  | 152 | .0850  | 2159 | .0256  | 650  | .0240  | 610  | .0120         | 305 |
| GFK—350—1                                                         | .0228 | 579 | .0042  | 107 | .0042  | 107 | .0105              | 267       | .0070  | 178 | .0850  | 2159 | .0299  | 759  | .0280  | 711  | .0140         | 356 |
| GFK—350—2                                                         | .0252 | 640 | .0042  | 107 | .0042  | 107 | .0105              | 267       | .0070  | 178 | .0850  | 2159 | .0322  | 818  | .0280  | 711  | .0140         | 356 |
| GFK—380—1                                                         | .0247 | 627 | .0045  | 114 | .0045  | 114 | .0113              | 287       | .0075  | 191 | .0850  | 2159 | .0323  | 820  | .0300  | 762  | .0150         | 381 |
| GFK—400—1                                                         | .0262 | 665 | .0048  | 122 | .0048  | 122 | .0120              | 305       | .0080  | 203 | .0850  | 2159 | .0343  | 871  | .0320  | 813  | .0160         | 406 |
| GFK—450—1                                                         | .0298 | 757 | .0054  | 137 | .0054  | 137 | .0135              | 343       | .0090  | 229 | .0850  | 2159 | .0390  | 991  | .0360  | 914  | .0180         | 457 |
| GFK—500—1                                                         | .0331 | 841 | .0060  | 152 | .0060  | 152 | .0150              | 381       | .0100  | 254 | .0850  | 2159 | .0433  | 1100 | .0400  | 1016 | .0200         | 508 |

WD=WIREØ GO= GROOVE OPENING PLEASE SPECIFY WIRE SIZE AND WIRE MATERIAL WHEN ORDERING

\*Other sizes available upon request \*All dimensions and tolerances are for reference only

SERIES OGQ

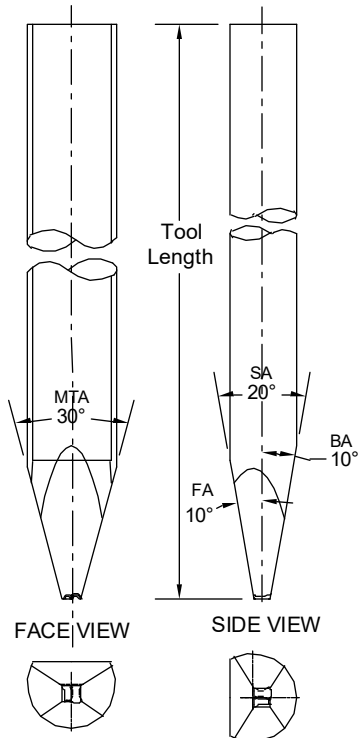
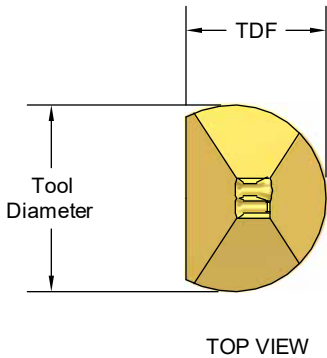
Twin Groove Tool



MTA = MAIN TAPER ANGLE  
SA = SIDE-VIEW ANGLE  
BA = BACK ANGLE  
FA = FRONT ANGLE  
GO = GROOVE OPENING

Special dimensions available upon request.  
Dimensions not shown please specify.

| TD  |       |      | TDF   |      |
|-----|-------|------|-------|------|
|     | in.   | mm   | in.   | mm   |
| 1/8 | .1249 | 3.17 | .0937 | 2.38 |



# SERIES OGQ

## Twin Groove Tool

STANDARD TOOL NUMBER WIRE SIZE 4 TILL 24

SAMPLE PART NUMBER: \* -OGQ-8-1/8-2-60-MP

SYMBOL EXPLANATION: 1 2 3 4 5 6 7  
FF

1. MATERIAL: \_\_\_\_\_  
Tungsten Carbide " \* " =Standard "empty field"  
M = Ceramic  
T = Titanium  
All other: See Material Selection Guide

2. SERIES: OGQ \_\_\_\_\_

3. WIRE SIZE: 4....10....20 etc. Please specify \_\_\_\_\_

4. TOOL DIAMETER: Please specify \_\_\_\_\_

5. TOOL LENGTH: (L) Please specify \_\_\_\_\_

6. GROOVE ANGLE: (60°) \_\_\_\_\_

7. FOOT FINISH (FF): Please specify \_\_\_\_\_

M = Matte finish (FR, BR, & Bond Flat)

P = Polish finish (FR, BR, & Bond Flat)

MP= Standard: Polish finish (FR, BR)  
and Matte finish (Bond Flat)



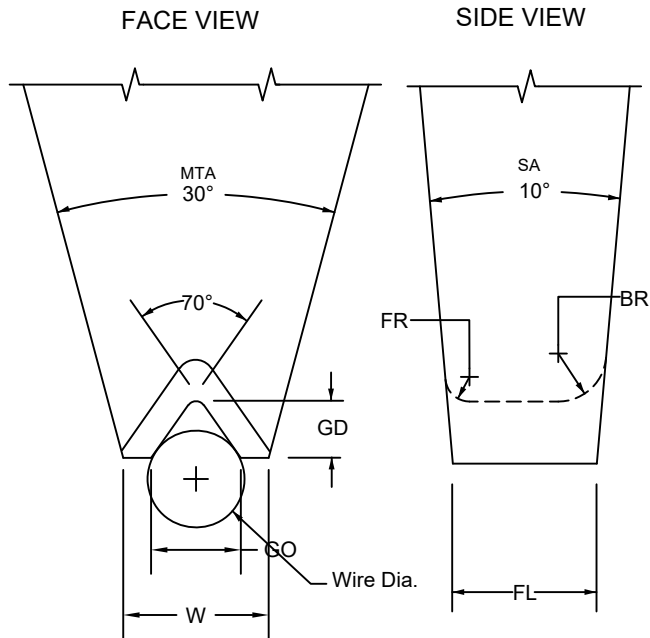
| STANDARD CHART      |         |     |         |     |         |     |         |     |         |         |         |      |       | OGQ LARGE WIRE: |  | FOR WIRE DIAMETERS .0030" THROUGH .0200" |  |  |  |  |  |
|---------------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|---------|---------|------|-------|-----------------|--|------------------------------------------|--|--|--|--|--|
| Part and Revision # | FR      |     | BR      |     | GO      |     | GD1/GD2 |     | FL      |         | W       |      | WD    |                 |  |                                          |  |  |  |  |  |
| Units               | in.     | μ   | in.     | μ   | in.     | μ   | in.     | μ   | in.     | μ       | in.     | μ    | in.   | μ               |  |                                          |  |  |  |  |  |
| Tolerance           | +0.0010 | +25 | +0.0010 | +25 | ±0.0003 | ±08 | +0.0010 | +25 | ±0.0010 | ±25     | ±0.0010 | ±25  |       |                 |  |                                          |  |  |  |  |  |
|                     | -0.0000 | -00 | -0.0000 | -00 |         | ±00 | -0.0002 | -05 |         |         |         |      |       |                 |  |                                          |  |  |  |  |  |
| OGQ-3               | .0020   | 51  | .0040   | 102 | .0032   | 81  | .0020   | 51  | .0082   | 208     | .0105   | 267  | .0030 | 76              |  |                                          |  |  |  |  |  |
| OGQ-4               | .0030   | 76  | .0060   | 152 | .0043   | 109 | .0027   | 69  | .0109   | 277     | .0140   | 356  | .0040 | 102             |  |                                          |  |  |  |  |  |
| OGQ-5               | .0040   | 102 | .0070   | 178 | .0053   | 135 | .0034   | 86  | .0135   | 343     | .0170   | 432  | .0050 | 127             |  |                                          |  |  |  |  |  |
| OGQ-6               | .0050   | 127 | .0090   | 229 | .0064   | 163 | .0041   | 104 | .0165   | 419     | .0200   | 508  | .0060 | 152             |  |                                          |  |  |  |  |  |
| OGQ-7               | .0060   | 152 | .0100   | 254 | .0075   | 191 | .0048   | 122 | .0192   | 488     | .0230   | 584  | .0070 | 178             |  |                                          |  |  |  |  |  |
| OGQ-8               | .0060   | 152 | .0120   | 305 | .0085   | 216 | .0054   | 137 | .0218   | 554     | .0260   | 660  | .0080 | 203             |  |                                          |  |  |  |  |  |
| Tolerance           | +0.0010 | +25 | +0.0010 | +25 | ±0.0005 | ±13 | +0.0020 | +51 | ±0.0010 | ±0.0010 | ±0.0010 | ±25  |       |                 |  |                                          |  |  |  |  |  |
|                     | -0.0000 | -00 | -0.0000 | -00 |         |     | -0.0005 | -13 |         |         |         |      |       |                 |  |                                          |  |  |  |  |  |
| OGQ-10              | .0080   | 203 | .0150   | 381 | .0115   | 292 | .0075   | 191 | .0272   | 691     | .0330   | 838  | .0100 | 254             |  |                                          |  |  |  |  |  |
| OGQ-12              | .0100   | 254 | .0180   | 457 | .0139   | 353 | .0090   | 229 | .0324   | 823     | .0400   | 1016 | .0120 | 305             |  |                                          |  |  |  |  |  |
| OGQ-15              | .0120   | 305 | .0220   | 559 | .0173   | 439 | .0113   | 287 | .0407   | 1034    | .0500   | 1270 | .0150 | 381             |  |                                          |  |  |  |  |  |
| OGQ-20              | .0160   | 406 | .0300   | 762 | .0231   | 587 | .0150   | 381 | .0543   | 1379    | .0660   | 1676 | .0200 | 508             |  |                                          |  |  |  |  |  |

WD=WIREØ GO= GROOVE OPENING PLEASE SPECIFY WIRE SIZE AND WIRE MATERIAL WHEN ORDERING

\*All dimensions and tolerances are for reference only

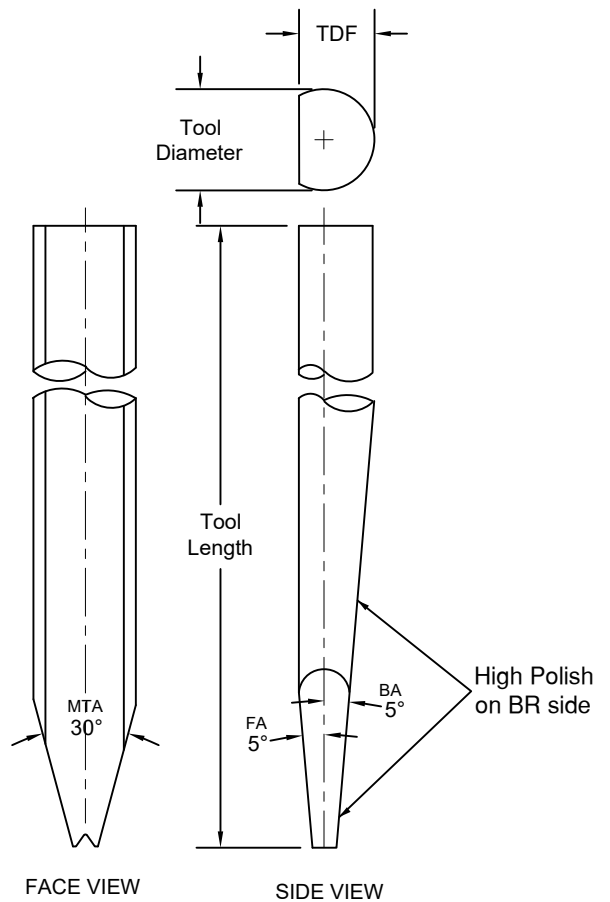
# SERIES SIVG

## LARGE WIRE, V GROOVE



MTA = MAIN TAPER ANGLE  
 SA = SIDE-VIEW ANGLE  
 BA = BACK ANGLE  
 FA = FRONT ANGLE  
 GO = GROOVE OPENING

| TD  |       |      | TDF   |      |  |
|-----|-------|------|-------|------|--|
|     | in.   | mm   | in.   | mm   |  |
| 1/8 | .1249 | 3.17 | .1100 | 2.79 |  |



# SERIES SIVG

LARGE WIRE, V-GROOVE IN WIRE DIRECTION

ORDERING INFORMATION  
LARGE WIRE BONDING WEDGES  
FOR GOLD AND ALUMINUM WIRE



SAMPLE PART NUMBER: **C-SIVG-20-1/8-2.50-70-MP-1-\***

SYMBOL EXPLANATION:

1. **MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
2. **SERIES:** sivg
3. **WIRE SIZE:** See Standard Chart
4. **TOOL DIAMETER:** = .1249" / 3.17 mm
5. **TOOL LENGTH:** = 2.50" / 63.5 mm
6. **GROOVE ANGLE:** = 70°
7. **FOOT FINISH:**
  - M = Matte finish (FR, BR, & Bond Flat)
  - P = Polish finish (FR, BR, & Bond Flat)
  - MP = Standard: Polish finish (FR, BR) and Matte finish (Bond Flat)
8. **REVISION # IF APPLICABLE**  
EXAMPLE: LOOKUP SIVG-8 "(1)"
9. **See Tool Options**  
EXAMPLE: A1 or VGC

| STANDARD CHART      |       |     |       |     |        |     |        |     |        |      |        |      |       | SIVG LARGE WIRE: |  | FOR WIRE DIAMETERS .0040" THROUGH .0240" |  |  |  |  |  |
|---------------------|-------|-----|-------|-----|--------|-----|--------|-----|--------|------|--------|------|-------|------------------|--|------------------------------------------|--|--|--|--|--|
| Part and Revision # | FR    |     | BR    |     | GO     |     | GD     |     | FL     |      | W      |      | WD    |                  |  |                                          |  |  |  |  |  |
| Units               | in.   | μ   | in.   | μ   | in.    | μ   | in.    | μ   | in.    | μ    | in.    | μ    | in.   | μ                |  |                                          |  |  |  |  |  |
| Tolerance           | (REF) |     | (REF) |     | ±.0003 | ±8  | ±.0005 | ±13 | ±.0010 | ±25  | ±.0010 | ±25  |       |                  |  |                                          |  |  |  |  |  |
| SIVG-4              | .0027 | 69  | .0054 | 137 | .0046  | 117 | .0027  | 69  | .0114  | 290  | .0080  | 203  | .0040 | 102              |  |                                          |  |  |  |  |  |
| SIVG-5              | .0034 | 86  | .0068 | 173 | .0057  | 145 | .0034  | 86  | .0142  | 361  | .0100  | 254  | .0050 | 127              |  |                                          |  |  |  |  |  |
| SIVG-6              | .0041 | 104 | .0082 | 208 | .0068  | 173 | .0040  | 102 | .0170  | 432  | .0120  | 305  | .0060 | 152              |  |                                          |  |  |  |  |  |
| SIVG-6 (1)          | .0041 | 104 | .0082 | 208 | .0068  | 173 | .0040  | 102 | .0148  | 376  | .0120  | 305  | .0060 | 152              |  |                                          |  |  |  |  |  |
| SIVG-7              | .0048 | 122 | .0096 | 244 | .0080  | 203 | .0048  | 122 | .0175  | 445  | .0140  | 356  | .0070 | 178              |  |                                          |  |  |  |  |  |
| SIVG-8              | .0054 | 137 | .0109 | 277 | .0091  | 231 | .0055  | 140 | .0226  | 574  | .0160  | 406  | .0080 | 203              |  |                                          |  |  |  |  |  |
| SIVG-8 (1)          | .0054 | 137 | .0109 | 277 | .0091  | 231 | .0055  | 140 | .0195  | 495  | .0160  | 406  | .0080 | 203              |  |                                          |  |  |  |  |  |
| SIVG-10             | .0068 | 173 | .0136 | 345 | .0122  | 310 | .0075  | 191 | .0250  | 635  | .0200  | 508  | .0100 | 254              |  |                                          |  |  |  |  |  |
| SIVG-12             | .0082 | 208 | .0163 | 414 | .0146  | 371 | .0090  | 229 | .0340  | 864  | .0240  | 610  | .0120 | 305              |  |                                          |  |  |  |  |  |
| SIVG-12 (3)         | .0082 | 208 | .0163 | 414 | .0146  | 371 | .0090  | 229 | .0294  | 747  | .0240  | 610  | .0120 | 305              |  |                                          |  |  |  |  |  |
| SIVG-14             | .0110 | 279 | .0140 | 356 | .0171  | 434 | .0105  | 267 | .0345  | 876  | .0270  | 686  | .0140 | 356              |  |                                          |  |  |  |  |  |
| SIVG-15*            | .0102 | 259 | .0204 | 518 | .0183  | 465 | .0113  | 287 | .0375  | 953  | .0300  | 762  | .0150 | 381              |  |                                          |  |  |  |  |  |
| SIVG-16*            | .0106 | 269 | .0211 | 536 | .0195  | 495 | .0118  | 300 | .0440  | 1118 | .0320  | 813  | .0160 | 406              |  |                                          |  |  |  |  |  |
| SIVG-16* (1)        | .0106 | 269 | .0211 | 536 | .0195  | 495 | .0118  | 300 | .0390  | 991  | .0320  | 813  | .0160 | 406              |  |                                          |  |  |  |  |  |
| SIVG-16* (2)        | .0106 | 269 | .0211 | 536 | .0195  | 495 | .0118  | 300 | .0335  | 851  | .0320  | 813  | .0160 | 406              |  |                                          |  |  |  |  |  |
| SIVG-18*            | .0122 | 310 | .0245 | 622 | .0220  | 559 | .0140  | 356 | .0360  | 914  | .0360  | 914  | .0180 | 457              |  |                                          |  |  |  |  |  |
| SIVG-18*(1)         | .0080 | 203 | .0150 | 381 | .0220  | 559 | .0130  | 330 | .0220  | 559  | .0350  | 889  | .0180 | 457              |  |                                          |  |  |  |  |  |
| SIVG-20             | .0136 | 345 | .0272 | 691 | .0244  | 620 | .0150  | 381 | .0487  | 1237 | .0400  | 1016 | .0200 | 508              |  |                                          |  |  |  |  |  |
| SIVG-24             | .0096 | 244 | .0156 | 396 | .0272  | 691 | .0160  | 406 | .0487  | 1237 | .0350  | 889  | .0240 | 610              |  |                                          |  |  |  |  |  |

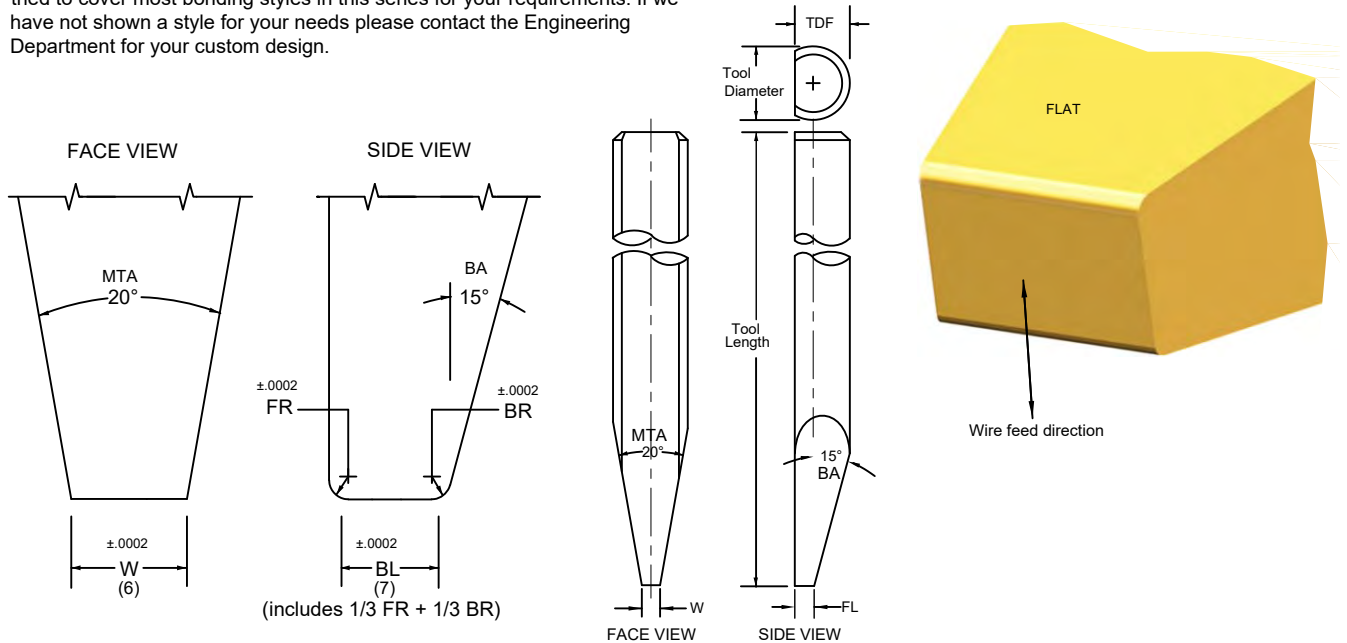
WD=WIREØ GO= GROOVE OPENING PLEASE SPECIFY WIRE SIZE AND WIRE MATERIAL WHEN ORDERING

\*Other sizes available upon request **\*All dimensions and tolerances are for reference only**

# SERIES F-101

## Standard Tab Tool

This style of tool has no feed hole and is used on very small pads. Usually manual Bonders are used. The wire is first positioned over the bonding pad area then the wedge is lowered onto the wire to make the bond. This operation can be thermo compression, thermosonic, or ultrasonic type bonding. We have tried to cover most bonding styles in this series for your requirements. If we have not shown a style for your needs please contact the Engineering Department for your custom design.

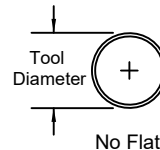


MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all  
gold wire bonding for optimum results.

OR=OPTIONAL  
ROUND



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER:** **M-F-101-1/16-1-.004X.004-M-E**

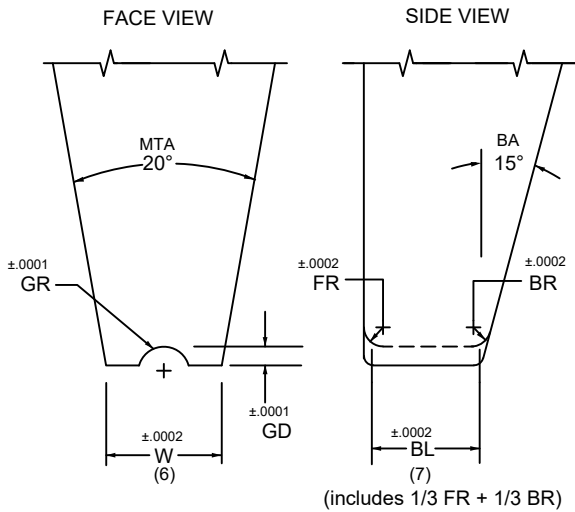
**SYMBOL EXPLANATION:**

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
- SERIES:** F
- STYLE:** 101
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- FOOT WIDTH: (W)** Please specify
- BOND LENGTH: (BL)** Please specify (includes 1/3 FR + 1/3 BR)
- FOOT FINISH:**
  - M = Matte, better coupling for thermosonic gold bonding
  - P = Polished FR, BR, & Bond Flat for thermocompression gold bonding
  - MP = Polished FR, BR, and Matte Bond Flat. For ultrasonic aluminum bonding.
- FRONT/BACK RADIUS:** See Option Chart below.

