Tool specification aluminum wire wedge bonding

In order of ordering specification

➔ Use aluminum wire with a maximum elongation lower than 3%.
➔ Use gold wire tools for aluminum wire with an elongation larger than 5%.

Material:	C (= Tungsten carbide)
Tip styles:	CS (for manual bonders) CL (for automatic bonders)
Wire feed:	O for standard feed angle V for vertical feed (deep access)
Front/Back radius:	See table below
Shank diameter:	Depends on bonder (1/16”, 5/64”, 3/32”)
Tool length:	Depends on bonder for standard feed angle Depends on application for vertical feed (check allowed length’s for your machine and transducer) (S (=.437”), .500”, .625”, .750”, L (=.828”), 1.00”)
Hole angle:	Standard feed depends on bonder (30º, 38º, 45º, 55º, 60º) Vertical feed with option A8D (45º and 52º) Vertical feed without option A8D (45º and 52º)
Foot type: Tool size:	C = Concave (to improve the heel strength) See table below “Preferred tool sizes aluminum wire”
Foot finish:	MP = Matte finish of bond flat and polished front and back radii
Options:	For vertical feed always use the A8D option (see example on the next page) All other options are application dependant (contact us for advice)

Preferred tool sizes aluminum wire

Wire Diameter	Radius option	Tool size
13 – 15 µm	B	1213
16 – 19 µm	E	1515
20 – 23 µm	E	2020
24 – 25 µm	E	2025
26 – 30 µm	E	2525
31 – 35 µm	H	2530
36 – 40 µm	H	3035
41 – 45 µm	H	3040
46 – 50 µm	H	3545
51 – 55 µm	H	3550

When using different tools?

There may be good reasons to choose different tools than recommended in this sheet.

Sometimes, these different tools will bond equally well as the recommended tools. For example, if your machine requires a slightly different tool style.

However, in other occasions you may have good reasons to select tools that lead to narrowed process windows. For example, if the recommended tool is too large for your bond pads.

If you wish to bond very soft aluminum wire, with elongation 5% or more, you should use gold wire tools. This reduces the pull strength, but prevents tailing.

Never hesitate to contact us for additional advice.

Example for 25-µm aluminum wire, standard feed: C-CS-O-E-1/16-.750-45-C-2025-MP

Geraniumlaan 4
NL-5583 GD Waalre
Netherlands

VAT : NL001361950B25
Chamber of Commerce: 17147131
IBAN: NL18ABNA0591876485

www.micronnect.eu
Tel.: +31-40-2940265
info@micronnect.eu

Tool specification gold wire wedge bonding

In order of ordering specification

➔ Always use gold wire with an elongation tolerance equal to, or smaller than 0.5 to 3%

Material:	M (= Ceramic). T (=Titanium) is equally good for thermo-compression bonding only
Tip styles:	CS (for manual bonders) CL (for automatic bonders)
Wire feed:	O for standard feed angle, V for vertical feed (deep access)
Front/Back radius:	See tables below for thick and thin film
Shank diameter:	Depends on bonder (standard dimensions are: 1/16”, 5/64”)
Tool length:	Depends on bonder for standard feed angle, Depends on application for vertical feed (S (=.437”), .500”, .625”, .750”, L (=.828”), 1.00”)
Hole angle:	Standard feed depends on bonder (30º, 38º, 45º, 55º, 60º) Vertical feed with option A8D (45º and 52º)
Foot type:	See “Table gold wire wedge bonding” (F = Flat Face, CG = Cross Groove, for better grip of the tool on the wire)
Tool size:	See “Table gold wire wedge bonding”
Foot finish:	M (= Matte finish)
Options:	For vertical feed always use the A8D option (not for machines that clamp the wire against the tool). All other options are application dependant (contact us for advice)

Preferred tool sizes gold wire

Wire Diameter	Radius option	Tool size	Foot type	
			Thick film	Thin film
13 – 15 µm	B	1213	F	F
16 – 19 µm	D	1515	F	F
20 – 23 µm	D	2020	CG	F
24 – 25 µm	D	2025	CG	F
26 – 30 µm	D	2525	CG	F
31 – 35 µm	D	2530	CG	F
36 – 40 µm	D	3035	CG	F
41 – 45 µm	G	3040	CG	F
46 – 50 µm	G	3545	CG	F
51 – 55 µm	G	3550	CG	F

Example for 30-µm gold wire, vertical feed: M-CS-V-D-1/16-.750-45-CG-2525-M-A8D

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info@micronnect.eu