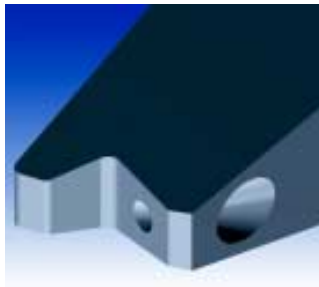
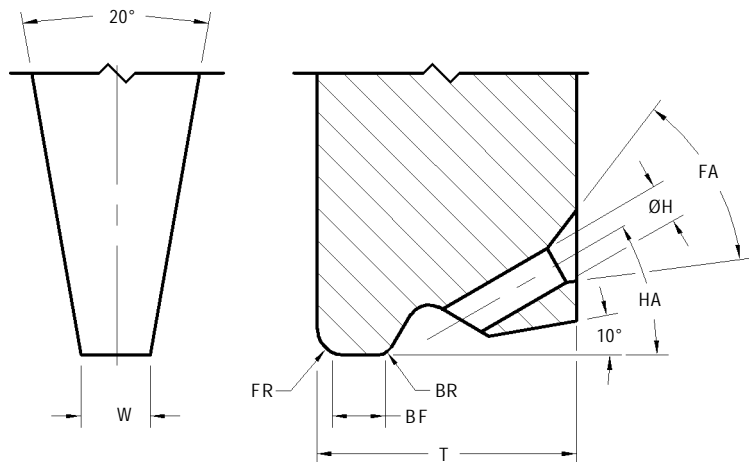


M SERIES - MICROWAVE BONDING TOOLS

Microwave devices commonly have bonding pads as small as .001"/25µm square. They are typically bonded with .0005"/13µm to .001"/25µm diameter gold wires. Microwave devices have some special requirements that are not seen in monolithic devices special requirements include the variety of chips within the package, step heights within the products that require deep access requirements, as well as critical loop shapes for tuning of the device. We have developed a range of tools to meet the small foot print, and critical loop requirements.