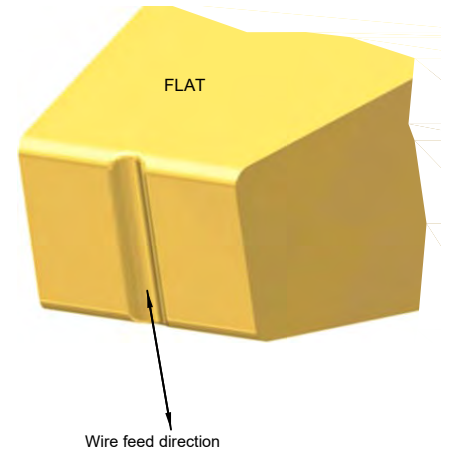
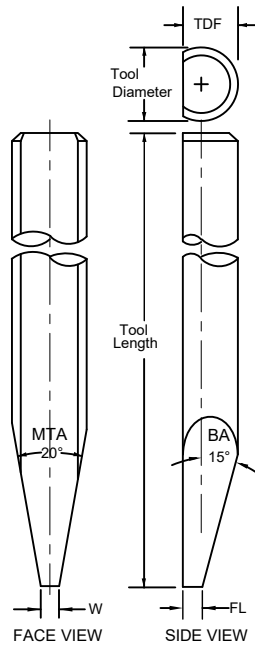
| RADIUS<br>OPTION<br>CHART | OPTION LETTER   |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|-----------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT<br>RADIUS | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           |                 | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK<br>RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           |                 | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

# SERIES F-102

Tab Tool with Groove in Wire Direction



See Tool# place 10.  
Specify WireØ (for Groove Ratios) or Groove Set  
G4=CGR&CGD=.0004, G8=CGR&CGD=.0008  
Or Specify GX CGR&CGD  
Example: GX=CGR=.001&CGD=.0006

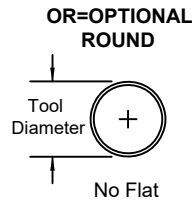


| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all  
gold wire bonding for optimum results.



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



SAMPLE PART NUMBER: **M-F-102-1/16-1-.004X.004-M-E-** \*

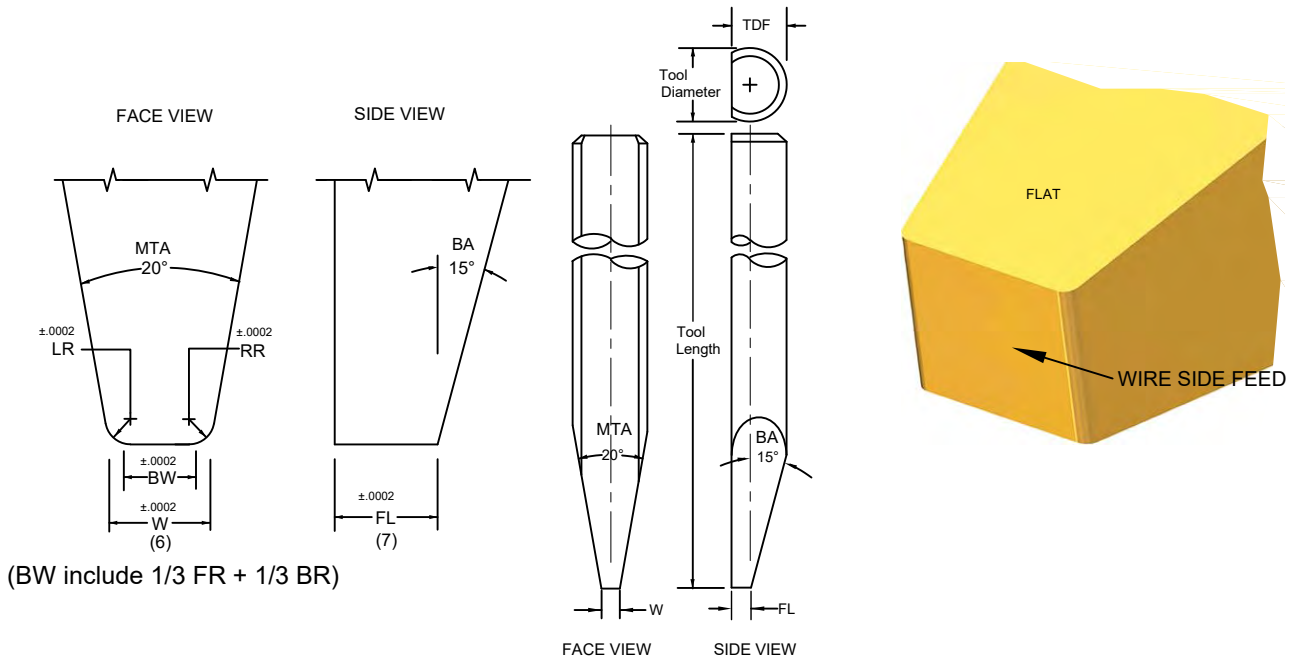
SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 see Chart above

- MATERIAL:** M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide
- SERIES:** F
- STYLE:** 102
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- FOOT WIDTH:(W)** Please specify
- BOND LENGTH:(BL)** Please specify (includes 1/3 FR + 1/3 BR)
- FOOT FINISH:** M = Matte, better coupling for thermosonic gold bonding  
P = Polished FR, BR, & Bond Flat for thermocompression gold bonding  
MP = Polished FR, BR, and Matte Bond Flat. For ultrasonic aluminum bonding.
- FRONT/BACK RADIUS:** See Option Chart below.
- GROOVE RATIOS:** GR/CGR=60% of wire Ø  
GD/CGD=35% of wire Ø

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT         | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | RADIUS        | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK          | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | RADIUS        | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

# SERIES F-103

Two Sides Radius Tab Tool, Wire Side Feed



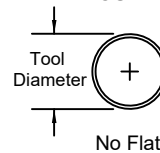
MTA = MAIN TAPER ANGLE

SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all  
gold wire bonding for optimum results.

OR=OPTIONAL  
ROUND



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER: M-F-103-1/16-1-.004X.004-M-E**

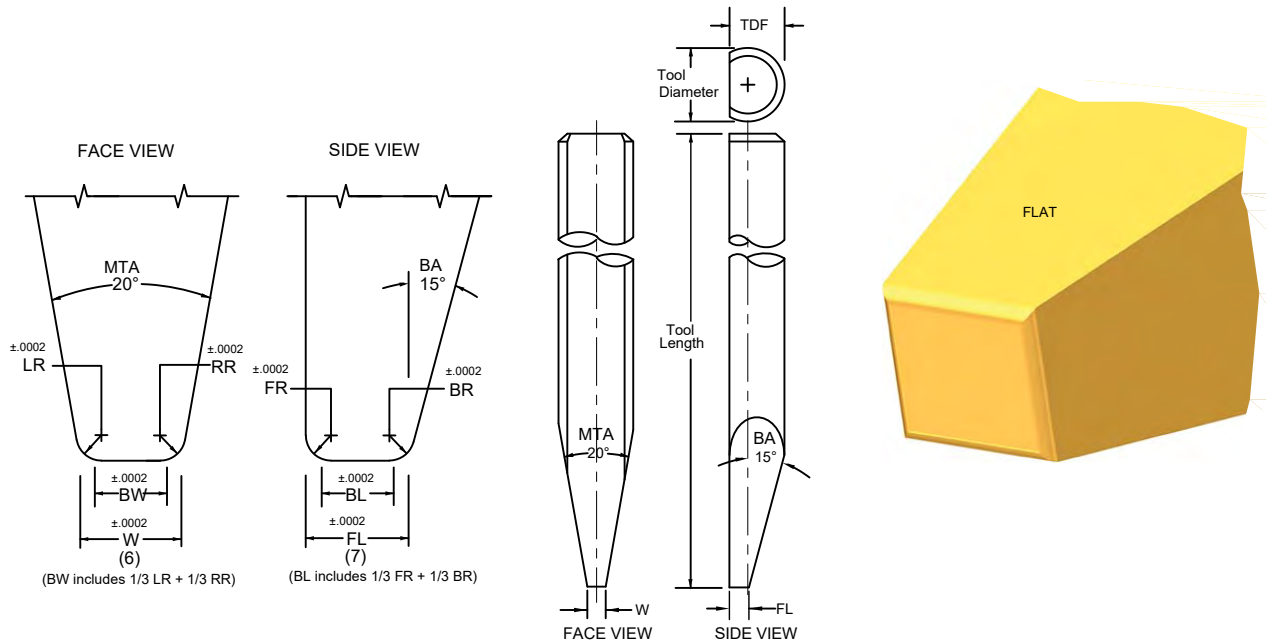
**SYMBOL EXPLANATION:**

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
- SERIES:** F
- STYLE:** 103
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- BOND WIDTH: (BW)** Please specify  
(include 1/3 FR + 1/3 BR)
- FOOT LENGTH: (FL)** Please specify
- FOOT FINISH:**
  - M = Matte, better coupling for thermosonic gold bonding
  - P = Polished FR, BR, & Bond Flat for thermocompression gold bonding
  - MP = Polished FR, BR, and Matte Bond Flat. For ultrasonic aluminum bonding.
- LEFT / RIGHT RADIUS:** See Option Chart below.

| OPTION LETTER             |              | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| RADIUS<br>OPTION<br>CHART | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 |
|                           | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    |
|                           | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

# SERIES F-103A

Four Sides Radius Tab Tool

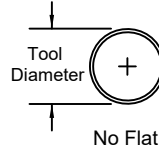


MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all  
gold wire bonding for optimum results.

OR=OPTIONAL  
ROUND



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

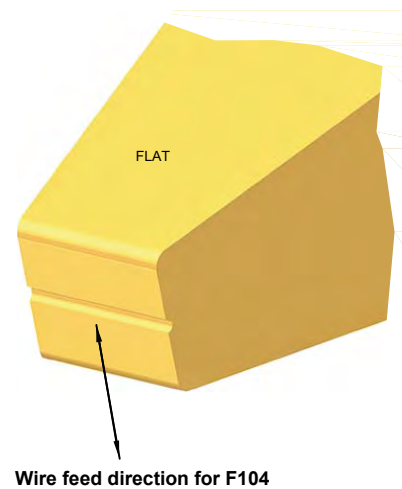
SAMPLE PART NUMBER: **M-F-103A-1/16-1-.004X.004-M-E-E**

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10

- MATERIAL:** M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide
- SERIES:** F
- STYLE:** 103A
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- BOND WIDTH: (BW)** Please specify (include 1/3 FR + 1/3 BR)
- BOND LENGTH: (BL)** Please specify (includes 1/3 FR + 1/3 BR)
- FOOT FINISH:**  
M = Matte, better coupling for thermosonic gold bonding  
P = Polished FR, BR, & Bond Flat for thermocompression gold bonding  
MP = Polished FR, BR, and Matte Bond Flat. For ultrasonic aluminum bonding.
- FRONT/BACK RADIUS:** See Option Chart below.
- LEFT/RIGHT RADIUS:** See Option Chart below.

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |              |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT RADIUS  | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | FR            | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS   | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | BR            | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

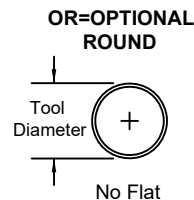
### Tab Tool with Cross Groove Foot



See Tool# place 10. Groove Set  
G4 CGR&CGD=.0004  
G8 CGR&CGD=.0008  
GX Specify CGR&CGD  
Example: GX=CGR=.001&CGD=.0007

MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

We recommend ceramic material for all gold wire bonding for optimum results.



| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

| TD   |       |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SYMBOL EXPLANATION:**

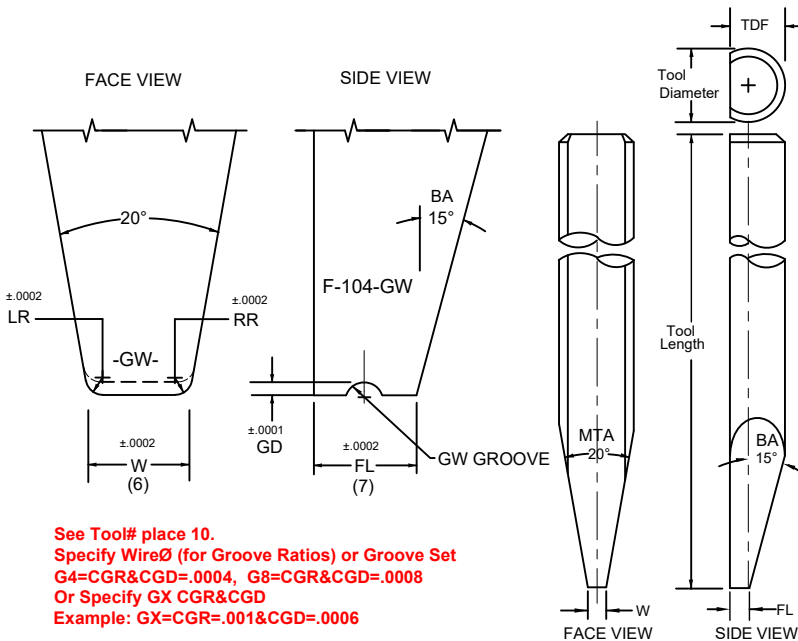
- |                                                                                                                                                                 |                                         |                                          |                 |                                                      |                                                    |                                                       |                                                                                                      |                                                                                                                                                                                                                                                                                              |                                                                                                                               |                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------|-----------------|------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <p>1. <b>MATERIAL:</b> _____<br/> <b>M</b> = Ceramic<br/> <b>C</b> = Tungsten Carbide<br/> <b>T</b> = Titanium<br/> All other: See Material Selection Guide</p> | <p>2. <b>SERIES:</b> <b>F</b> _____</p> | <p>3. <b>STYLE:</b> <b>104</b> _____</p> | <p>4. _____</p> | <p>5. <b>TOOL DIAMETER:</b> Please specify _____</p> | <p>6. <b>TOOL LENGTH:</b> Please specify _____</p> | <p>6. <b>FOOT WIDTH: (W)</b> Please specify _____</p> | <p>7. <b>FOOT or BOND LENGTH:</b> <b>F104 (BL)</b><br/> Please specify (include 1/3 FR + 1/3 BR)</p> | <p>8. <b>FOOT FINISH:</b><br/> <b>M</b> = Matte, better coupling<br/> for thermosonic gold bonding<br/> <b>P</b> = Polished FR, BR, &amp; Bond Flat<br/> for thermocompression gold bonding<br/> <b>MP</b> = Polished FR, BR, and Matte Bond Flat.<br/> For ultrasonic aluminum bonding.</p> | <p>9. <b>FRONT/BACK RADIUS:</b><br/> See Option Chart below.<br/> Optional Radius on W and FL<br/> insert B-B or E-E etc.</p> | <p><b>Groove Set</b><br/> <b>G4 CGR&amp;CGD=.0004</b><br/> <b>G8 CGR&amp;CGD=.0008</b><br/> <b>GX Specify CGR&amp;CGD</b></p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------|-----------------|------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|

Optional Radius on W, LR and RR insert a second letter (E-E) in place (.9) , **Standard Radius on FL, FR and BR only**

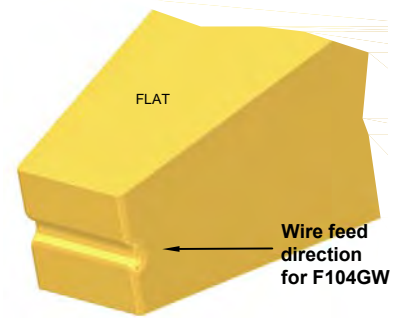
| RADIUS<br>OPTION<br>CHART | OPTION       | LETTER       |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT RADIUS | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | FR           | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS  | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | BR           | RR           | u   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

# SERIES F-104-GW

Tab Tool with GW Groove, Side Feed



See Tool# place 10.  
Specify WireØ (for Groove Ratios) or Groove Set  
G4=CGR&CGD=.0004, G8=CGR&CGD=.0008  
Or Specify GX CGR&CGD  
Example: GX=CGR=.001&CGD=.0006



## WIRE SIDE FEED

| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

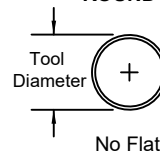
## SERIES F-104-GW WITH GW GROOVE, RADIUS LR&RR "W"

MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all  
gold wire bonding for optimum results.

## OR=OPTIONAL ROUND



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER: M-F-104-GW-1/16-1-.004X.004-M-E-\***

**SYMBOL EXPLANATION:**

- MATERIAL:** M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide
- SERIES:** F
- STYLE:** 104-GW
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- FOOT WIDTH: (W)** Please specify
- FOOT LENGTH: F104-GW (FL)** Please specify

Specify G4...G8,GX  
or Wire Ø Max. 001  
Groove Ratios:  
GR/CGR=60% of wire Ø  
GD/CGD=35% of wire Ø

- FRONT/BACK RADIUS:**  
See Option Chart below.  
Optional Radius on W and FL  
insert B-B or E-E etc.

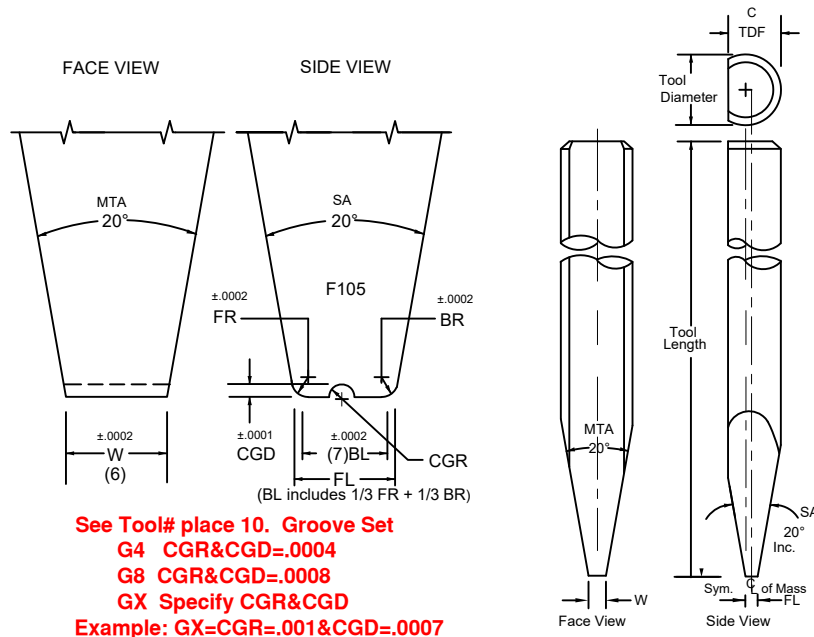
- FOOT FINISH:**  
M = Matte, better coupling  
for thermosonic gold bonding  
P = Polished FR, BR, & Bond Flat  
for thermocompression gold bonding  
MP = Polished FR, BR, and Matte Bond Flat.  
For ultrasonic aluminum bonding.

Optional Radius on W, LR and RR insert a second letter (E-E) in place (.9) , **Standard** Radius on FL, FR and BR only

| OPTION LETTER             |              |              | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| RADIUS<br>OPTION<br>CHART | FRONT RADIUS | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | FR           | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS  | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | BR           | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

# SERIES F-105

Tab Tool with Cross Groove Foot



See Tool# place 10. Groove Set  
**G4** CGR&CGD=.0004  
**G8** CGR&CGD=.0008  
**GX** Specify CGR&CGD  
**Example: GX=CGR=.001&CGD=.0007**

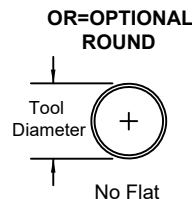
| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

## SERIES F-105 WITH "CG" GROOVE RADIUS FR&BR "FL"

MTA = MAIN TAPER ANGLE  
 SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
 Dimensions not shown please specify.

We recommend ceramic material for all gold wire bonding for optimum results.



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER: M-F-105-1/16-1-.004X.004-M-E-\***  
**SYMBOL EXPLANATION:**

- MATERIAL:** \_\_\_\_\_  
 M = Ceramic  
 C = Tungsten Carbide  
 T = Titanium  
 All other: See Material Selection Guide

- SERIES:** F

- STYLE:** 105

4.

- TOOL DIAMETER:** Please specify \_\_\_\_\_

- TOOL LENGTH:** Please specify \_\_\_\_\_

- FOOT WIDTH: (W)** Please specify \_\_\_\_\_

### 10. Groove Set

**G4** CGR&CGD=.0004  
**G8** CGR&CGD=.0008  
**GX** Specify CGR&CGD

### 9. FRONT/BACK RADIUS:

See Option Chart below.  
 Optional Radius on W and FL  
 insert B-B or E-E etc.

### 8. FOOT FINISH:

**M** = Matte, better coupling  
 for thermosonic gold bonding  
**P** = Polished FR, BR, & Bond Flat  
 for thermocompression gold bonding  
**MP** = Polished FR, BR, and Matte Bond Flat.  
 For ultrasonic aluminum bonding.

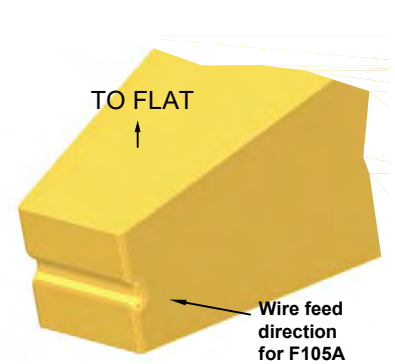
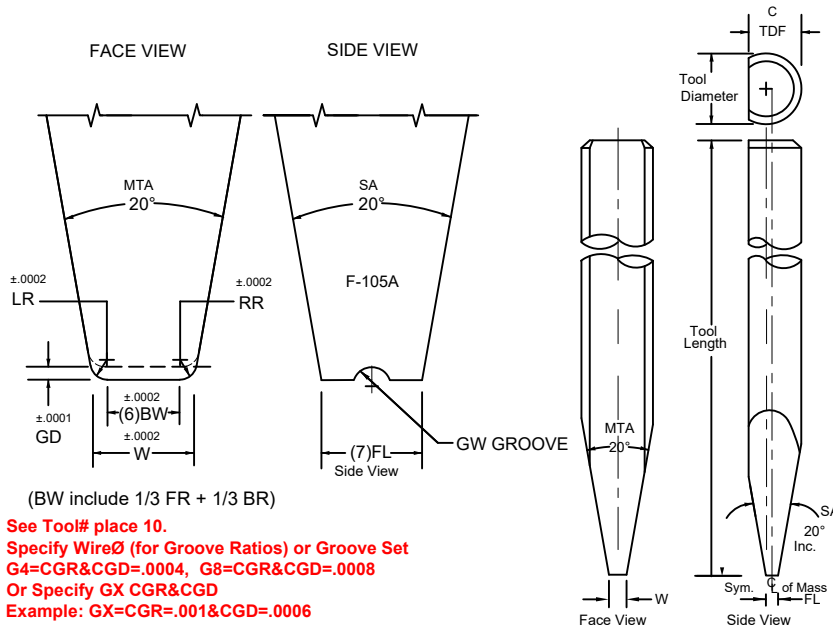
7. FOOT or BOND LENGTH: **F105 (BL)**  
 F105: Please specify (include 1/3 FR + 1/3 BR)

Optional Radius on W, LR and RR insert a second letter (E-E) in place (.9), **Standard** Radius on FL, FR and BR only

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |              | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT RADIUS  | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 |
|                           | FR            | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS   | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | BR            | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

# SERIES F-105A

Tab Tool with "GW" Groove, Side Feed



WIRE SIDE FEED

| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

## SERIES F-105-A (WITH GW GROOVE , SIDE FEED )

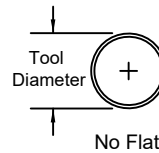
MTA = MAIN TAPER ANGLE

SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all gold wire bonding for optimum results.

OR=OPTIONAL  
ROUND



|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



SAMPLE PART NUMBER: **M-F-105A-1/16-1-.004X.004-M-E-**

SYMBOL EXPLANATION:

- MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

- SERIES:** F

- STYLE:** 105A

- TOOL DIAMETER:** Please specify \_\_\_\_\_

- TOOL LENGTH:** Please specify \_\_\_\_\_

- BOND WIDTH: (BW)** Please specify \_\_\_\_\_  
(BW include 1/3 FR + 1/3 BR)

10 Specify G4...G8,GX or Wire Ø Max. 001  
Groove Ratios:  
GR/CGR=60% of wire Ø  
GD/CGD=35% of wire Ø

- FRONT/BACK RADIUS:**  
See Option Chart below.  
Optional Radius on W and FL  
insert B-B or E-E etc.

- FOOT FINISH:**

**M** = Matte, better coupling for thermosonic gold bonding  
**P** = Polished FR, BR, & Bond Flat for thermocompression gold bonding  
**MP** = Polished FR, BR, and Matte Bond Flat. For ultrasonic aluminum bonding.

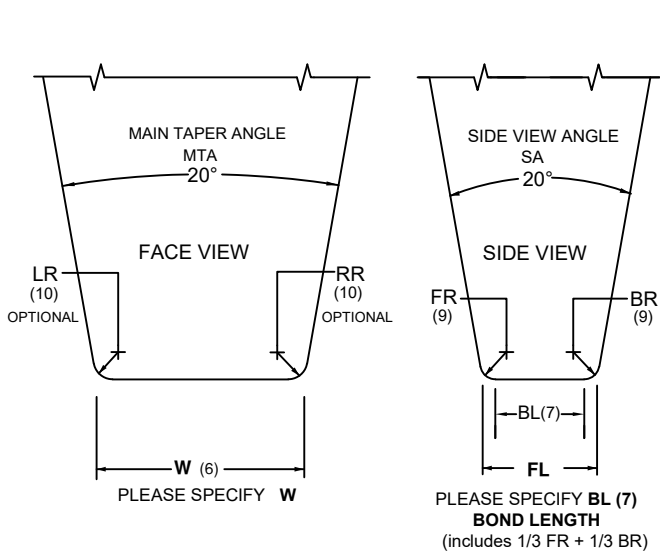
- FOOT LENGTH:** F105A (FL)

Optional Radius on W, LR and RR insert a second letter (E-E) in place (.9) , Standard Radius on W, LR and RR only

| OPTION LETTER             |              | A            | B   | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| RADIUS<br>OPTION<br>CHART | FRONT RADIUS | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 |
|                           | FR           | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    |
|                           | BACK RADIUS  | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 |
|                           | BR           | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    |

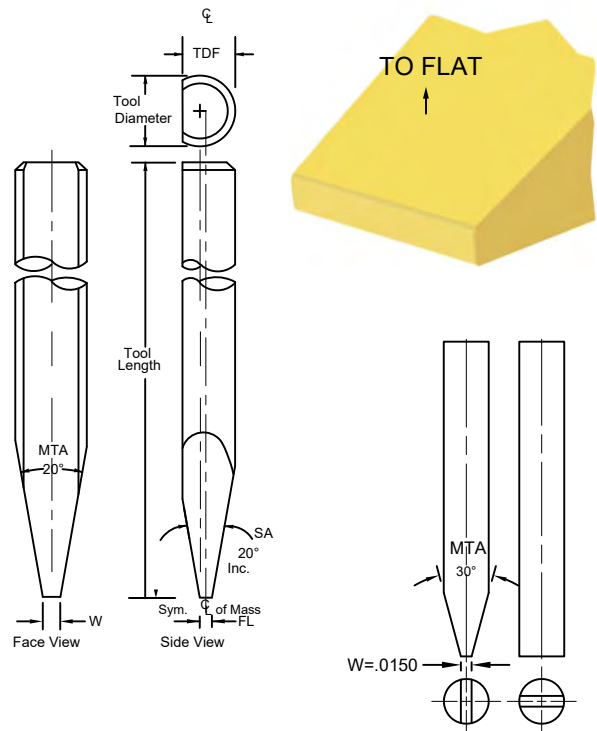
# SERIES F-105B

Tab Tool, Without Groove

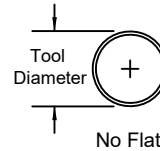


| TD   |       |      | TDF   |      |
|------|-------|------|-------|------|
|      | inch  | mm   | inch  | mm   |
| 1/16 | .0624 | 1.58 | .0460 | 1.17 |
| 1/16 | .0624 | 1.58 | .0590 | 1.50 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1100 | 2.79 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

For Standard Round specify TD only  
For Optional Flat specify TD and TDF



OR=OPTIONAL  
ROUND



Example: Optional Round,  
no Radius, W=.0150,  
FL= same as Diameter, MTA=30°  
PART#: MF109-1/16-437-.015-M-MTA=30°

SAMPLE PART NUMBER: **M- F-105B-1/16-1-.010X.005-M-B-B-\***

SYMBOL EXPLANATION:

1. **MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** F \_\_\_\_\_

3. **STYLE:** 105B \_\_\_\_\_

4. **TOOL DIAMETER:** Please specify \_\_\_\_\_

5. **TOOL LENGTH:** Please specify \_\_\_\_\_

11. **Tool Option:**  
Please specify MTA&  
SA (Tool-Angle)  
or see **Tool Options**

10. **RADIUS: LR/RR**  
See Option Chart. (STANDARD)

9. **RADIUS: FR/BR**  
See Option Chart.

8. **FOOT FINISH: M =** Matte  
**P =** Polished Radius

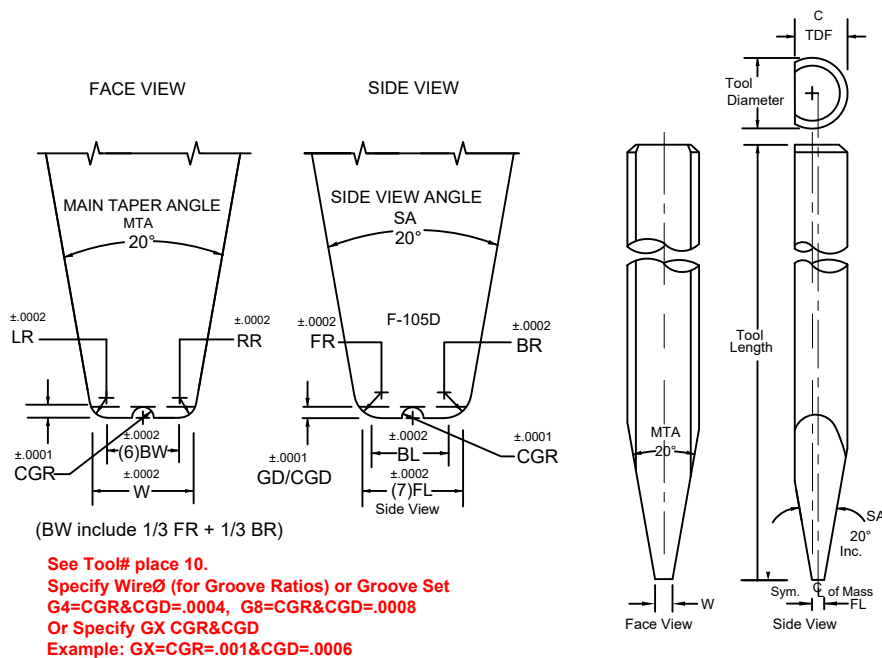
7. **BOND LENGTH: (BL)** Please specify  
(includes 1/3FR 1/3 +BR)

6. **FOOT WIDTH: (W)** Please specify

Optional Radius on W, LR and RR insert a second letter (E-E) in place (.9) , **Standard Radius on W, LR and RR only**

| OPTION LETTER             |              |              | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| RADIUS<br>OPTION<br>CHART | FRONT RADIUS | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 |
|                           | FR           | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS  | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | BR           | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

# SERIES F-105D Four Sides Radius Tab Tool with Double Cross Groove



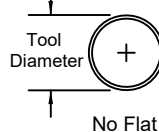
## SERIES F-105-D (Four Sides Radius Tab Tool with Double Cross Groove)

MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

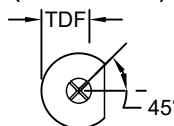
Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all gold wire bonding for optimum results.

## OR=OPTIONAL ROUND



## A15 OPTION (ROTATION 45°)



| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER: M-F-105D-1/16-1-.004X.004-M-E-**

**SYMBOL EXPLANATION:**

- MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide

- SERIES:** F

- STYLE:** 105D

- TOOL DIAMETER:** Please specify

- TOOL LENGTH:** Please specify

- BOND WIDTH: (BW)** Please specify  
(BW include 1/3 FR + 1/3 BR)

10 see Chart above  
Specify G4...G8,GX  
or Wire Ø Max. 001  
Groove Ratios:  
GR/CGR=60% of wire Ø  
GD/CGD=35% of wire Ø

- FRONT/BACK RADIUS:**  
See Option Chart below.  
Optional Radius on W and FL  
insert B-B or E-E etc.

- FOOT FINISH:**

**M** = Matte, better coupling  
for thermosonic gold bonding  
**P** = Polished FR, BR, & Bond Flat  
for thermocompression gold bonding  
**MP** = Polished FR, BR, and Matte Bond Flat.  
For ultrasonic aluminum bonding.

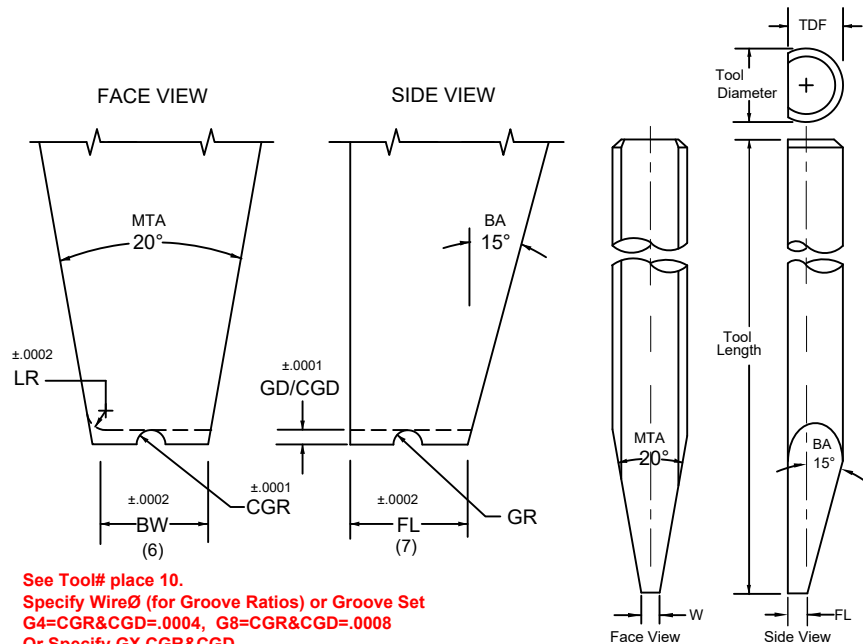
- FOOT LENGTH:** F105A (FL)

Optional Radius on W, LR and RR insert a second letter (E-E) in place (.9) , Standard Radius on W, LR and RR only

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |              | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT RADIUS  | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 |
|                           | FR            | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS   | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | BR            | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

# SERIES F-106

Tab Tool with Cross Groove, Side Feed

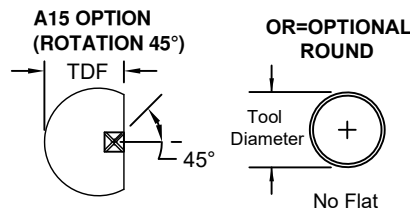


See Tool# place 10.  
Specify WireØ (for Groove Ratios) or Groove Set  
G4=CGR&CGD=.0004, G8=CGR&CGD=.0008  
Or Specify GX CGR&CGD  
Example: GX=CGR=.001&CGD=.0006

MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all gold wire bonding for optimum results.



| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER:** **M-F-106-1/16-1-.004X.004-P-C-\*** **-\***

**SYMBOL EXPLANATION:**

1. **MATERIAL:**  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide

2. **SERIES:** F

3. **STYLE:** 106

4. **TOOL DIAMETER:** Please specify

5. **TOOL LENGTH:** Please specify

6. **BOND WIDTH: (BW)** Please specify (include 1/3 LR)

11. **Tool Option:**  
Please specify  
MTA, A15 or see  
Tool Options

10. **Specify G4...G8,GX or Wire Ø Max. 001**  
**Groove Ratios:**  
GR/CGR=60% of wire Ø  
GD/CGD=35% of wire Ø

9. **LEFT RADIUS (LR):**  
See Option Chart below.

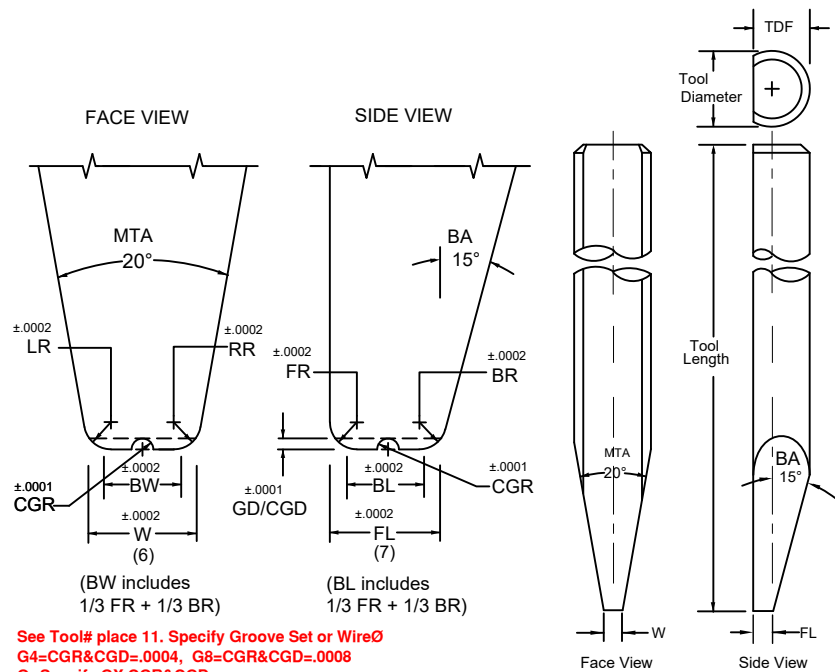
8. **FOOT FINISH:**  
M = Matte, better coupling  
for thermosonic gold bonding  
P = Polished Left Radius

7. **FOOT LENGTH: (FL)** Please specify

| OPTION LETTER             |              | A   | C     | F     | J     |
|---------------------------|--------------|-----|-------|-------|-------|
| RADIUS<br>OPTION<br>CHART | LEFT RADIUS  | in. | .0005 | .0010 | .0015 |
|                           | LR           | μ   | 13    | 25    | 38    |
|                           | RIGHT RADIUS | in. | 0     | 0     | 0     |
|                           | RR           | μ   | 0     | 0     | 0     |

# SERIES F-106A

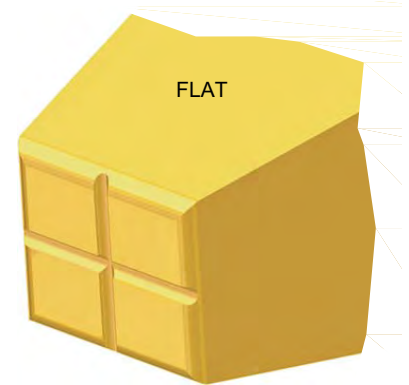
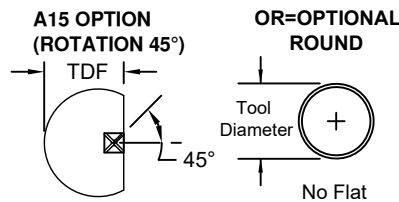
Tab Tool with Double Cross Groove, Four Sides Radius



See Tool# place 11. Specify Groove Set or Wire Ø  
G4=CGR&CGD=.0004, G8=CGR&CGD=.0008  
Or Specify GX CGR&CGD  
Example: GX=CGR=.001&CGD=.0006

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all gold wire bonding for optimum results.



| GROOVE SET | CGR   | CGR   | CGD   | CGD   |
|------------|-------|-------|-------|-------|
|            | inch  | mm    | inch  | mm    |
| G4         | .0004 | .0100 | .0004 | .0100 |
| G5         | .0005 | .0130 | .0005 | .0130 |
| G6         | .0006 | .0150 | .0006 | .0150 |
| G8         | .0008 | .0200 | .0008 | .0200 |

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

**SAMPLE PART NUMBER: M-F-106A-1/16-1-.004X.004-M-E-E- \* - \***

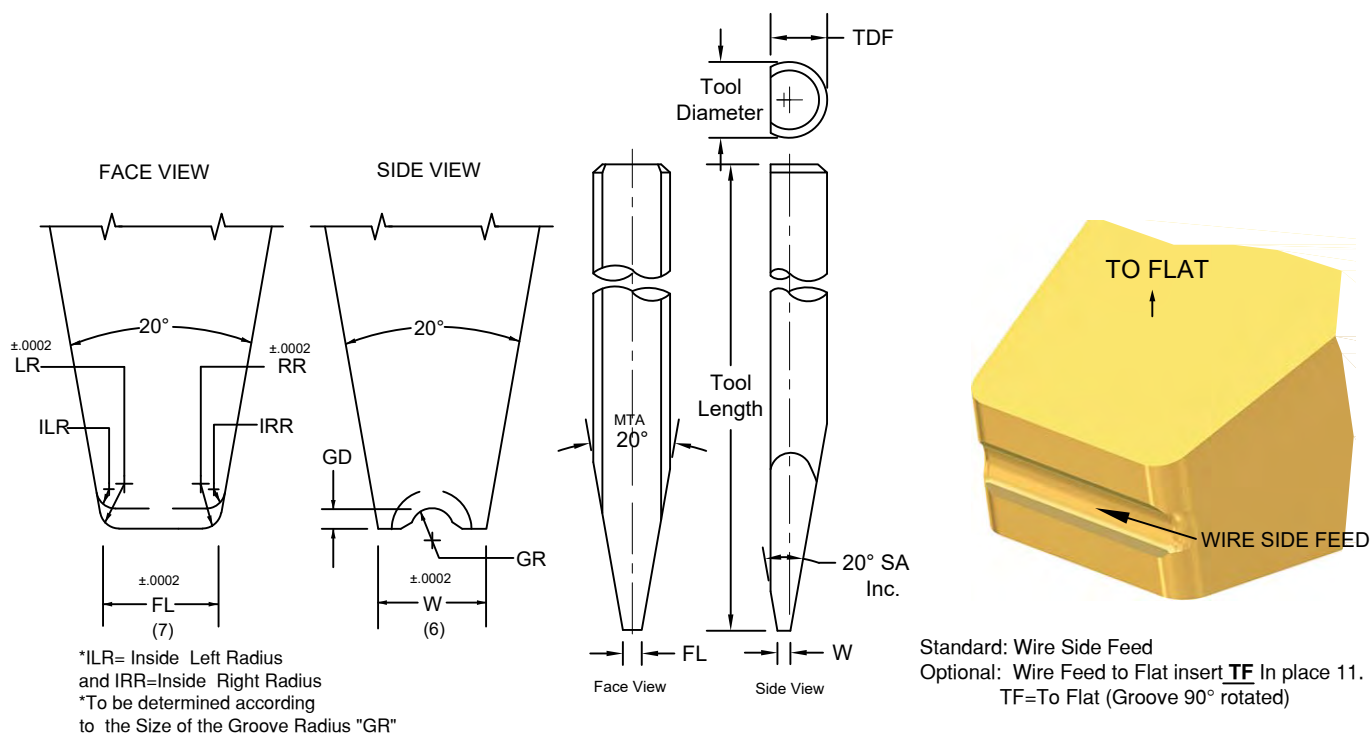
**SYMBOL EXPLANATION:**

- MATERIAL:** M = Ceramic, C = Tungsten Carbide, T = Titanium, All other: Material Selection Guide **Tool Tips**
- SERIES:** F
- STYLE:** 106A
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- BOND WIDTH: (BW)** Please specify
- BOND LENGTH: (BL)** Please specify (includes 1/3 FR + 1/3 BR)
- FOOT FINISH:** M = Matte, better coupling for thermosonic gold bonding; P = Polished FR, BR, & Bond Flat for thermocompression gold bonding; MP = Polished FR, BR, and Matte Bond Flat. For ultrasonic aluminum bonding.
- FRONT/BACK RADIUS:** See Option Chart below.
- LEFT/RIGHT RADIUS:** See Option Chart below.
- Specify G4...G8,GX or Wire Ø Max. .001**  
Groove Ratios:  
GR/CGR=60% of wire Ø  
GD/CGD=35% of wire Ø
- 12. Tool Option:** Please specify MTA, SA, A15 or see **Tool Options**

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |              |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|---------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT RADIUS  | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | FR            | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS   | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | BR            | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

# SERIES F-108

Tab Tool for Bonding Insulated Wire



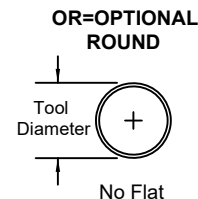
\*ILR= Inside Left Radius  
and IRR=Inside Right Radius  
\*To be determined according  
to the Size of the Groove Radius "GR"

MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.

We recommend ceramic material for all gold  
wire bonding for optimum results.

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



SAMPLE PART NUMBER: **M-F-108-1/16-1-.004X.007-M-E-.001-\***

SYMBOL EXPLANATION:

- MATERIAL:**  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other:  
See Material Selection Guide
- SERIES:** F
- STYLE:** 108
- TOOL DIAMETER:** Please specify
- TOOL LENGTH:** Please specify
- FOOT WIDTH: (W)** Please specify
- FOOT LENGTH: (FL)**  
Please specify
- FOOT FINISH:**  
M = Matte, better coupling  
for thermosonic gold bonding  
P = Polished FR, BR, & Bond Flat  
for thermocompression gold bonding  
MP= Polished FR, BR, and Matte Bond Flat.  
For ultrasonic aluminum bonding.
- LEFT/RIGHT RADIUS:**  
See Option Chart below.
- WIRE Ø:**  
Please specify wire diameter  
GR=60% of wire diameter  
GD=50% of wire diameter
- OPTIONS**  
TF=To Flat

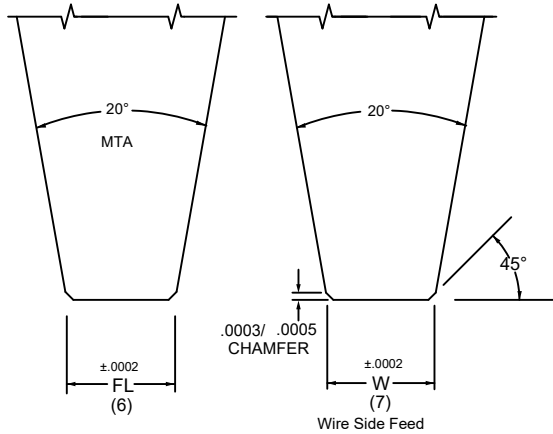
| OPTION LETTER             |              | A   | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| RADIUS<br>OPTION<br>CHART | LEFT RADIUS  | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | LR           | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | RIGHT RADIUS | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 |
|                           | RR           | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    |

# SERIES F-408

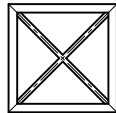
Tab Tool with Cross Grooves and Diamond Points, Side Feed

FACE VIEW

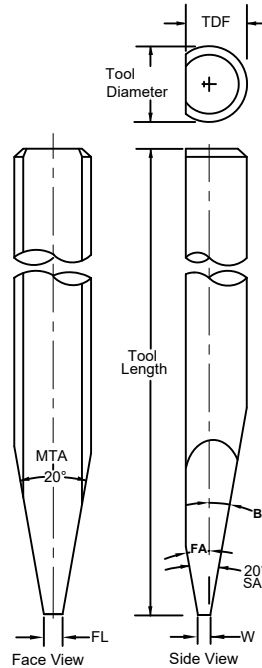
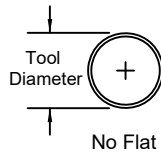
SIDE VIEW



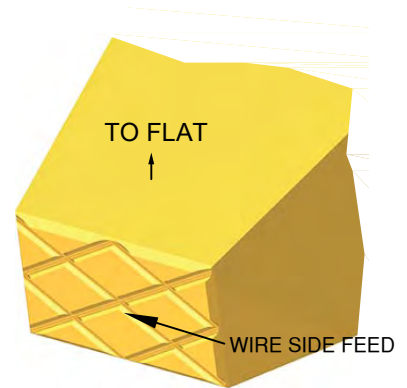
**Standard**  
Example for 4 raised  
Section



**OR=OPTIONAL  
ROUND**



MTA = MAIN TAPER ANGLE  
SA = SIDE VIEW ANGLE  
FA = FRONT ANGLE  
BA = BACK ANGLE  
Special dimensions available upon request.  
Dimensions not shown please specify.  
We recommend ceramic material for all gold wire bonding for optimum results.