M30	HA = 30°, FA = 45°
M38	HA = 38°, FA = 45°
M45	HA = 45°, FA = 45°
M55	HA = 55°, FA = 30°
M60	HA = 60°, FA = 30°



STANDARD DIMENSIONS

Tool Styles	Hole Bond Flat	Hole H in / µm ±.0002/5	Bond Flat BF in / µm ±.0001/3	Front Radius FR in / µm ±.0001/3	Back Radius BR in / µm ±.0001/3	Foot Width W in / µm ±.0002/5	Tip Thickness T 30° in / µm ±.0005/13	Tip Thickness T 45° in / µm ±.0005/13	Tip Thickness T 55°/60° in / µm ±.0005/13	Useable Wire Diameter in / µm
M30A	1005	.0010 / 25	.0005 / 13	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	.0005 / 13 through .0010 / 25
	1007	.0010 / 25	.0007 / 18	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	1010	.0010 / 25	.0010 / 25	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	1505	.0015 / 38	.0005 / 13	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
M38A	1507	.0015 / 38	.0007 / 18	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	1510	.0015 / 38	.0010 / 25	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	1513	.0015 / 38	.0013 / 33	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
M45A	1515	.0015 / 38	.0015 / 38	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	1520	.0015 / 38	.0020 / 51	.0010 / 25	.0006 / 15	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	M55A	2005	.0200 / 51	.0005 / 13	.0010 / 25	.0006 / 15	.0040 / 102	.0100 / 254	.0080 / 203	
2007		.0200 / 51	.0007 / 18	.0010 / 25	.0006 / 15	.0040 / 102	.0100 / 254	.0080 / 203	.0080 / 203	
2010		.0200 / 51	.0010 / 25	.0010 / 25	.0006 / 15	.0040 / 102	.0100 / 254	.0080 / 203	.0080 / 203	
M60A	2013	.0200 / 51	.0013 / 33	.0010 / 25	.0006 / 15	.0040 / 102	.0120 / 305	.0100 / 254	.0090 / 229	
	2015	.0200 / 51	.0015 / 38	.0010 / 25	.0006 / 15	.0040 / 102	.0120 / 305	.0100 / 254	.0090 / 229	
	2020	.0200 / 51	.0020 / 51	.0010 / 25	.0006 / 15	.0040 / 102	.0120 / 305	.0100 / 254	.0090 / 229	
	M30B	1005	.0010 / 25	.0005 / 13	.0004 / 10	.0004 / 10	.0030 / 76	.0080 / 203	.0080 / 203	
1007		.0010 / 25	.0007 / 18	.0004 / 10	.0004 / 10	.0030 / 76	.0080 / 203	.0080 / 203	.0080 / 203	
1010		.0010 / 25	.0010 / 25	.0004 / 10	.0004 / 10	.0030 / 76	.0080 / 203	.0080 / 203	.0080 / 203	
1505		.0015 / 38	.0005 / 13	.0004 / 10	.0004 / 10	.0030 / 76	.0080 / 203	.0080 / 203	.0080 / 203	
M38B	1507	.0015 / 38	.0007 / 18	.0004 / 10	.0004 / 10	.0030 / 76	.0080 / 203	.0080 / 203	.0080 / 203	
	1510	.0015 / 38	.0010 / 25	.0004 / 10	.0004 / 10	.0030 / 76	.0080 / 203	.0080 / 203	.0080 / 203	
	1513	.0015 / 38	.0013 / 33	.0004 / 10	.0004 / 10	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
M45B	1515	.0015 / 38	.0015 / 38	.0004 / 10	.0004 / 10	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	1520	.0015 / 38	.0020 / 51	.0004 / 10	.0004 / 10	.0030 / 76	.0100 / 254	.0080 / 203	.0080 / 203	
	M55B	2005	.0020 / 51	.0005 / 13	.0004 / 10	.0004 / 10	.0040 / 102	.0100 / 254	.0080 / 203	.0080 / 203
2007		.0020 / 51	.0007 / 18	.0004 / 10	.0004 / 10	.0040 / 102	.0100 / 254	.0080 / 203	.0080 / 203	
2010		.0020 / 51	.0010 / 25	.0004 / 10	.0004 / 10	.0040 / 102	.0100 / 254	.0080 / 203	.0080 / 203	
M60B	2013	.0020 / 51	.0013 / 33	.0004 / 10	.0004 / 10	.0040 / 102	.0120 / 305	.0080 / 203	.0080 / 203	
	2015	.0020 / 51	.0015 / 38	.0004 / 10	.0004 / 10	.0040 / 102	.0120 / 305	.0080 / 203	.0080 / 203	
	2020	.0020 / 51	.0020 / 51	.0004 / 10	.0004 / 10	.0040 / 102	.0120 / 305	.0080 / 203	.0080 / 203	

"W dimension .002 to .0025 only for hole size .001 to .0015 "

Refer to page 17 for "How To Order"

MICROWAVE BONDING TOOLS - GENERAL GUIDELINES ON HOW TO ORDER

STYLE		FEED ANGLE
M = MICROWAVE	SLIMLINE BACK	30°, 38°, 45°, 55°, 60°

MATERIAL	HOLE / BOND FLAT	TOOL LENGTH (TL)
C Cermet composite for Gold Wire (recommended for Low Temperature bonding)	Will rely on specific application requirements (wire diameter used, bond pad size) – see dimension Table * For Oval Hole options please specify HH (Hole Height) & HW (Hole Width)	S = .437 / 11.1 mm
TI Titanium Carbide Composite for Gold Wire		¾ = .750 / 19.05 mm
W Tungsten Carbide Ultra Fine Grain for Aluminum Wire		L = .828 / 21.0 mm 1.00 = 1.00 / 25.4 mm Longer lengths are available consult Bonder manufacturer for specifications.

FOOT OPTIONS	
FM	Flat foot design FR, BR and BF are matte (for Gold Wire)
CGM	The FR and BR and BF are matte. Not recommended for BF smaller than .0020"/50µm

HOW TO ORDER	
SPECIFY	Style – Material – Hole/Bond Flat – Tool Length – Foot Option (For modifications to standard tools, use part number and specify modified dimensions) or contact our technical support staff for assistance with your requirements. For Special Shank Style refer to page 61.
EXAMPLE	M30A –TI –1507 –L - FM M45B –TI –2020 –L - FM M55A –TI –1513 –L – FM