Example for 12 raised Section

STANDARD: WIRE SIDE FEED  
OPTIONAL: WIRE FEED TO FLAT

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | inch  | mm   | inch  | mm   |
| 1/16 | .0624 | 1.58 | .0460 | 1.17 |
| 1/16 | .0624 | 1.58 | .0590 | 1.50 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1100 | 2.79 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

**SAMPLE PART NUMBER: M-F-408-1/16-1-.004X.004-M-12-\***

**SYMBOL EXPLANATION:**

1. **MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

**All other:**  
See Material Selection Guide

2. **SERIES: F**

3. **STYLE: 408**

4. **TOOL DIAMETER:** Please specify

5. **TOOL LENGTH:** Please specify

6. **FOOT WIDTH: (W)** Please specify

10. **Option**

**and Specification**

FD= Full Diamond or empty  
Specify Tool Angle: MTA, SA,  
FA or BA

9. **DIAMOND POINTS**  
**or raised Section:**

Please specify desired number of  
Diamond Points or raised Section

8. **FOOT FINISH:**

M = Matte, better coupling  
for thermosonic gold bonding

7. **FOOT LENGTH: (FL)**

Please specify

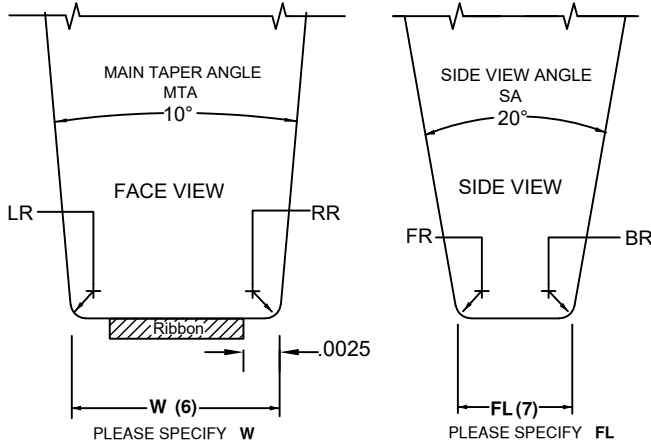
Standard on SERIES F-408 45° Chamfer

Optional Radius on FL, Left Radius = LR and RR=Right Radius, for W, FR and BR. **Example: insert E-E or E in Place 10. Option**

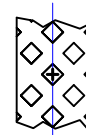
| RADIUS<br>OPTION<br>CHART |              | OPTION LETTER |     | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     |
|---------------------------|--------------|---------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                           | FRONT RADIUS | LEFT RADIUS   | in. | .0005 | .0005 | .0010 | .0010 | .0010 | .0015 | .0015 | .0015 | .0015 | .0020 | .0020 | .0020 | .0020 | .0020 |
|                           | FR           | LR            | μ   | 13    | 13    | 25    | 25    | 25    | 38    | 38    | 38    | 38    | 51    | 51    | 51    | 51    | 51    |
|                           | BACK RADIUS  | RIGHT RADIUS  | in. | 0     | .0005 | 0     | .0005 | .0010 | 0     | .0005 | .0010 | .0015 | 0     | .0005 | .0010 | .0015 | .0020 |
|                           | BR           | RR            | μ   | 0     | 13    | 0     | 13    | 25    | 0     | 13    | 25    | 38    | 0     | 13    | 25    | 38    | 51    |

# SERIES F 508 (A) (B) or (C)

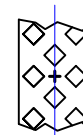
RIBBON STANDARD : A & TD=  $\emptyset \frac{1}{8}$ , TDF=.110  
REQUIRED FOR ORDER: RIBBON SIZE & (4),(5),(7),(8),(9)



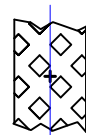
PLEASE SPECIFY **EXAMPLE: ONLY FOR REFERENCE**  
W= RIBBON WIDTH + 2 x .0025 RIBBON THICKNESS  
MORE THAN .010 (10 MILL) THEN 2x.0050  
MTA = MAIN TAPER ANGLE = 10° STANDARD  
SA = SIDE VIEW ANGLE = 20° STANDARD  
**EXAMPLE:**  
10: GG GROOVE TO GROOVE=.0060=(6)  
11: DS= DIAMOND SIZE=.0024=(2.4)  
12: GD=GROOVE DEPTH=.0020=(2)



**A=DIAMOND  
POSITION IN  
CENTER  
STANDARD**



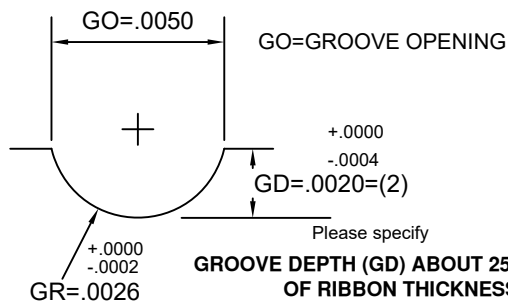
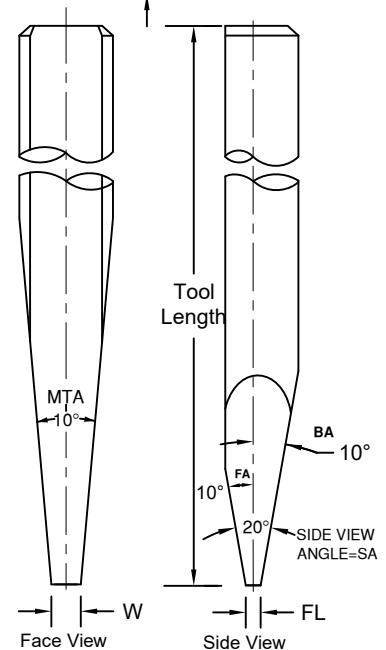
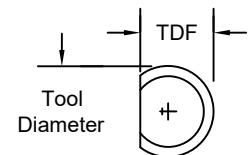
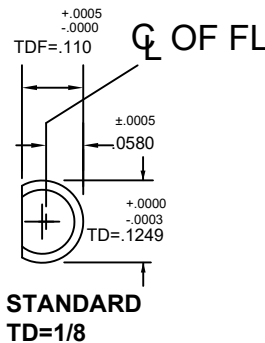
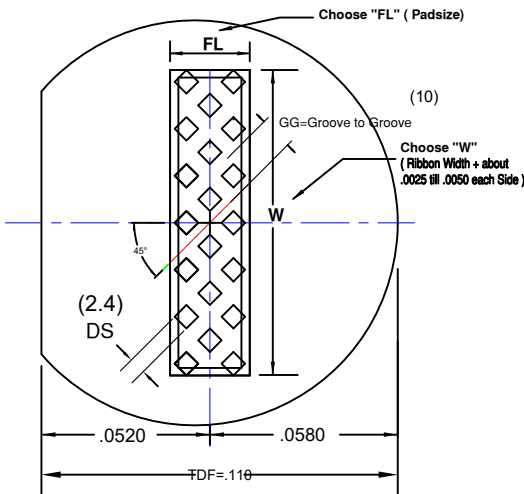
**B= DIAMOND  
POSITION  
AROUND CENTER**



**C= DIAMOND  
POSITION  
CENTER BETWEEN  
DIAMOND**

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | inch  | mm   | inch  | mm   |
| 1/16 | .0624 | 1.58 | .0460 | 1.17 |
| 1/16 | .0624 | 1.58 | .0590 | 1.50 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1100 | 2.79 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

Diamond Tip=DT  
preferably  
for large Tools  
Minimum of Groove:  
Radius=.00025  
Groove to Groove=.0015



Diamond Tip  
preferably for large Tools  
Minimum of Groove:  
Radius=.00025  
Groove to Groove=.0015

## DETAIL GROOVE EXAMPLE

# SERIES F 508 (A) (B) or (C)

RIBBON A= STANDARD= (EMPTY FIELD)

Standard for all of are F508 Series:  
Foot Finish = M = Matte , no Letter required

REQUIRED FOR ORDER: RIBBON SIZE FOR GD CALCULATION & (4),(5),(7),(8),(9)

Special dimensions available upon request.  
Dimensions not shown please specify.  
Two or Four Sides Radius Tab Tool

Example in mil :  
GG=.0060=6  
.0060\*1000=6

TOOL ANGLE:  
(STANDARD=MTA=10°)  
MTA=MAIN TAPER ANGLE  
(STANDARD=SA=20°)  
SIDE-VIEW ANGLE=SA

Special dimensions available upon request.

SAMPLE PART NUMBER: **M-F-508A-1/8-2-.045X.015-A8-A-6-2.4-2- \***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11 12 13

1. MATERIAL: \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium Tip Carbide Shank ,  
All other:  
See Material Selection Guide

2. SERIES: F \_\_\_\_\_

3. STYLE: 508 \_\_\_\_\_  
Please specify  
Diamond Position A, B, or C

4. TOOL DIAMETER: Please specify \_\_\_\_\_

5. TOOL LENGTH: Please specify \_\_\_\_\_

6. FOOT WIDTH: (W) Please specify \_\_\_\_\_

7. FOOT LENGTH: (FL) Please specify \_\_\_\_\_

8. FRONT/BACK RADIUS (FL): \_\_\_\_\_  
Please specify A, B,C etc.

See Option Chart below. X=customized

9. LEFT/RIGHT RADIUS (W): \_\_\_\_\_

Please specify A, B,C etc.

See Option Chart below. X=customized

13. OPTION:  
TOOL ANGLE: (MTA)  
and other OPTION  
Please specify  
MTA=MAIN TAPER ANGLE  
BA=BACK-ANGLE  
FA=FRONT-ANGLE  
SA = SIDE-VIEW ANGLE  
STANDARD:  
MTA=10°, SA=20° =Empty field

12. CROSS GROOVE DEPTH (GD):  
Please specify in mil

11. DIAMOND SIZE (DS)  
Please specify in mil

10. GROOVE TO GROOVE (GG):  
Please specify in mil

| OPTION CHART (8)<br>RADIUS FOR FOOT LENGTH (FL) | OPTION LETTER | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     | O     |
|-------------------------------------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| FRONT RADIUS                                    | in.           | .0000 | .0010 | .0020 | .0030 | .0040 | .0050 | .0060 | .0070 | .0080 | .0090 | .0100 | .0110 | .0120 | .0130 | .0140 |
|                                                 | μ             | 0     | 25    | 51    | 76    | 102   | 127   | 152   | 178   | 203   | 229   | 254   | 279   | 305   | 330   | 356   |
| BACK RADIUS                                     | in.           | .0000 | .0010 | .0020 | .0030 | .0040 | .0050 | .0060 | .0070 | .0080 | .0090 | .0100 | .0110 | .0120 | .0130 | .0140 |
|                                                 | μ             | 0     | 25    | 51    | 76    | 102   | 127   | 152   | 178   | 203   | 229   | 254   | 279   | 305   | 330   | 356   |

| OPTION CHART (9)<br>RADIUS FOR FOOT WIDTH (W) | OPTION LETTER | A     | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     | N     | O     |
|-----------------------------------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| LEFT RADIUS                                   | in.           | .0000 | .0010 | .0020 | .0030 | .0040 | .0050 | .0060 | .0070 | .0080 | .0090 | .0100 | .0110 | .0120 | .0130 | .0140 |
|                                               | μ             | 0     | 25    | 51    | 76    | 102   | 127   | 152   | 178   | 203   | 229   | 254   | 279   | 305   | 330   | 356   |
| RIGHT RADIUS                                  | in.           | .0000 | .0010 | .0020 | .0030 | .0040 | .0050 | .0060 | .0070 | .0080 | .0090 | .0100 | .0110 | .0120 | .0130 | .0140 |
|                                               | μ             | 0     | 25    | 51    | 76    | 102   | 127   | 152   | 178   | 203   | 229   | 254   | 279   | 305   | 330   | 356   |

EXAMPLE  
ALL OTHER  
RADIUS:

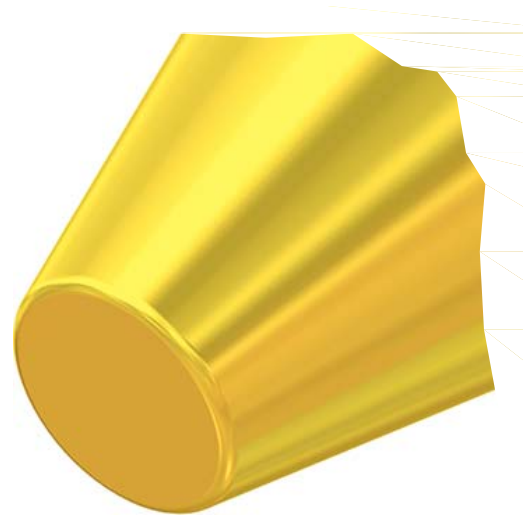
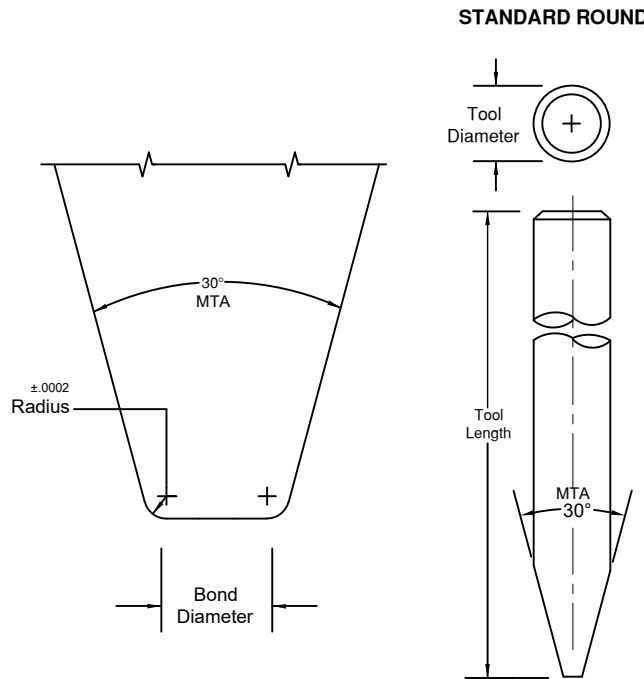
A =.0000      B =.0010  
A4=.0004      B1=.0011  
A5=.0005      B2=.0012  
A6=.0006      B3=.0013  
A7=.0007      B4=.0014  
A8=.0008      B5=.0015

A1 to A9=.0001-.0009  
B1 to B9=.0011-.0019  
C1 to C9=.0021-.0029  
D1 to D9=.0031-.0039  
for all

EXAMPLE:  
RADIUS=.0000 = A  
RADIUS=.0015 = B5  
RADIUS=.0066 = G6

# SERIES CT-107

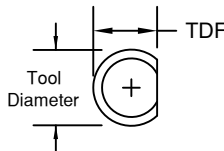
Conical Tip Tab Tool



MTA = MAIN TAPER ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.  
We recommend ceramic material for all gold wire bonding for optimum results.

OF=OPTIONAL FLAT



For Standard Round specify TD only  
For Optional Flat specify TD and TDF

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

SAMPLE PART NUMBER: **M-CT-107-1/16-1-.001-M-C-\***

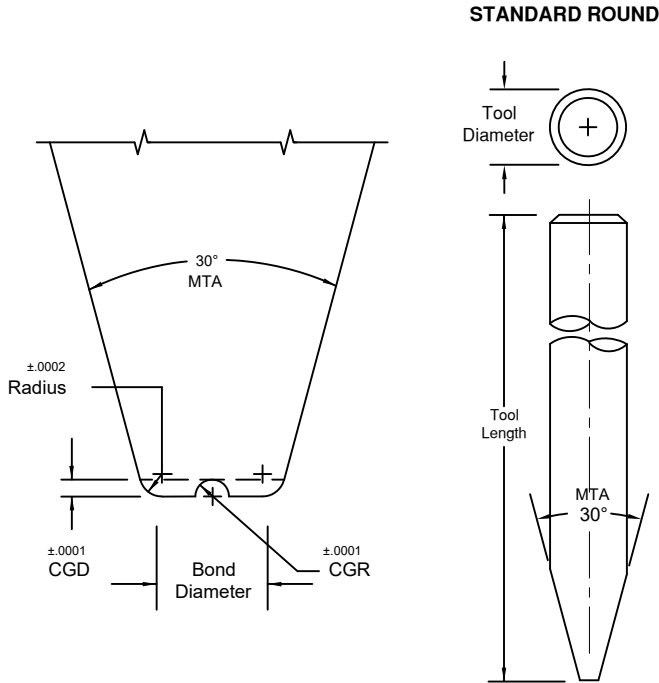
SYMBOL EXPLANATION:

- MATERIAL:** \_\_\_\_\_  
M = Ceramic  
C = Tungsten Carbide  
T = Titanium  
All other: See Material Selection Guide
- SERIES:** CT \_\_\_\_\_
- STYLE:** 107 \_\_\_\_\_
- TOOL DIAMETER:** Please specify \_\_\_\_\_
- TOOL LENGTH:** Please specify \_\_\_\_\_
- BOND DIAMETER:** Please specify \_\_\_\_\_  
(Includes 2/3 R)
- FOOT FINISH:**  
M = Matte  
P = Polished Radius
- RADIUS:** See Option Chart.
- Tool Option:**  
Please specify MTA (Tool-Angle)  
or see **Tool Options**

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |          | A           | C           | F           | J           |
|---------------------------|---------------|----------|-------------|-------------|-------------|-------------|
|                           | RADIUS        | in.<br>μ | .0005<br>13 | .0010<br>25 | .0015<br>38 | .0020<br>51 |

# SERIES CT-207

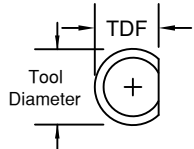
Conical Tip Tab Tool, Groove in Wire Direction and Cross Groove



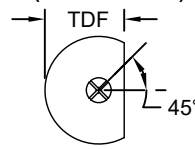
MTA = MAIN TAPER ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.  
We recommend ceramic material for all gold wire bonding for optimum results.

OF=OPTIONAL FLAT



A15 OPTION  
(ROTATION 45°)



For Standard Round specify TD only  
For Optional Flat specify TD and TDF

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

**SAMPLE PART NUMBER: M-CT-207-1/16-1-.001-M-C-.0010-\***

**SYMBOL EXPLANATION:**

1. **MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

2. **SERIES:** CT

3. **STYLE:** 207

4. **TOOL DIAMETER:** Please specify

5. **TOOL LENGTH:** Please specify

10. **Tool Option:**

Please specify MTA (Tool-Angle)  
A15 or see **Tool Options**

9. **WIRE:**

Please specify Wire Ø  
GR/CGR=60% of wire Ø.  
GD/CGD=35% of wire Ø.

8. **RADIUS:** See Option Chart below.

7. **FOOT FINISH:**

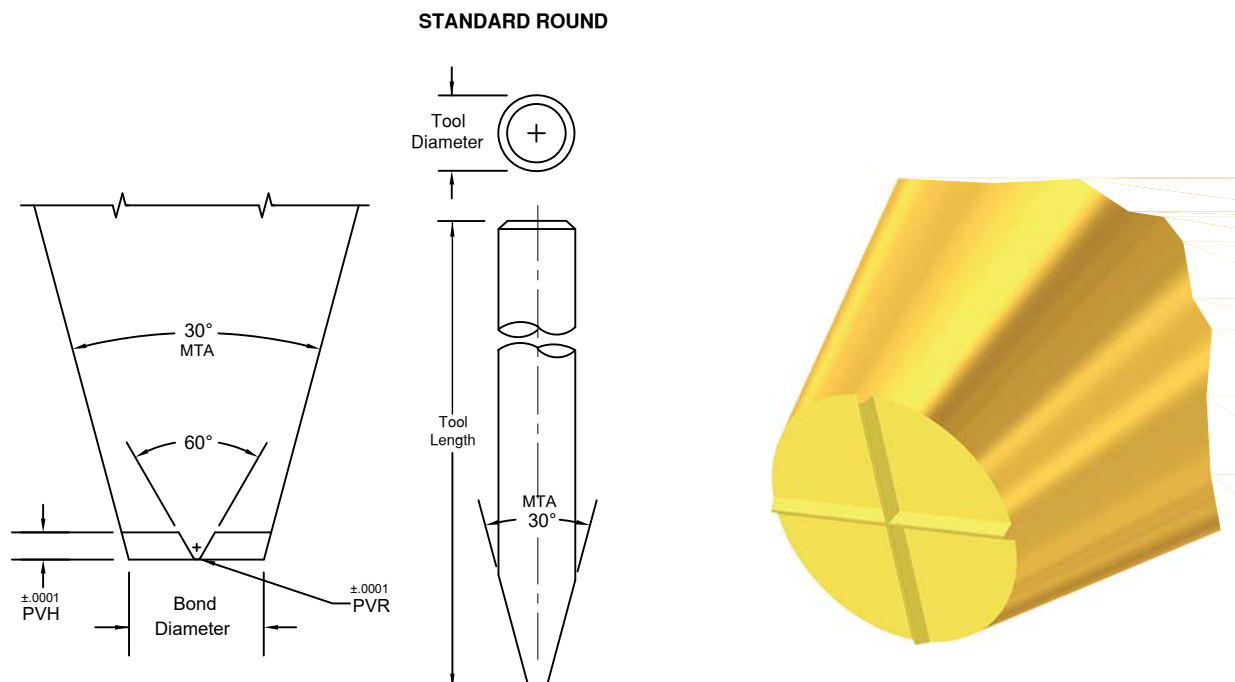
M = Matte  
P = Polished Radius

6. **BOND DIAMETER:** Please specify  
(Includes 2/3 R)

| RADIUS<br>OPTION<br>CHART | OPTION LETTER |          | A           | C           | F           | J           |
|---------------------------|---------------|----------|-------------|-------------|-------------|-------------|
|                           | RADIUS        | in.<br>μ | .0005<br>13 | .0010<br>25 | .0015<br>38 | .0020<br>51 |

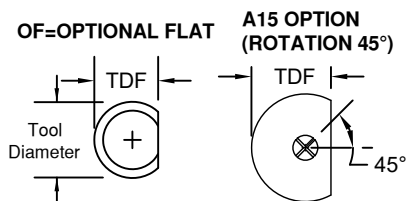
# SERIES CT-208

Conical Tip Tool with Double Protruding 'V' Radius



MTA = MAIN TAPER ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.  
We recommend ceramic material for all gold wire bonding for optimum results.



For Standard Round specify TD only  
For Optional Flat specify TD and TDF

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |

**SAMPLE PART NUMBER: M-CT-208-1/16-1-.001-M-R-\***

**SYMBOL EXPLANATION:**

**1. MATERIAL:**

M = Ceramic  
C = Tungsten Carbide  
T = Titanium

All other: See Material Selection Guide

**2. SERIES: CT**

**3. STYLE: 208**

**4. TOOL DIAMETER:** Please specify

**5. TOOL LENGTH:** Please specify

**9. Tool Option:**

Please specify MTA (Tool-Angle)  
A15 or see **Tool Options**

**8. PVR / PVH:**

See Option Chart below.  
PVR= Protruding 'V' Radius  
PVH= Protruding 'V' Height

**7. FOOT FINISH:**

M = Matte finish

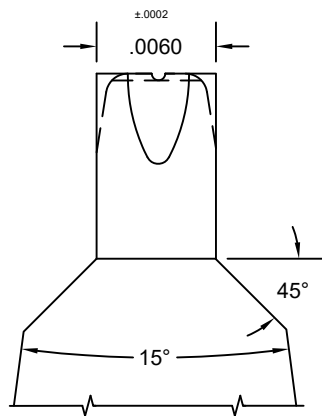
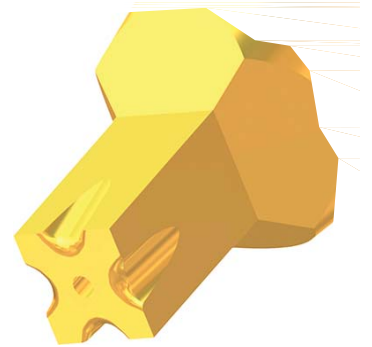
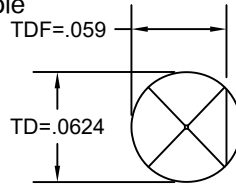
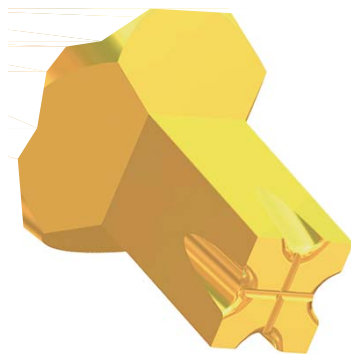
**6. BOND DIAMETER:**

Please specify

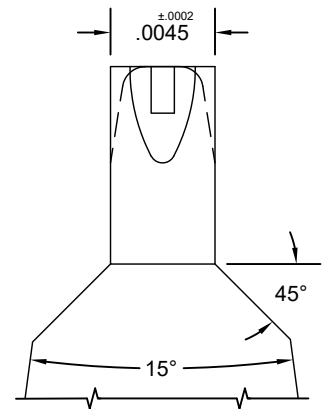
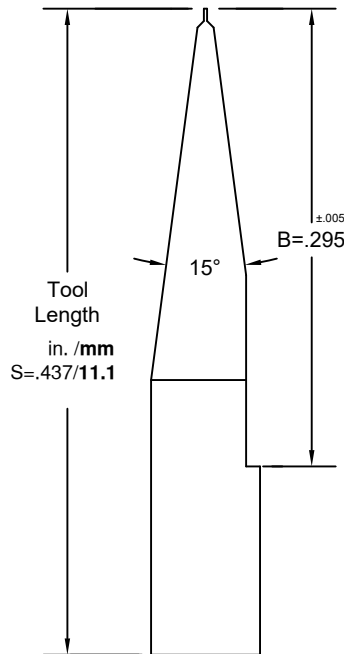
| OPTION LETTER |     | O     | P     | Q     | R     | S     |
|---------------|-----|-------|-------|-------|-------|-------|
| PVR RADIUS    | in. | 0     | 0     | .0002 | .0002 | .0004 |
|               | μ   | 0     | 0     | 5     | 5     | 10    |
| PVH HEIGHT    | in. | .0002 | .0003 | .0003 | .0005 | .0010 |
|               | μ   | 5     | 8     | 8     | 13    | 25    |

# TESSERA®

Four Sides Tab Tool  
with a Cross Groove or with a Dimple



Example for a Cross Groove:  
TESS-M-S-6X6-17-CG



Example for a Dimple:  
TESS-M-S-4.5X4.5-D

SAMPLE PART NUMBER: **TESS-M-S-6X6-\***

SYMBOL EXPLANATION: 1 2 3 4 5

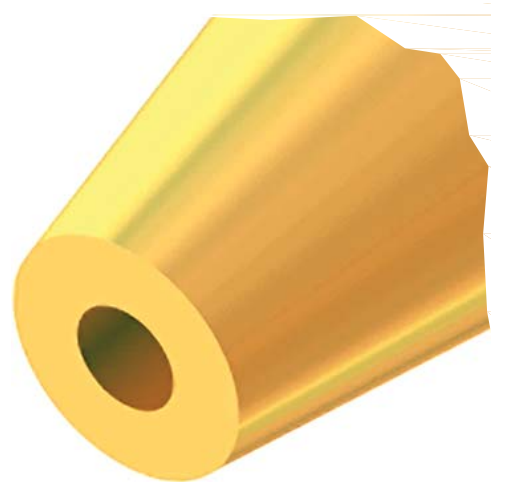
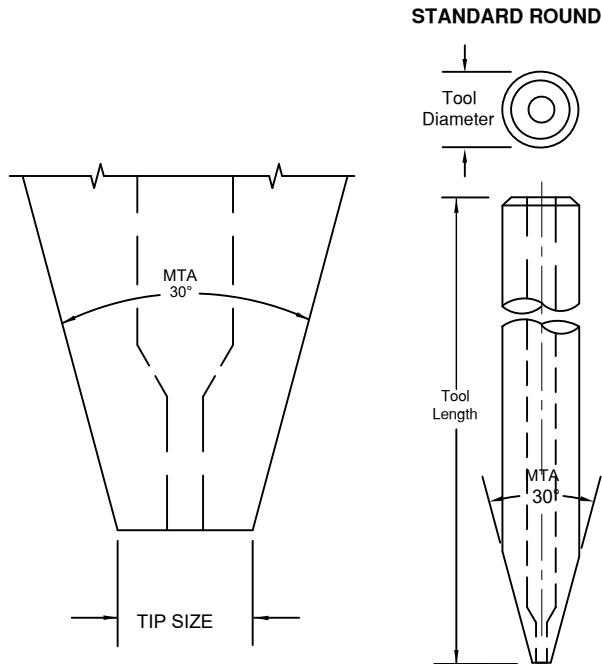
1. **SERIES:** CT
2. **MATERIAL:**
  - M = Ceramic
  - C = Tungsten Carbide
  - T = Titanium
  - All other: See Material Selection Guide
3. **TOOL LENGTH:** S=.437/11.1
4. **TOOL SIZE:** Please specify
5. **OPTION:** Tip Style and other options
  - with a Cross Groove insert a "CG" and size
  - with a Dimple insert a "D" (old DMPL)
  - Type # 17 Example: **TESS-M-S-6X6-17-CG** or **TESS-M-S-6X6-18-CG**
  - Please specify

Other dimensions available upon request  
Please contact DeWeyl Tool Company

μ BGA® is the registered product trademark of Tessera®

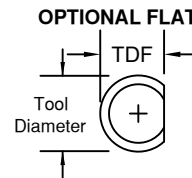
# SERIES CTV

## VACUUM PICK-UP TOOL



MTA = MAIN TAPER ANGLE

Special dimensions available upon request.  
Dimensions not shown please specify.  
We recommend ceramic material for all gold wire bonding for optimum results.



For Standard Round specify TD only  
For Optional Flat specify TD and TDF

|      | TD    |      | TDF   |      |
|------|-------|------|-------|------|
|      | in.   | mm   | in.   | mm   |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |
|      | .0784 | 1.99 | .0630 | 1.60 |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |
|      | .1180 | 3.00 | .0985 | 2.50 |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |



**SAMPLE PART NUMBER:** **C-CT-V-1/16-1-.015-.010-P-X-\***

- SYMBOL EXPLANATION:**
- |                                         |   |   |   |   |   |   |   |   |                            |
|-----------------------------------------|---|---|---|---|---|---|---|---|----------------------------|
| 1                                       | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10                         |
| 1. <b>MATERIAL:</b>                     |   |   |   |   |   |   |   |   | 10. <b>Tool Option:</b>    |
| M = Ceramic                             |   |   |   |   |   |   |   |   | Please specify             |
| C = Tungsten Carbide                    |   |   |   |   |   |   |   |   | MTA (Tool-Angle)           |
| T = Titanium                            |   |   |   |   |   |   |   |   | or see <b>Tool Options</b> |
| All other: See Material Selection Guide |   |   |   |   |   |   |   |   |                            |
| 2. <b>SERIES:</b> CT                    |   |   |   |   |   |   |   |   | 9. <b>RADIUS:</b>          |
|                                         |   |   |   |   |   |   |   |   | See Option Chart below.    |
| 3. <b>STYLE:</b> Vacuum Pick-up Tool    |   |   |   |   |   |   |   |   | 8. <b>TIP FINISH:</b>      |
|                                         |   |   |   |   |   |   |   |   | M = Matte                  |
|                                         |   |   |   |   |   |   |   |   | P = Polish                 |
| 4. <b>TOOL DIAMETER:</b> Please specify |   |   |   |   |   |   |   |   | 7. <b>HOLE DIAMETER:</b>   |
|                                         |   |   |   |   |   |   |   |   | Please specify             |
| 5. <b>TOOL LENGTH:</b> Please specify   |   |   |   |   |   |   |   |   | 6. <b>TIP SIZE:</b>        |
|                                         |   |   |   |   |   |   |   |   | Please specify             |

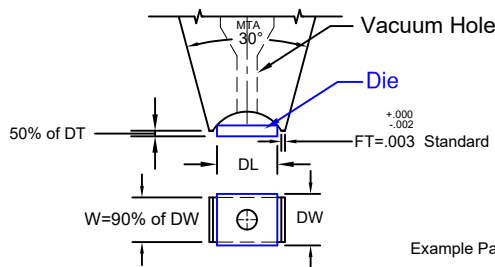
| RADIUS<br>OPTION<br>CHART | OPTION LETTER |  | A            | C     | F     | J     | X     |
|---------------------------|---------------|--|--------------|-------|-------|-------|-------|
|                           | RADIUS        |  | in.<br>.0005 | .0010 | .0015 | .0020 | .0000 |
|                           |               |  | μ<br>13      | 25    | 38    | 51    | 0     |

# SERIES CC, FT, IP, SC, P

VACUUM PICK-UP TOOLS (Page 1 of 3)

First, choose Tool Tip input: CC, FT, IP, SC or P, Second choose Tip Style (Head Form) input: 1,2 or 3 (Page 115)

## CC= Concave Channel

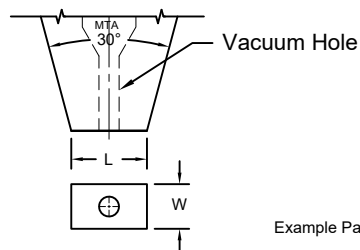


L = Tool Length  
DL = Die Length  
DW = Die Width  
DT = Die Thickness

Example Part # C-CC-2-1/16-1-012-010-004  
Insert a CC in Series Part# Place 2.

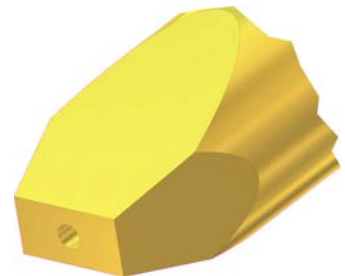


## FT= Flat Tip Rectangular

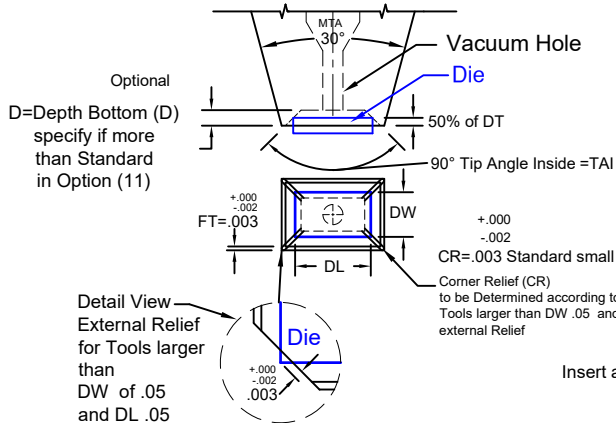


L = Tool Tip Length  
W = Tool Tip Width

Example Part # C-FT-2-1/16-1-041-036  
Insert a FT in Part# Place 2.

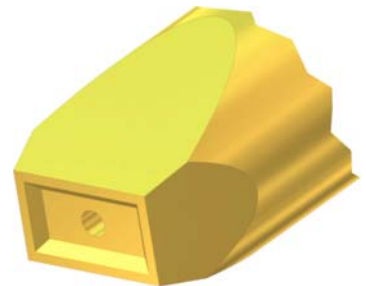


## IP= Inverted Pyramid

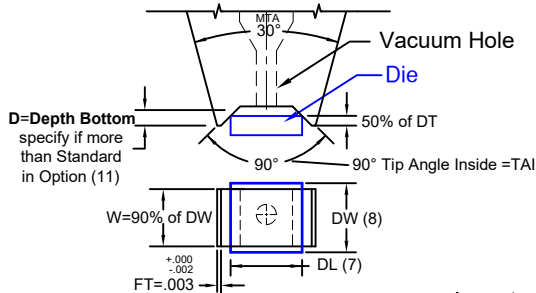


L = Tool Length  
TAI = Tip Angle Inside  
DL = Die Length  
DW = Die Width  
DT = Die Thickness

Example Part # C-IP-2-1/16-1-90-041-036-004  
Insert a IP in Part# Place 2.

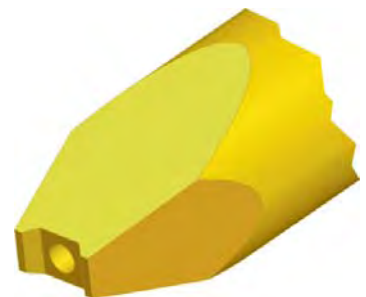


## SC= Straight Sided Channel



L = Tool Length  
TAI = Tip Angle Inside  
DL = Die Length  
DW = Die Width  
DT = Die Thickness

Example Part # C-SC-2-1/16-1-90-625-90-020-016-004  
Insert a SC in Place 2. Series



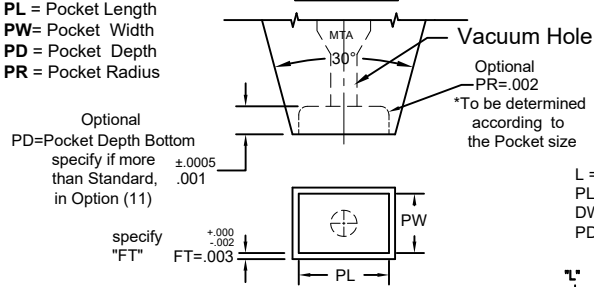
For Order Information lookup Page 3 of the Series Vacuum Pickup Tools  
DL = Die Length, DW = Die Width, DT = Die Thickness, CR = Corner Relief, TAI = Tip Angle Inside  
\*All dimensions and tolerances are for reference only

# SERIES CC, FT, IP, SC, P

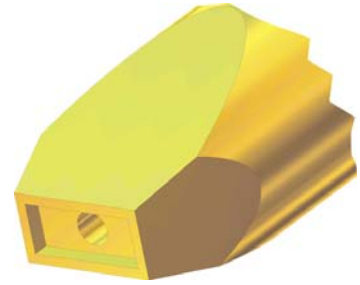
VACUUM PICK-UP TOOLS (Page 2 of 3)

FT = Flat on Tip  
PL = Pocket Length  
PW = Pocket Width  
PD = Pocket Depth  
PR = Pocket Radius

**P= Pocket**



L = Tool Length  
PL = Die Length  
DW = Die Width  
PD = Pocket Depth



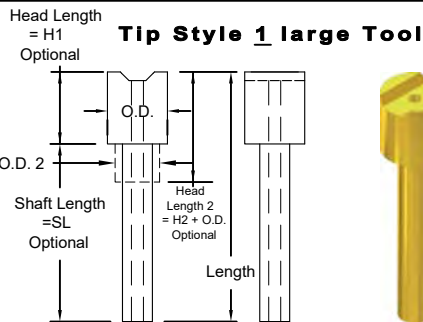
Example Part # C-P-2-1/16-1-041-036-004

Insert a **P** in Part# Place 2.

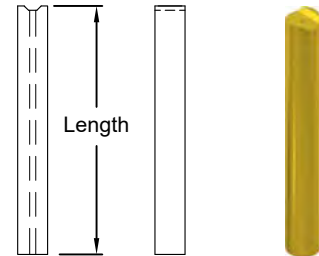
## Tip Style (Head Form) Configuration

Choose a Tip Style, input : 1, 2 or 3 in the Part Number in 3. Style

Illustrated Tool  
SC-SERIES



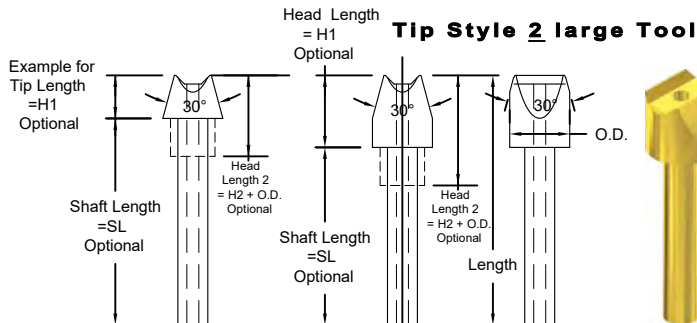
**Tip Style 1 small Tool**



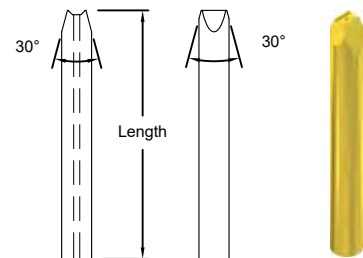
Illustrated Tool  
SC-1

Example Part # C-SC-1-1/16-1-90-036-041-004-H1=.125

Insert a **1** for Tip (Head) Style in Part # Place 3



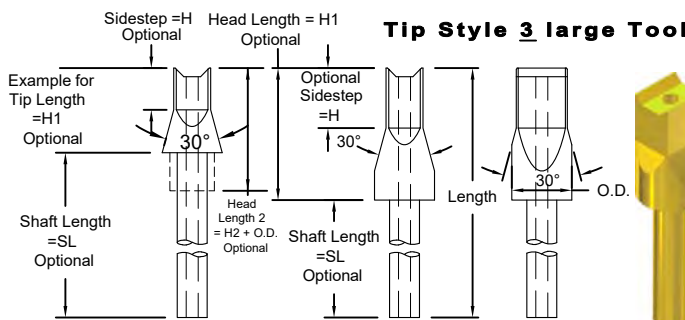
**Tip Style 2 small Tool**



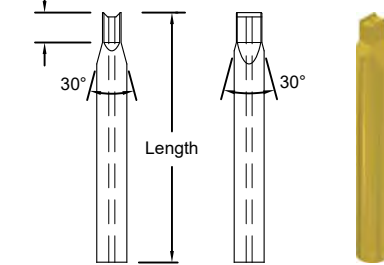
Illustrated Tool  
SC-2

Example Part # C-SC-2-1/16-1-90-036-041-004-H1=.125

Insert a **2** for Tip (Head) Style in Part # Place 3



**Tip Style 3 small Tool**



Illustrated Tool  
SC-3

Example Part # C-SC-3-1/16-1-90-036-041-004-H=.125-H1=.250

Insert a **3** for Tip (Head) Style in Part # Place 3

For Order Information lookup Page 3 of the Series Vacuum Pickup Tools

DL= Die Length, DW=Die Width, DT= Die Thickness, CR= Corner Relief, FT= Flat on Tip, TAI= Tip Angle Inside

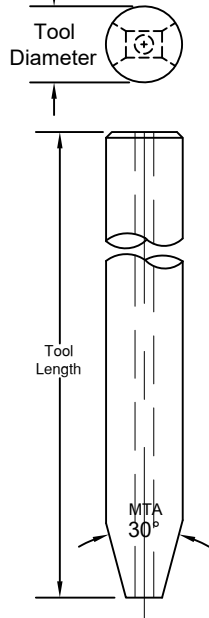
\*All dimensions and tolerances are for reference only

# SERIES CC, FT, IP, SC, P

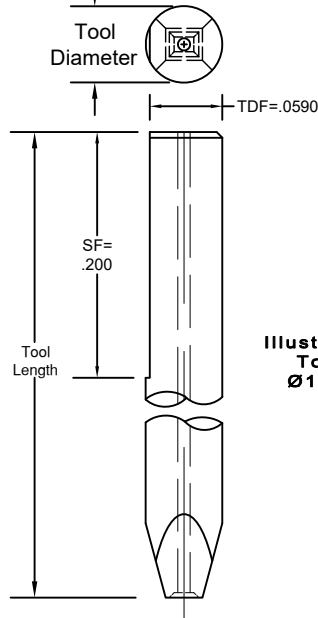
VACUUM PICK-UP TOOLS (Page 3 of 3)

This are Representative Tools, please contact DeWeyl  
Customer Service for customized Tools

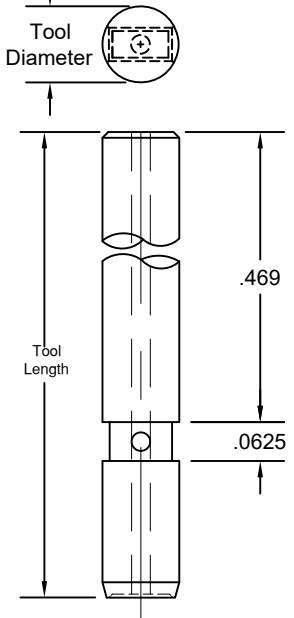
Standard Shank Round  
TD = Ø .0624



Optional Shank Flat  
TD = Ø .0624, add Option Letter SF in (11)



Optional Shank for K&S 643/648  
TD = Ø .125, add Option Letter K in (11)

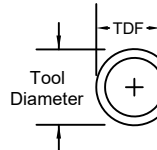


Illustrated  
Tool  
Ø1/16

Special dimensions available upon request.  
Dimensions not shown please specify.

D= Depth Bottom (Pocket and Cannel, IP, P, SC)  
H= Sidestep Tip  
HL= Head Length (Tip)  
O.D.= Outside Ø Tip (Head)  
MTA = MAIN TAPER ANGLE  
SL= Shaft Length

OPTIONAL FLAT



For Standard Round specify TD only  
For Optional Flat specify TD and TDF

|      | TD    |      | TDF   |      | STANDARD<br>FOR TDF |
|------|-------|------|-------|------|---------------------|
|      | in.   | mm   | in.   | mm   |                     |
| 1/16 | .0624 | 1.59 | .0460 | 1.17 |                     |
| 1/16 | .0624 | 1.59 | .0590 | 1.50 | X                   |
|      | .0784 | 1.99 | .0630 | 1.60 |                     |
|      | .0784 | 1.99 | .0720 | 1.83 |                     |
| 3/32 | .0937 | 2.38 | .0880 | 2.24 |                     |
|      | .1180 | 3.00 | .0985 | 2.50 |                     |
| 1/8  | .1249 | 3.17 | .0937 | 2.38 |                     |
| 1/8  | .1249 | 3.17 | .1180 | 3.00 |                     |

## ORDERING INFORMATION

SAMPLE PART NUMBER: **C-SC-3-1/16-1-90-036-041-004-\*-\***

SYMBOL EXPLANATION: 1 2 3 4 5 6 7 8 9 10 11

1. MATERIAL:

M = Ceramic  
C = Tungsten Carbide (Standard)  
T = Titanium

All other: See Material Selection Guide

2. SERIES: CC, FT, IP, SC, P

3. STYLE: Tip Style 1, 2, 3

4. TOOL DIAMETER: Please specify

5. TOOL LENGTH: Please specify

6. TIP ANGLE INSIDE (TAI): For Die Please specify, only Series IP, SC

7. LENGTH: For Die Tools=DL (For Series FT=L, P=PL) Please specify

11.

Tool Option:  
Please specify  
D, H, H1, H2, PD, SL  
SF, MTA (Tool-Angle)

10. FOOT FINISH :

Standard= Matte finish =empty  
P= Polished Top

9. THICKNESS:

For Die Tools=DT  
For Series FT=empty, P=PD  
Please specify.

8. WIDTH: For Die Tools= DW  
(For Series FT=W, P=PW)  
Please specify



# HEATED CAPILLARY HOLDER

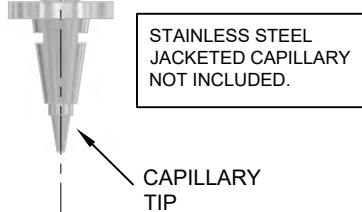
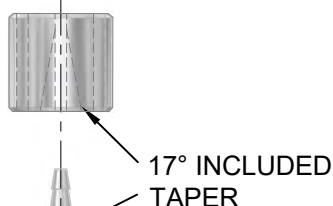
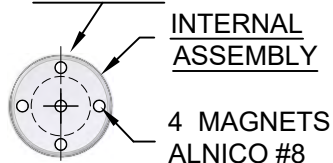
FOR USE WITH A STAINLESS STEEL JACKETED CAPILLARY



| SPECIFICATIONS |       |                  |                         |
|----------------|-------|------------------|-------------------------|
| VOLTS          | WATTS | MAX. TEMPERATURE | L-LENGTH                |
| 12V            | 15W   | 900° F           | 1.500<br>2.000<br>2.500 |

## DETAIL VIEW

### TOP VIEW

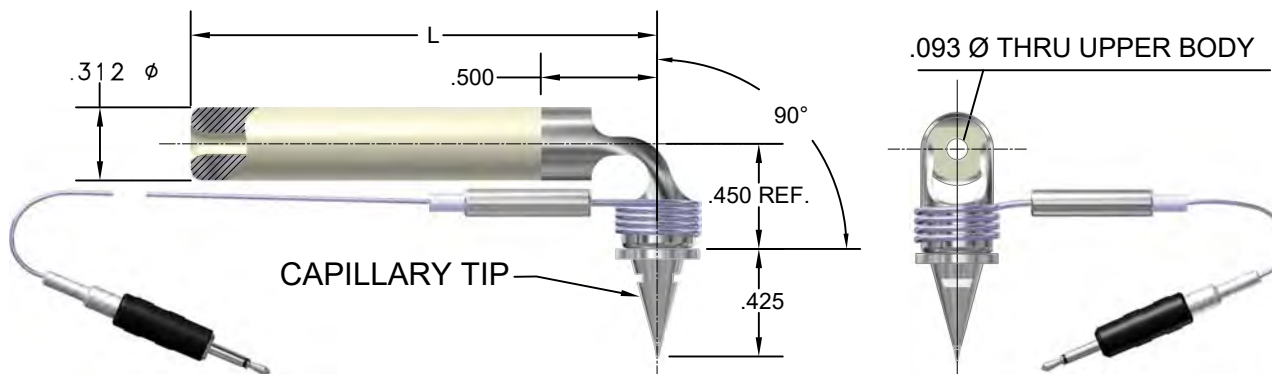


THERMAL INSULATING CERAMOPLASTIC UPPER BODY CEMENTED IN WITH CERAMIC CEMENT.

PHONE JACK

SEE DETAIL

## ■ TOOL NO.-HCH-S-(SPECIFY LENGTH)-SSC MAGNETIC TYPE HOLDER



## ■ TOOL NO.-HCH-90-(LENGTH) MAGNETIC TYPE HOLDER

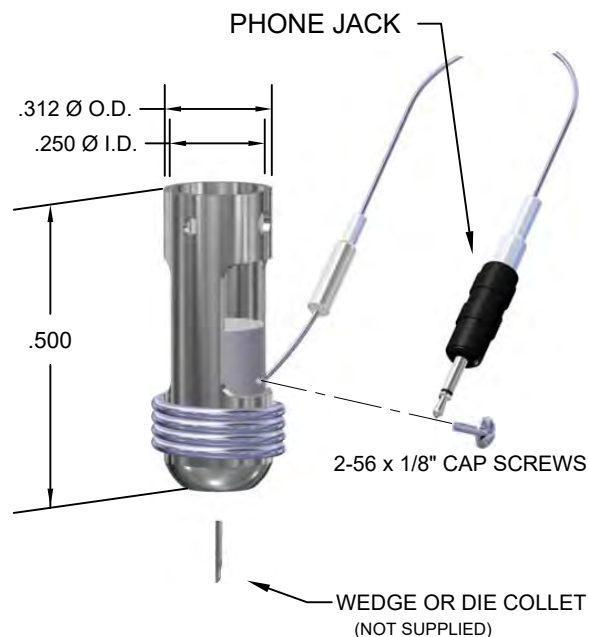


# HEATED WEDGE HOLDER

FOR USE WITH A WEDGE OR DIE COLLET



| SPECIFICATIONS |       |                 |          |
|----------------|-------|-----------------|----------|
| VOLTS          | WATTS | MAX.TEMPERATURE | L-LENGTH |
| 12V            | 15W   | 900° F          | .500     |



■ TOOL NO.-HWH-400

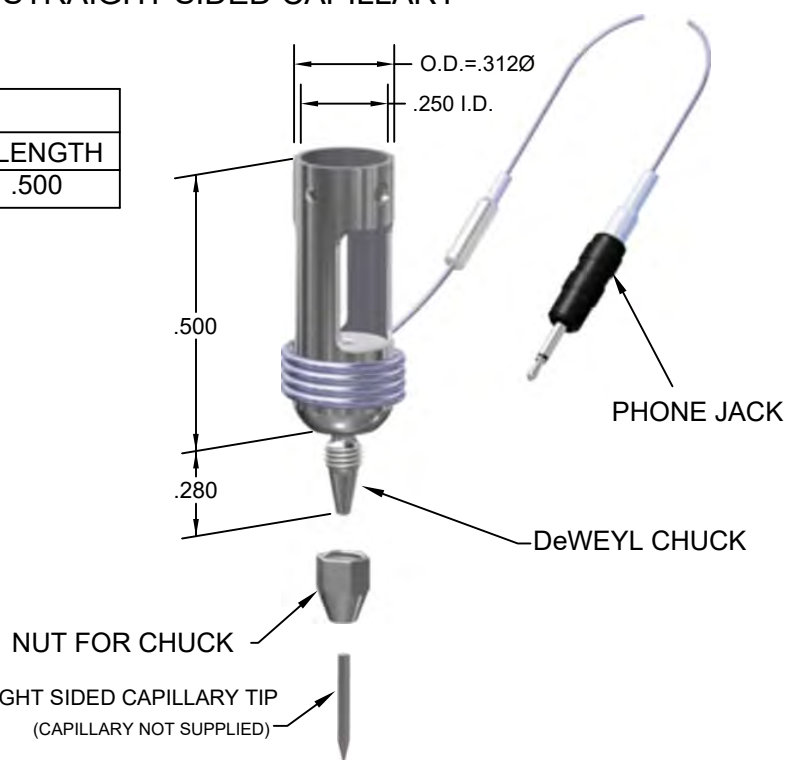


# HEATED CAPILLARY HOLDER

FOR USE WITH A STRAIGHT SIDED CAPILLARY

OPTIONAL:

| SPECIFICATIONS |       |                 |          |
|----------------|-------|-----------------|----------|
| VOLTS          | WATTS | MAX.TEMPERATURE | L-LENGTH |
| 12V            | 15W   | 900° F          | .500     |



■ TOOL NO.-HCH-400

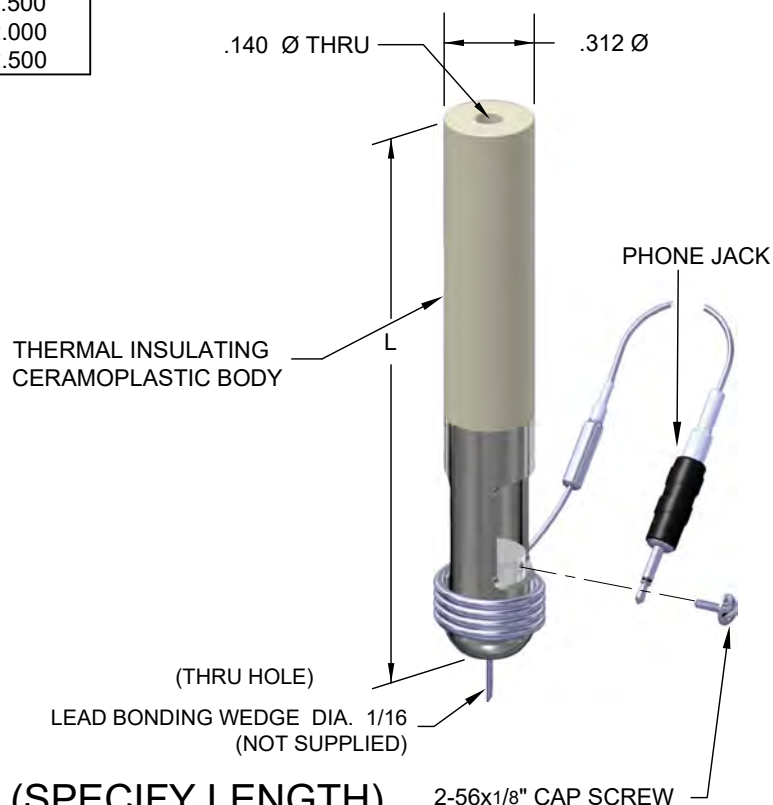


# HEATED WEDGE HOLDER

FOR USE WITH A LEAD BONDING WEDGE



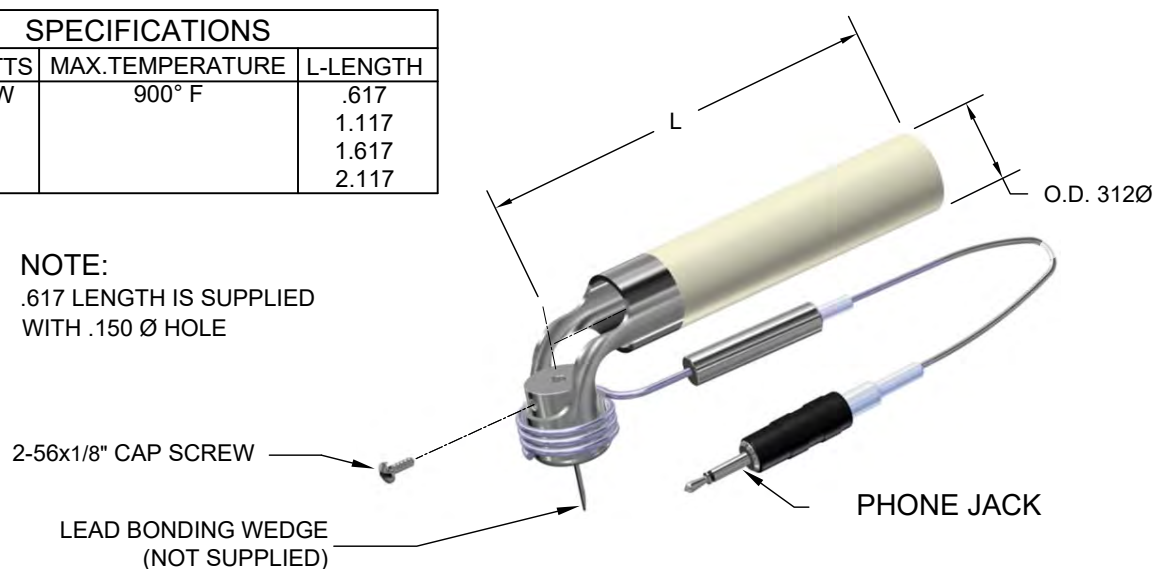
| SPECIFICATIONS |       |                  |                         |
|----------------|-------|------------------|-------------------------|
| VOLTS          | WATTS | MAX. TEMPERATURE | L-LENGTH                |
| 12V            | 15W   | 900° F           | 1.500<br>2.000<br>2.500 |



## ■ TOOL NO.-HWH-S (SPECIFY LENGTH)

| SPECIFICATIONS |       |                  |                                 |
|----------------|-------|------------------|---------------------------------|
| VOLTS          | WATTS | MAX. TEMPERATURE | L-LENGTH                        |
| 12V            | 15W   | 900° F           | .617<br>1.117<br>1.617<br>2.117 |

NOTE:  
.617 LENGTH IS SUPPLIED  
WITH .150 Ø HOLE



## ■ TOOL NO.-HWH-90- (SPECIFY LENGTH)

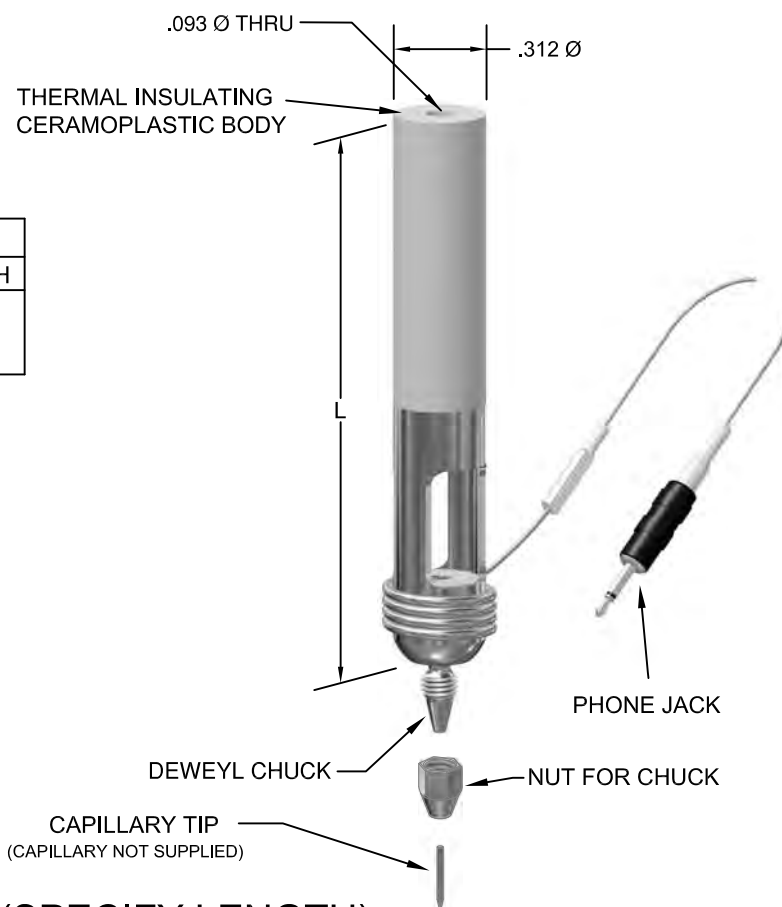


# HEATED CAPILLARY HOLDER

FOR USE WITH A STRAIGHT SIDED CAPILLARY



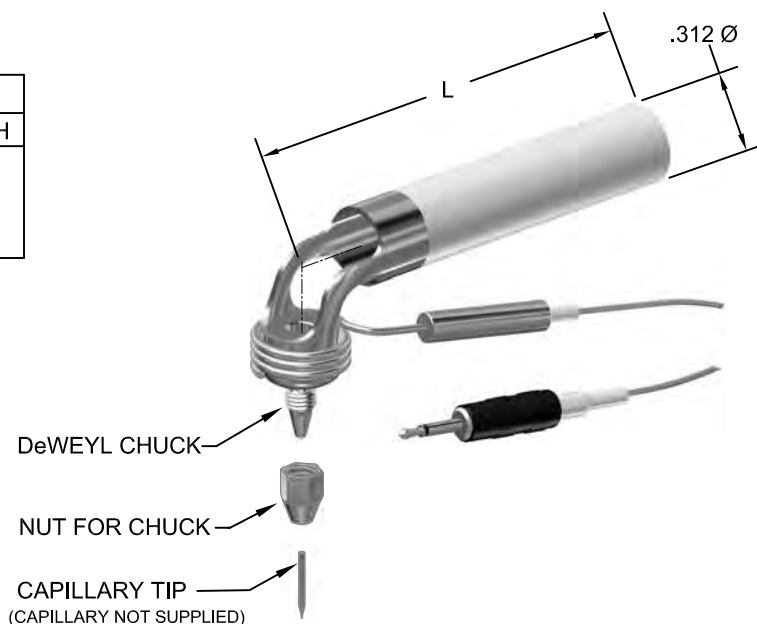
| SPECIFICATIONS |       |                  |                         |
|----------------|-------|------------------|-------------------------|
| VOLTS          | WATTS | MAX. TEMPERATURE | L-LENGTH                |
| 12V            | 15W   | 900° F           | 1.500<br>2.000<br>2.500 |



## ■ TOOL NO.-HCH-S (SPECIFY LENGTH)

| SPECIFICATIONS |       |                  |                                 |
|----------------|-------|------------------|---------------------------------|
| VOLTS          | WATTS | MAX. TEMPERATURE | L-LENGTH                        |
| 12V            | 15W   | 900° F           | .617<br>1.117<br>1.617<br>2.117 |

**NOTE:**  
.617 LENGTH IS SUPPLIED  
WITH .150 Ø HOLE



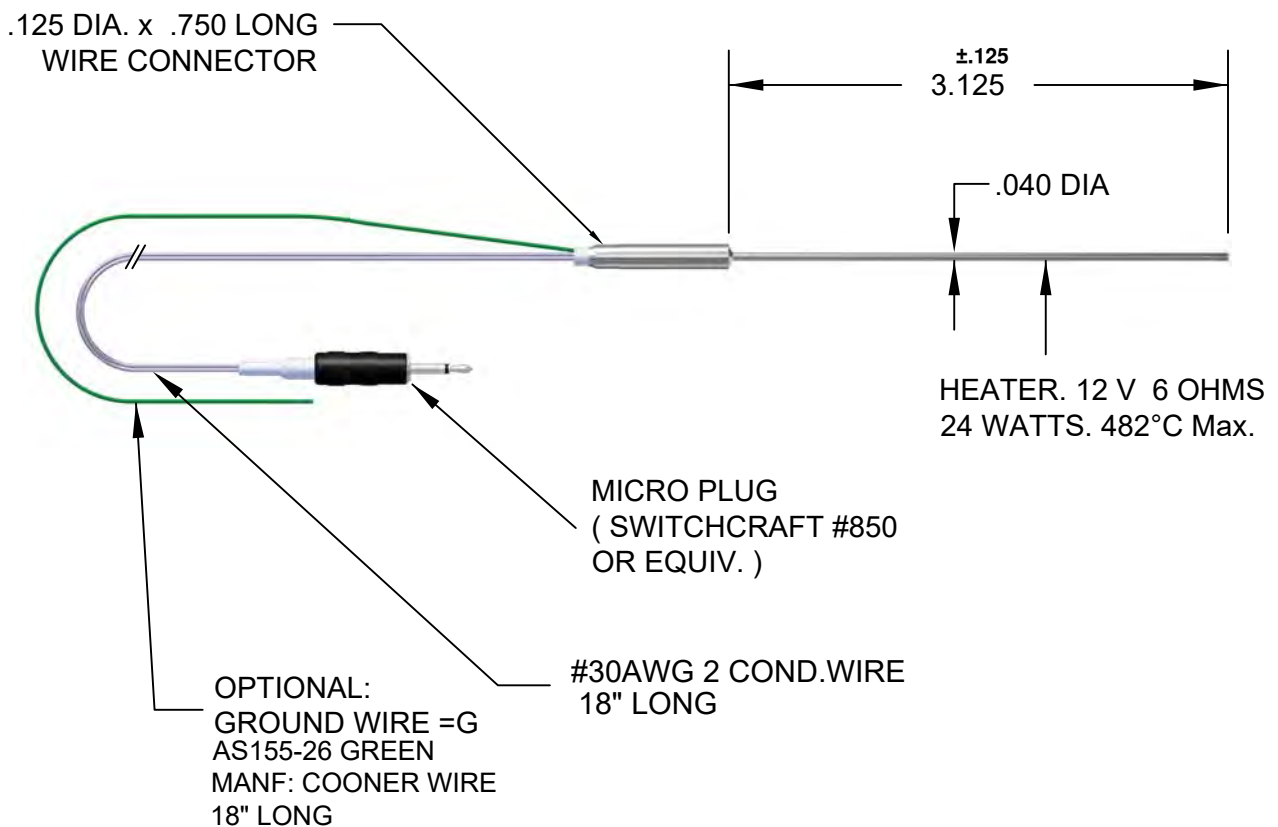
CAPILLARY TIP  
(CAPILLARY NOT SUPPLIED)

## ■ TOOL NO.-HCH-90 (SPECIFY LENGTH)

# DeWeyl Radiant Heater



| SPECIFICATIONS |       |                  |
|----------------|-------|------------------|
| VOLTS          | WATTS | MAX. TEMPERATURE |
| 12V            | 24W   | 482°C            |
|                |       | 900° F           |



■ TOOL NO.  
West Bond #A-3021  
(Optional add "G" for Ground Wire )  
Radiant Heater  
DeWeyl Tool Co.Inc.



## HEATER POWER SUPPLY 5.1

New improved electronics with a real-time digital voltage display.



### SPECIFICATIONS:

**Size:** W=8", H=5", D=6"  
**Input:** 100-240 VAC 50-60Hz 14 AMP  
**Output:** 4-14 VAC 60 Watt max  
**Fuse:** 2 AMP  
**Power Cord:** DeWeyl PN 50049 PS-3021 (US)  
DeWeyl PN 50049-E PS-3021-EU (European Plug)

ISO certified:





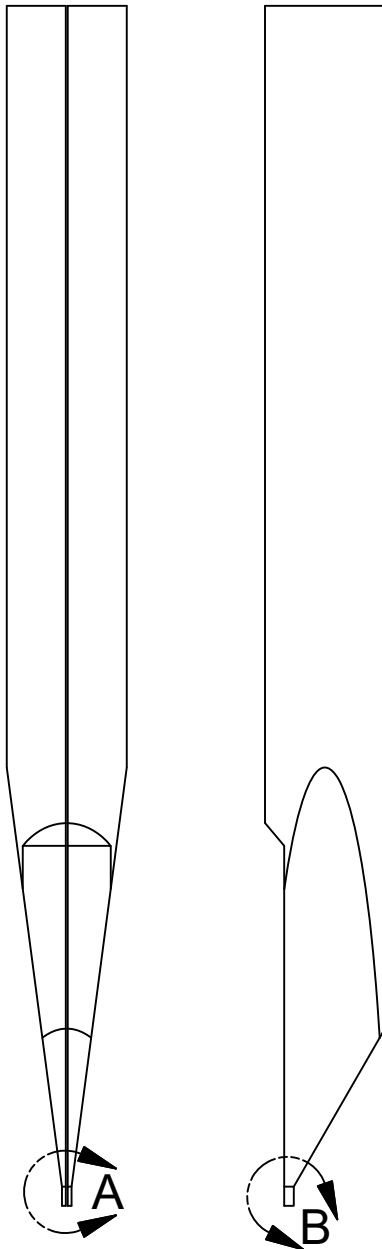
# RECLAIMING WORN TIPS

We rework Worn Tips

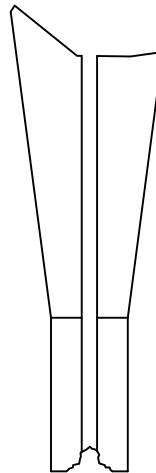
Tools as used on Unitek Welder



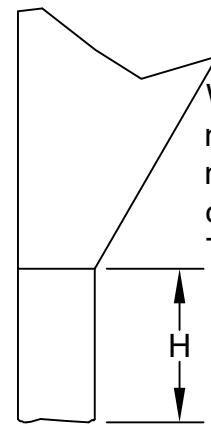
## Example Tool



## Before Rework



DETAIL A

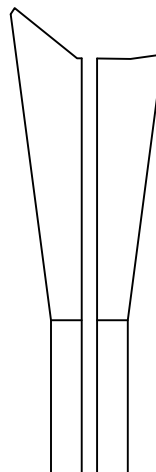


We need a minimum of .01 Tip Length

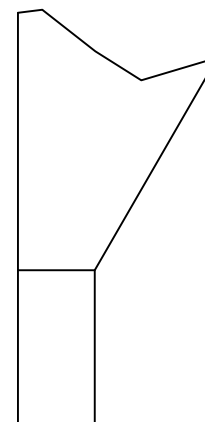
Reclaim Angle as Required  
H

DETAIL B

## After Rework



DETAIL A



DETAIL B



# TOOL OPTIONS

Page 129 till 134

| <u>Tool Option</u>                                                                                                          | <u>PAGE</u> |
|-----------------------------------------------------------------------------------------------------------------------------|-------------|
| Options: <b>A1</b> (W side Cut-off), <b>A2</b> (W Chamfer), <b>A3</b> (Special BS)                                          | 129         |
| Options: <b>A4</b> (Special FS), <b>A5</b> (Special FS & BS)                                                                | 129         |
| Options: <b>A6</b> (clearance back "C"), <b>A7</b> (Special Tool Length "T")                                                | 130         |
| Options: <b>A8D</b> (Deep Access App.), <b>A9</b> (Back Chamfer)                                                            | 130         |
| Options: <b>A10</b> (Double Flat), <b>A12</b> (Reverse Flat), <b>A13</b> Vertical Front or Back Chamfer, <b>A14</b> (no BS) | 131         |
| Options: <b>A15</b> (Tip Rotation), <b>A16</b> (no FS), <b>A17</b> Enhanced Clearance                                       | 132         |
| Options: <b>XPBR</b> (Extra Polished BR), <b>CBR</b> (Chamfered BR), <b>S1</b> (Wire Guide) for Double Flat                 | 133         |
| Options: <b>EL</b> (Hole Bore Elongation), <b>XCM</b> (Extra Coarse Matte Finish)                                           | 134         |
| Options: <b>VGC</b> (Chamfer on VG)                                                                                         | 134         |

## OPTIONS



Below are shown various problem situations that can occur during bonding operations and their solutions. When choosing an option, please note the corresponding option number (A1, A2, etc.) when completing the part number from the Ordering Information sections. **These option numbers should appear as the last item in the part number.**

| PROBLEM | SOLUTION | USE OPTION                                                                                                                                                                                            |
|---------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |          | <p><b>ATTENTION ON VERTICAL HOLES:</b><br/>ONLY IF W SMALLER THAN VERTICAL HOLE<br/>EXAMPLE ONLY: NOT FOR ALL CASES</p> <p>only for long H and if W smaller than V-Hole<br/>■ SPECIFY "H" &amp; W</p> |
|         |          | <p>■ SPECIFY "W"</p> <p>SIDE CHAMFER<br/>45°<br/>W<br/>(.0020 / .0025 MIN.)</p>                                                                                                                       |
|         |          | <p>BACK STEP</p> <p>■ SPECIFY "BS"</p> <p>TOOL A3<br/>BS</p>                                                                                                                                          |
|         |          | <p>FRONT STEP</p> <p>■ SPECIFY "FS"</p> <p>TOOL A4<br/>FS</p>                                                                                                                                         |
|         |          | <p>FRONT STEP</p> <p>BACK STEP</p> <p>■ SPECIFY "FS" &amp; "BS"</p> <p>TOOL A5<br/>FS<br/>BS</p>                                                                                                      |

## OPTIONS



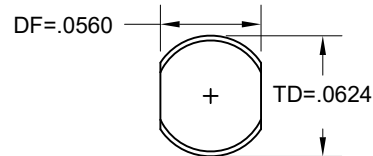
Below are shown various problem situations that can occur during bonding operations and their solutions. When choosing an option, please note the corresponding option number (A1, A2, etc.) when completing the part number from the Ordering Information sections. **These option numbers should appear as the last item in the part number.**

| PROBLEM | SOLUTION | USE OPTION                                                                                                                                                                                                                                                                                                                                                       |
|---------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |          | <p>For CS, CN, CL<br/>use<br/><b>C-SERIES</b></p> <p>■ SPECIFY "C"<br/>Use A6 for Series<br/>(KN, KNL, KS)<br/>with Front Angle</p> <p><b>A6</b><br/>or choose<br/><b>C-SERIES</b></p>                                                                                                                                                                           |
|         |          | <p>■ SPECIFY "T"</p> <p><b>A7</b></p>                                                                                                                                                                                                                                                                                                                            |
|         |          | <p><b>BACK STEP VERTICAL</b></p> <p><b>A8D</b></p> <p>DBS= .400<br/>STANDARD</p> <p>BSV= .035</p> <p>IF OTHER THAN STANDARD, SPECIFY "BSV" &amp; "DBS"<br/>MINIMUM "BSV" IS .035 in. (.89mm) FOR 45° HOLE<br/>AND BSV= .050 in. (1.27mm) FOR 52° HOLE.</p> <p><b>A8D OPTION, NOT SUITABLE<br/>FOR F &amp; K DELVOTEC AND<br/>HESSE MECHATRONICS MACHINES</b></p> |
|         |          | <p><b>BACK<br/>CHAMFER</b></p> <p>■ SPECIFY "C"<br/>AND ANGLE<br/>IF OTHER<br/>THAN<br/>STANDARD<br/>45°</p> <p><b>A9</b></p> <p>45°</p>                                                                                                                                                                                                                         |

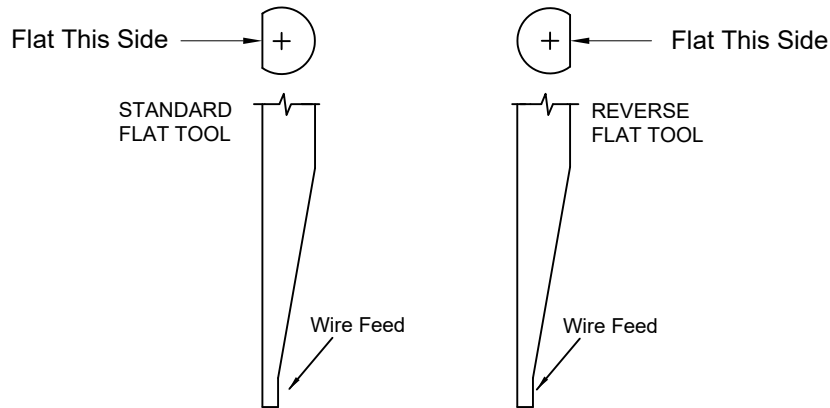
## OPTIONS



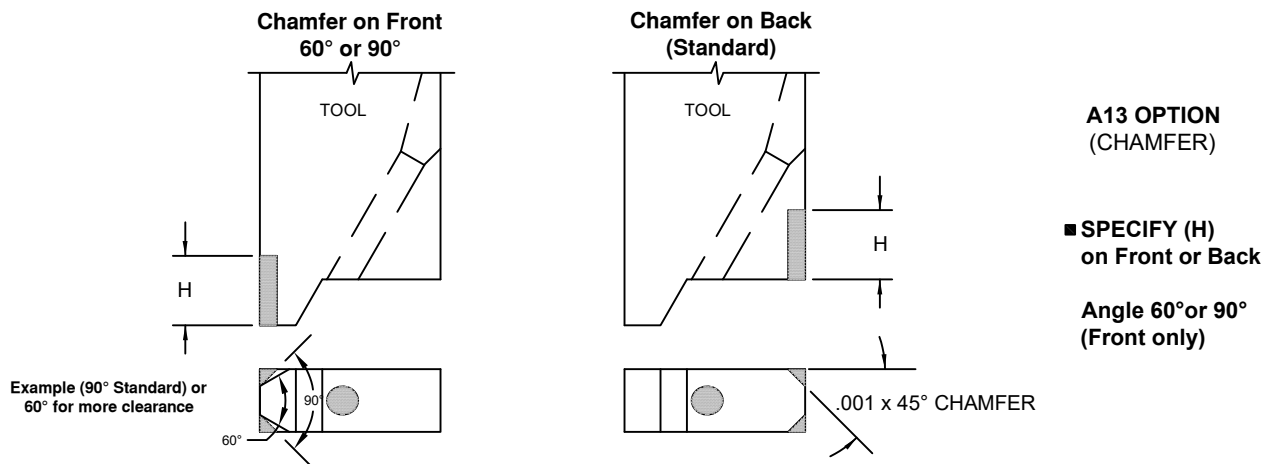
Below are shown various problem situations that can occur during bonding operations and their solutions. When choosing an option, please note the corresponding option number (A1, A2, etc.) when completing the part number from the Ordering Information sections. **These option numbers should appear as the last item in the part number.**



**A10 OPTION  
(DOUBLE FLAT)**



**A12 OPTION  
(REVERSE FLAT)**



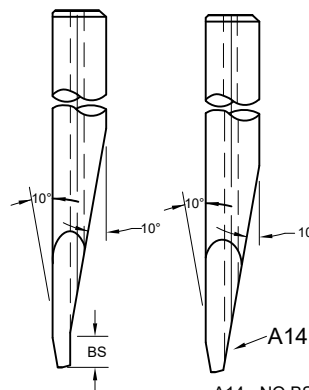
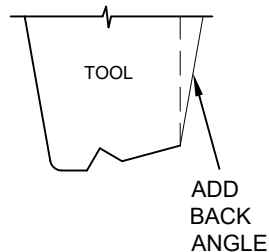
**A13 OPTION  
(CHAMFER)**

■ SPECIFY (H)  
on Front or Back

Angle 60° or 90°  
(Front only)

NO BACK STEP FOR TOOLS WITH VERTICAL HOLE

EXAMPLE  
USE FOR KS, KN, KNL, RKN, RKS  
SERIES



**A14 OPTION  
(NO BACK STEP)  
FOR VERTICAL  
HOLE**

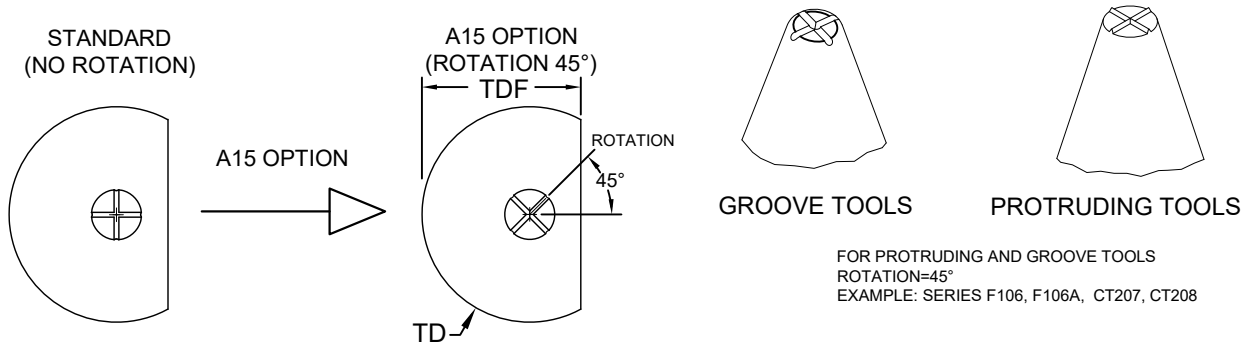
A14= NO BS  
FOR VERTICAL HOLES

## OPTIONS



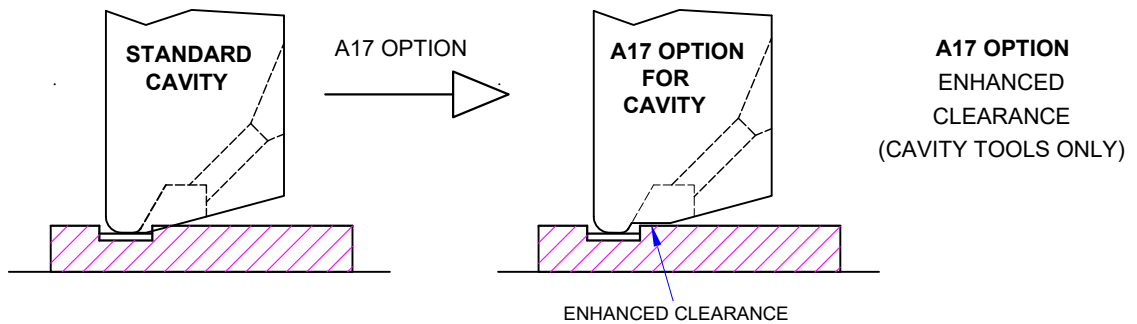
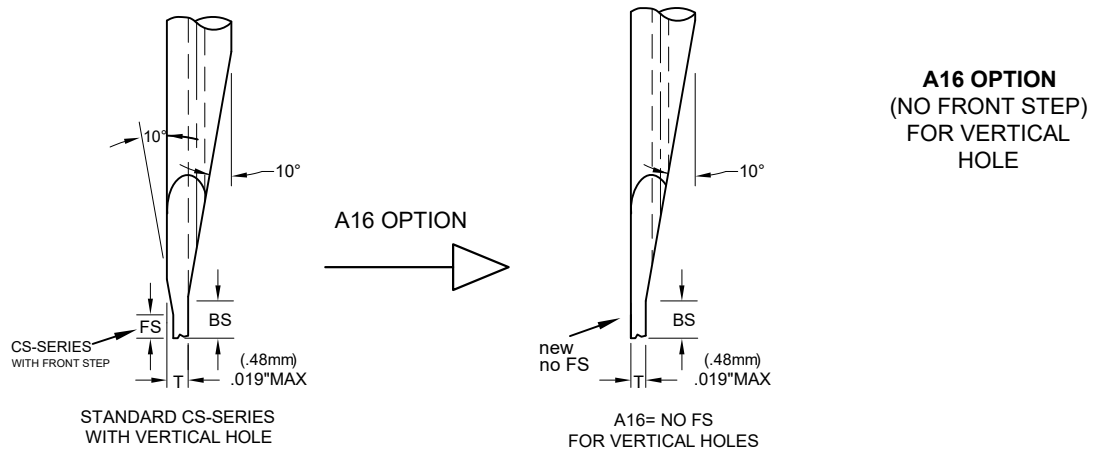
Below are shown various problem situations that can occur during bonding operations and their solutions. When choosing an option, please note the corresponding option number (A1, A2, etc.) when completing the part number from the Ordering Information sections. **These option numbers should appear as the last item in the part number.**

### A15 OPTION (ROTATION 45°)



### NO FRONT STEP FOR TOOLS WITH VERTICAL HOLE

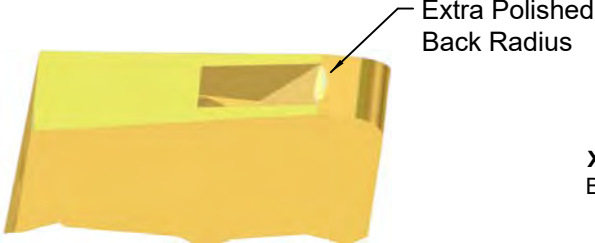
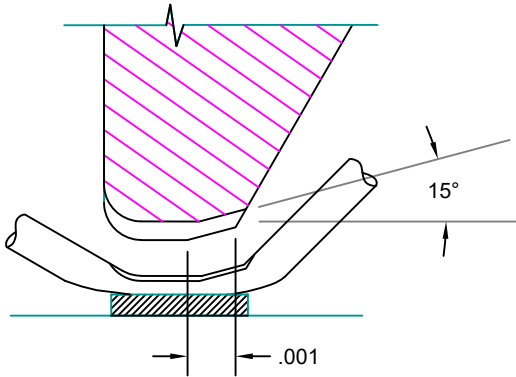
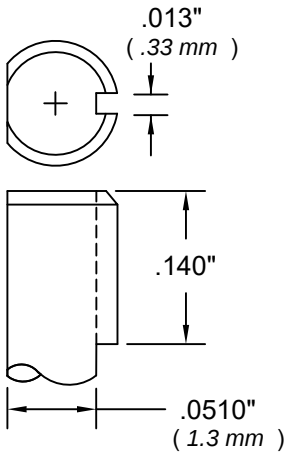
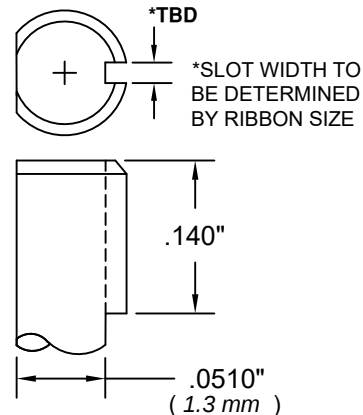
EXAMPLE CS-V SERIES



## OPTIONS



Below are shown various problem situations that can occur during bonding operations and their solutions. When choosing an option, please note the corresponding option number (A1, A2, etc.) when completing the part number from the Ordering Information sections. **These option numbers should appear as the last item in the part number.**

| PROBLEM           | SOLUTION                                                                                                                                          | USE<br>OPTION                                   |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Heel Cracks       |  <p>Extra Polished Back Radius<br/>(Elliptical Back Radius)</p> | <p><b>XPBR</b> = Extra Polished Back Radius</p> |
| Heel Cracks       |  <p>CHAMFERED BACK RADIUS</p>                                  | <p><b>CBR</b> = Chamfered Back Radius</p>       |
| FOR STANDARD WIRE |                                                                | <p><b>S1 OPTION</b></p>                         |
| FOR RIBBON WIRE   |                                                               |                                                 |

## OPTIONS



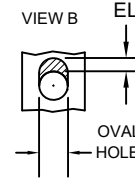
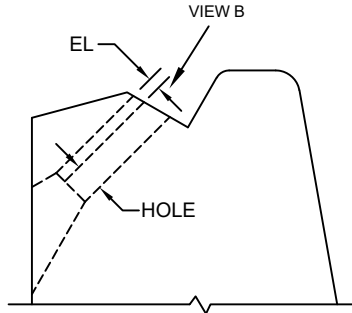
Below are shown various problem situations that can occur during bonding operations and their solutions. When choosing an option, please note the corresponding option number (A1, A2, etc.) when completing the part number from the Ordering Information sections. **These option numbers should appear as the last item in the part number.**

### PROBLEM

### SOLUTION

### USE OPTION

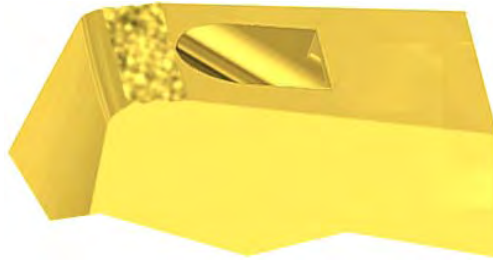
#### WIRE DRAGGING IN FEED



**EL=**  
HOLE BORE  
ELONGATION

| HOLE BORE ELONGATION |        |                          |                                |
|----------------------|--------|--------------------------|--------------------------------|
| STANDARD HOLE SIZE   | WIRE Ø | SUGGESTED HOLE Ø MINIMUM | SUGGESTED HOLE ELONGATION (EL) |
| 15                   | .0007  | .0013                    | .0004                          |
| 20                   | .0010  | .0017                    | .0006                          |
| 25                   | .0013  | .0022                    | .0006                          |
| 30                   | .0015  | .0025                    | .0010                          |
| 35                   | .0020  | .0030                    | .0010                          |

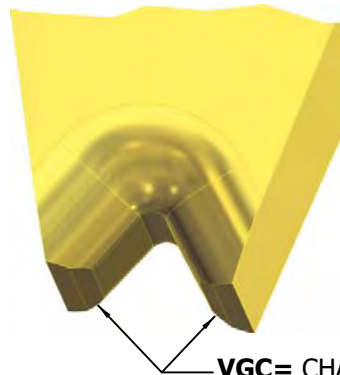
#### NO GRIP



**XCM=**  
EXTRA COARSE  
MATTE FINISH

XCM SURFACE ILLUSTRATION, REFERENCE ONLY

#### TOOL LIFE WIRE RESIDUE BUILDUP



**VGC=** CHAMFER  
ON VG  
INCREASE TOOL LIFE

**VGC=** CHAMFER ON VG



**959 Transport Way**  
**Petaluma, Ca. 94954 USA**  
Phone 800-821-8665 707-765-5779  
FAX 707-765-0327

### WEDGE APPLICATION QUESTIONNAIRE

The following questionnaire will assist DEWEYL Tool Co. in recommending the appropriate wedge for your specific application. We understand that the demands on your daily schedule may not allow time to interpret our catalog part numbering system. Thus we encourage you to take advantage of this form which will allow our applications staff to recommend the finest bonding wedge in the industry.

1. What wire size will you be bonding?

---

2. What wire material will you be bonding?

---

3. What is the smallest bonding pad size in your specific application?

---

4. Who manufactures your wire bonder?

---

5. What model number wire bonder are you utilizing with this application?

---

Please don't forget to include  
your name, address, phone,  
fax, and E-mail address.  
Thank you for considering  
DEWEYL Tool Co.

6. What length bonding wedge does your equipment manufacturer recommend?

---

7. To what angle wire feed is your wire bonder configured?

---

8. What type of product do you wire bond?

---

9. What special circumstances would you like considered when we select your wedge part number?

---

---

10. If your application is gold wire, then will you utilize the "thermoccompression" or the "thermosonic" bonding technology? (Circle one)

11. Is this for manual, semi-automatic, or automatic bonding? (Circle one)



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## **Tool Cleaning Process**

For Aluminum Wire Bonding Tools.

### **Materials Required:**

1. Tool Tray
2. Sodium Hydroxide
3. (3) 400 ml glass beakers.
4. Ultrasonic Cleaner
5. Distilled water
6. Isopropyl alcohol
7. Dry compressed air

**Step (1)** Load all tools in tool tray with point of tool up. Do not place tools in tray tip down or tool damage will occur. Mix cleaning solution using water and sodium hydroxide. Mix (5) five parts water to (1) one part sodium hydroxide.

**Step (2)** Place tool tray in 400ml beaker with enough Sodium Hydroxide cleaning solution to cover all tools completely. Place the beaker into the ultrasonic cleaner for approximately (3) three to (5) five minutes.

**Step (3)** Transfer tool tray from cleaning solution beaker to 400ml beaker of hot water. Place beaker in ultrasonic cleaner for (3) three to (5) five minutes. Repeat this procedure with fresh hot water.

**Step (4)** Complete the cleaning sequence with an alcohol rinse. Submerge the tool tray (2) two or (3) times in alcohol solution and then blow-dry with clean dry air. Warning-Do not use compressed air contaminated with moisture or oil.

**Note:** It's important to insure the tools are properly secured during the ultrasonic cleaning process. Damage will occur if the tools are not held properly during the ultrasonic cleaning.

### **For your convenience**

*We offer this information in support of our customers and to encourage them to maximize the life of our product. However, for your convenience we offer this cleaning service. You may contact our sales order desk to arrange for tool cleaning. Call 707-765-5779.*



**959 Transport Way**  
**Petaluma, Ca. 94954 USA**  
 Phone 800-821-8665 707-765-5779  
 FAX 707-765-0327

Date: \_\_\_\_\_

Company Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Buyer: \_\_\_\_\_ FAX: \_\_\_\_\_

**Ship To Address:**

**Bill To Address**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Purchase Order No.: \_\_\_\_\_ Requested Ship Date: \_\_\_\_\_

Ship Via: \_\_\_\_\_ Account No.: \_\_\_\_\_ Taxable / Resale

| QTY   | Item / Part Number               |  | Price:       | Total:   |
|-------|----------------------------------|--|--------------|----------|
| _____ | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 |  | \$ _____     | \$ _____ |
|       | Special Dimensions: _____        |  | Wire: Gold / | Aluminum |
| QTY   | Item / Part Number               |  | Price:       | Total:   |
| _____ | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 |  | \$ _____     | \$ _____ |
|       | Special Dimensions: _____        |  | Wire: Gold / | Aluminum |
| QTY   | Item / Part Number               |  | Price:       | Total:   |
| _____ | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 |  | \$ _____     | \$ _____ |
|       | Special Dimensions: _____        |  | Wire: Gold / | Aluminum |
| QTY   | Item / Part Number               |  | Price:       | Total:   |
| _____ | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 |  | \$ _____     | \$ _____ |
|       | Special Dimensions: _____        |  | Wire: Gold / | Aluminum |

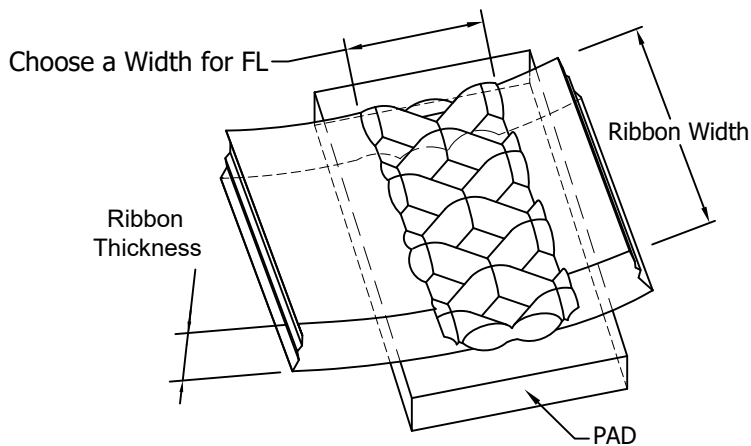
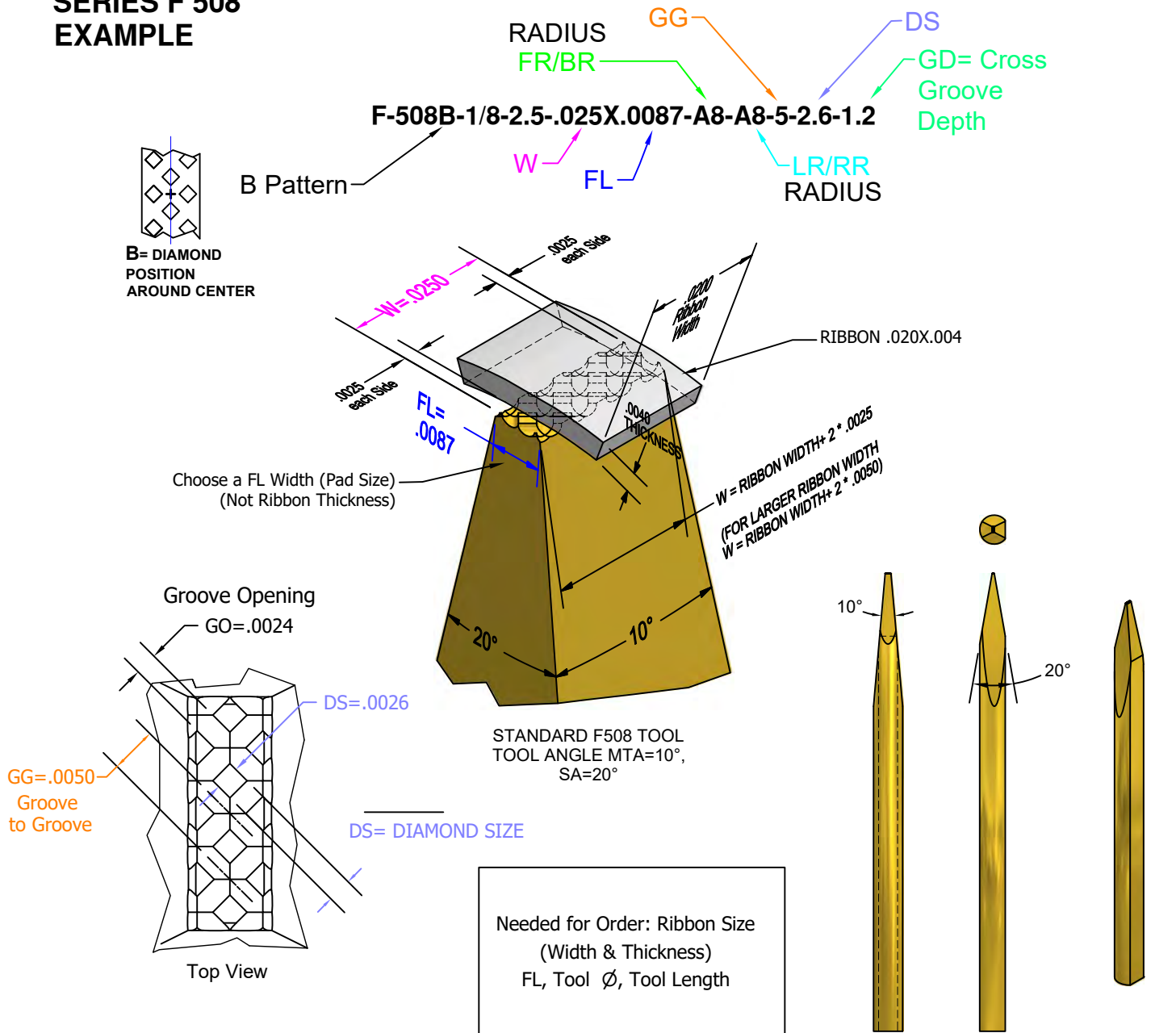
**NOTE:**

1. Confirming Purchase Order is required before production of tools will begin
2. Terms: Net 30 days from date of invoice
3. FOB: Petaluma, California USA

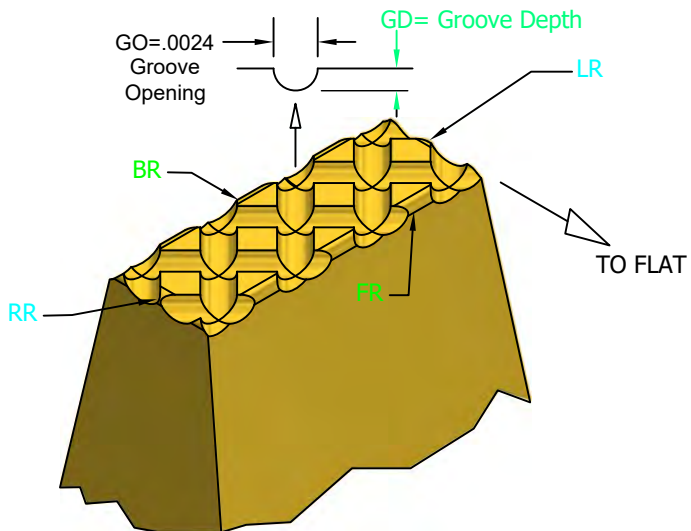
in order to improve product quality and design, we reserve the right to make design and specification changes without notice

## SERIES F 508

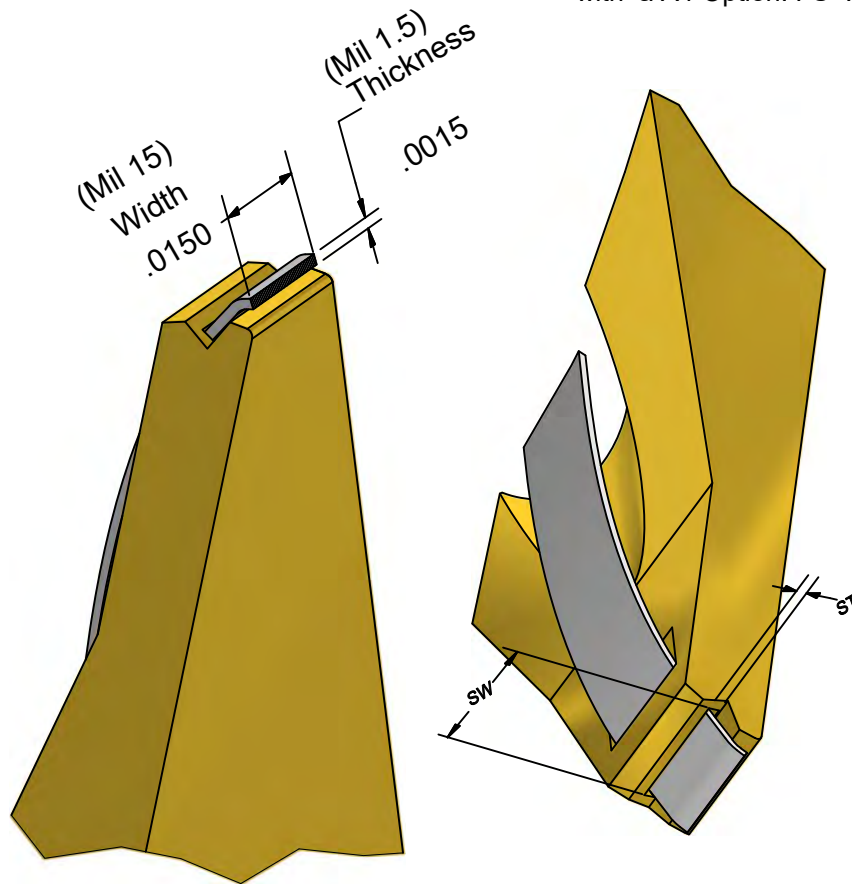
### EXAMPLE



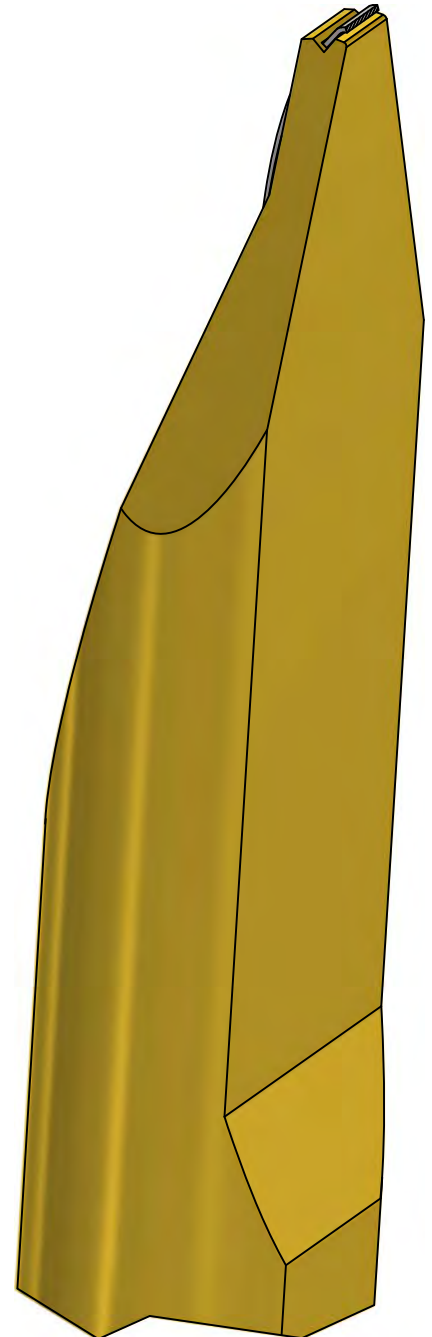
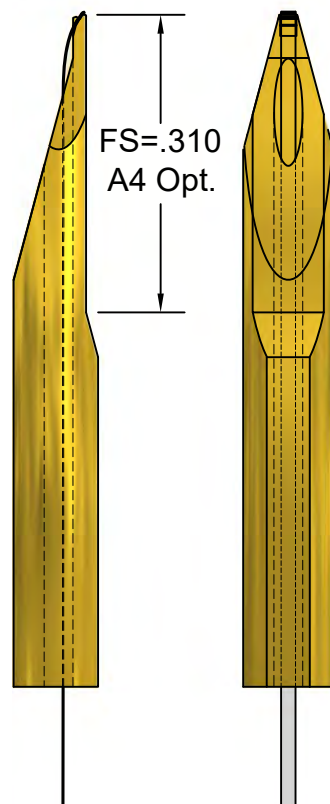
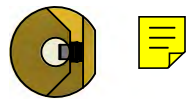
### RIBBON WIRE ILLUSTRATION AFTER BONDING WITH A F508 TOOL



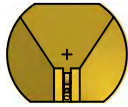
**Example:** MRCSVC-3/32-700-60-CG-1.5X15-3-M-A4  
with a A4 Option. FS=.310



ST= Slot Thickness  
SW=Slot Width  
Ribbon Size =1.5X15 =.0015X.015



## Example: A1&A2 OPTION

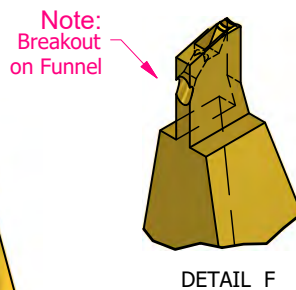
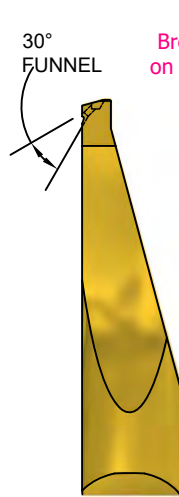
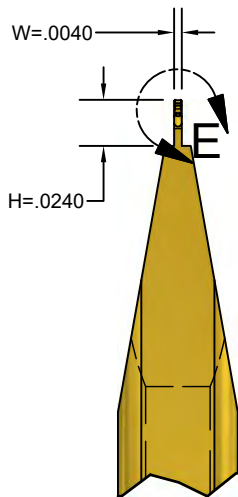


EXAMPLE:  
with a small W  
on A1  
and A2 Option

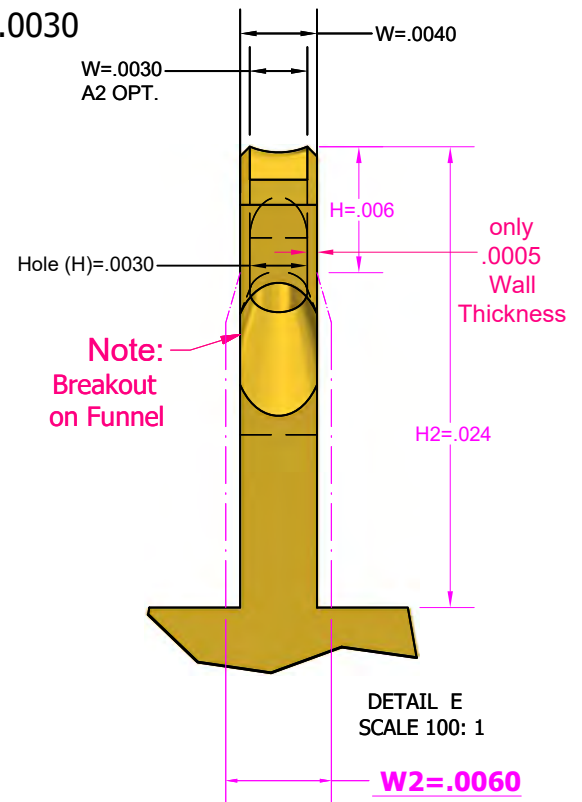
TCLHE-1/16-1"-45-C-3025-MP-A1-A2

A1=H.024 W=.0040 A2=W=.0030

Standard Funnel for this  
tool is 45°, but still  
breakouts after a change  
to 30° Funnel



DETAIL F

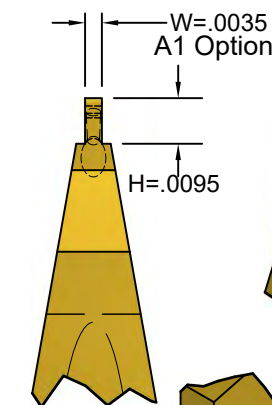
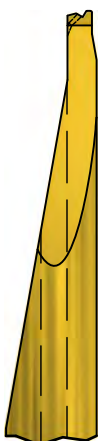


DETAIL E  
SCALE 100: 1

**Solution add**

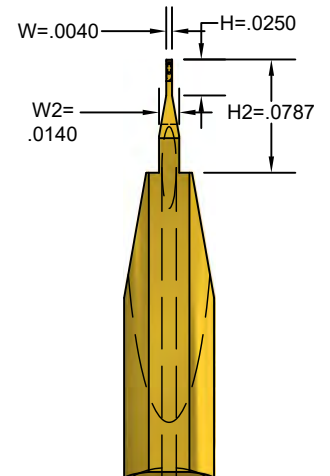
**A1=H=.006 W=.004 H2=.024 W2=.006**  
**see Example below**

Example: with a small W on A1  
MCSV D-1/16-750-45-C-2530-MP-A1



DETAIL M

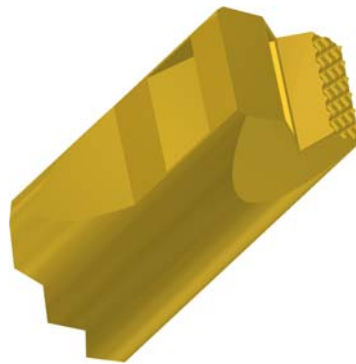
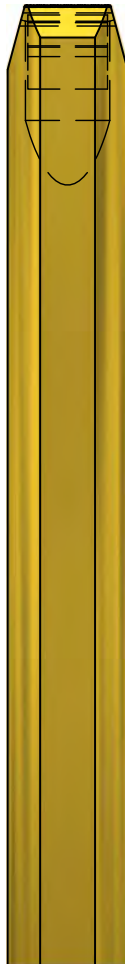
Beware  
breakout  
with H=.0095



### Example:

Diamond Tip=DT  
preferably for large Tools  
Minimum of Groove  
Radius=.00025  
Groove to Groove=.0015

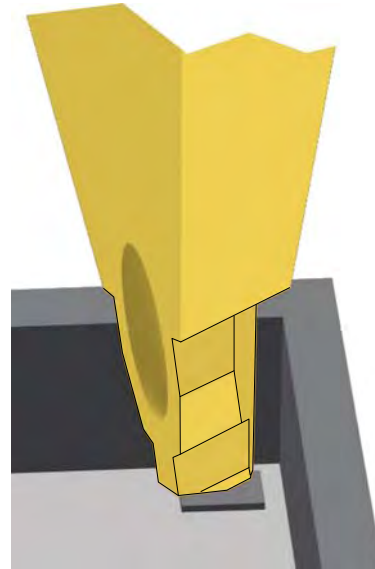
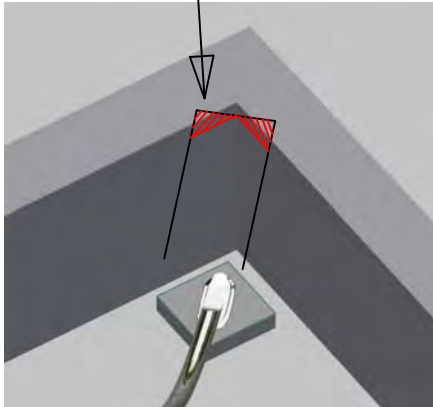
MRKSOD-1/8-2"-45-DT-12X79-22.5-M



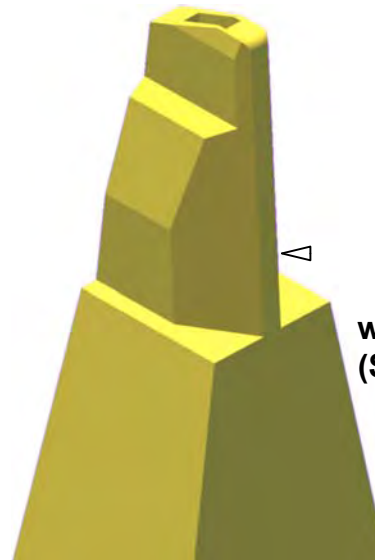
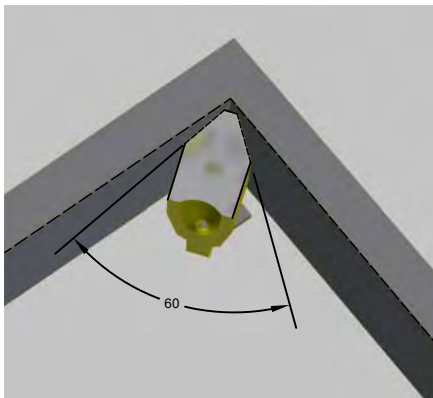
## Example: A13 Option on Front

ALOE-1/16-750-60-C-2025-A1-A7-A13

Problem  
no clearance

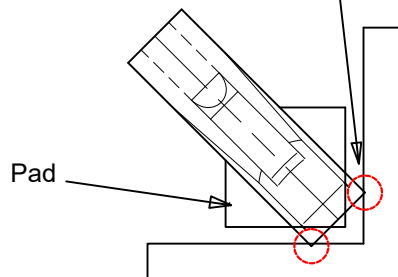


Solution

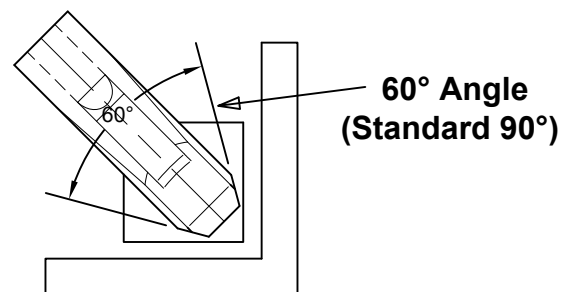


**A13 Option  
on Front  
with 60° Angle  
(Standard 90°)**

Problem  
no clearance



Solution



## Example: Vacuum Pick-up Tools SC

Choose Series: CC, FT, IC, IP, SC or P, for this Example Insert a **SC** Series in Place 2.

Example Part # C-**SC**-2-1/16-1"-90-**036-041-004**-\*

Insert Material in Place 1.  
C=Tungsten Carbide

See below  
Tip Style "2"

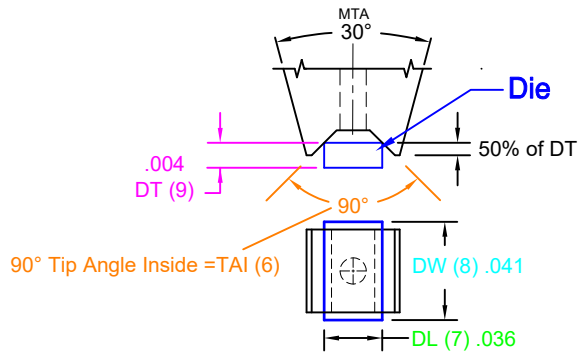
Diameter 1/16  
(Ø.0624)  
Tool Length 1" inch

TAI (6) DL (7) DW (8) DT (9)  
**Die Size**  
.036-.041-.004

Tool Option  
Like D, H, H1, H2  
PD, SL, MTA  
P= Polished Tip (Top only)

CC= Concave Channel  
FT= Flat Tip Rectangular  
IP= Inverted Pyramid  
SC= Straight Sided Channel  
P= Pocket

**SC Series**



Choose Tip Style "1" or "2" or "3" insert "SC-2" for this Example

Insert a **2** in Place 3. Tip Style

Example Part # C-SC-**2**-1/16-1"-90-036-041-004

Tip Style **1** large Tool



Tip Style **1** small Tool



Illustrated  
Tool  
SC-1

Tip Style **2** large Tool



Tip Style **2** small Tool



Illustrated  
Tool  
SC-2

Tip Style **3** large Tool



Tip Style **3** small Tool



Illustrated  
Tool  
SC-3