

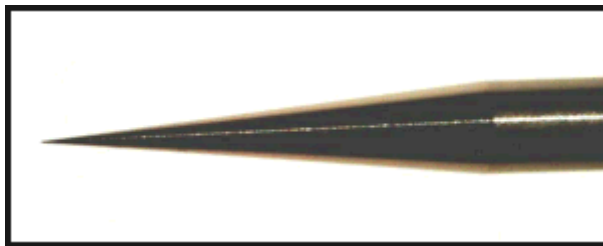
Probe Needles - Punch Needles for Probe Card - Probe Testing

The wafer probe card is typically comprised of a printed circuit board with a set of precision-assembled probe needles. The probe needles are the tiny pins with sharp tips that contact the bond pads, or the signal terminals, on the IC chip during the testing. The probe needles are usually made of high-performance metals like tungsten with very good electrical conductivity and strong mechanical properties. The spacing between adjacent probe needles can be as tight as 20-30 microns, less than half the width of a human hair which is around 80 microns. There can be as many as a few thousand probe needles in the space of a few square centimeters on a probe card. Probe cards, are considered 'consumables' as they have to be replaced or refurbished after a finite period. The usable life of a probe is determined by the number of 'touch downs' which is the number of times the needles of the probe card comes into contact with the chips on the wafer. Typically, probe cards last between a few hundred thousand to as many as a million touch downs.

Probe Needles are available from Professional Plastics is a full range of materials & sizes.

These needles are produced to the highest quality available in the marketplace. Needles are produced using a special, proprietary machining technique used to grind needles of superior accuracy and consistency. This machine grinding creates smooth, straight surfaces (unlike chemical etching which can result in pits and concave/convex surfaces). Materials include Tungsten Carbide (WC), Beryllium Copper (BeCu), or Tool Steel.

- Tungsten Carbide and flat tip recommended for punching applications
- Hard materials only -- soft materials such as plain Tungsten are not available



315-223 Probe Needle (0.00025 inch radius Tip)

Standard Specifications									
MATERIAL		DIAMETER D		TIP ANGLE A		TIP RADIUS R [4]		LENGTH L	
TYPE	P/N	MIL	P/N	DEG	P/N	MIL	P/N	INCH	P/N
Tungsten Carbide (WC)	31	13.0	0-	5 [1]	0	0.20	1	0.500	1
		15.0	1-	8	1	0.25	2	0.625	2
Beryllium Copper (BeCu) [2]	33	20.0	2-	10	2	0.50	3	0.750	3
		25.0	3-	15	3	0.75	4	0.875	4
Tool Steel	35	27.5	4-	18	4	1.00	5	1.000	5
		28.0	5-	20	5	2.50	6	1.250	6
Customer Supplied [3]	39	31.0	6-	25	6	5.00	7	1.500	7
				30	7	7.50	8	1.750	8
						10.0	9	2.000	9
Tolerances >>		+/- 0.2		+/-1		+/- 0.1		+/- 0.031	

ORDERING INFORMATION

NOTES:

- [1] ONLY Tungsten Carbide may include this specification. All other materials CANNOT include this specification.
- [2] Minimum diameter for Beryllium Copper is .020. Material has been spring-temper hardened.
- [3] Customer Supplied material must be hard enough to allow grinding. Material must be supplied with correct diameter specifications. Extra material will be required to accomodate failure rate.
- [4] Standard tips are spherical. For FLAT TIP, specify "-1" at end of part number (e.g. 312-345 becomes 312-345-1).

MINIMUM ORDER (per unique specification): 50 pcs.

EXAMPLE SPECIFICATION:

P/N 312-345 =

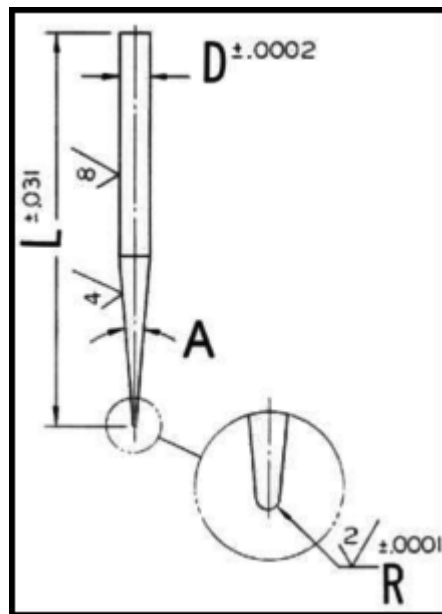
Tungsten Carbide
20.0 milli-inch diameter
15 degree tip angle
0.75 milli-inch tip radius
1.000 inch length

Options:

- 1) D= Shank Diameter
- 2) A= Tip Angle
- 3) R= Tip Radius
- 4) L= Overall Length

Tolerances:

Diameter +/-0.2 mil (5.1 um)
Angle +/-1 deg
Radius +/-0.1 mil (2.5 um)
Length +/-0.031 inch (0.8 mm)



PROFESSIONAL PLASTICS, INC. - USA

Phone (888) 995-7767 or

E-Mail: sales@proplas.com

Order Online at www.professionalplastics.com

PROFESSIONAL PLASTICS PTE LTD. – Singapore

Phone + 65-6266-6193

E-Mail: asia-sales@proplas.com

**15 Locations Worldwide
Serving the Probe Test Industry since 1984'**

List of commonly available sizes (partial list only)

All items are precision ground tungsten carbide (WC) with spherical tips, unless specified differently.

Product Name+

#003-1 - Micro Punch / Probe Needle D=.028 A=8 R=.001 L=0.50
#003-2 - Micro Punch / Probe Needle D=.028 A=8 R=.001 L=0.50
#013-1 - Micro Punch / Probe Needle D=.020 A=10 R=.00035 L=0.575
#013-2 - Micro Punch / Probe Needle D=.020 A=10 R=.00035 L=0.575
#014-3 - Micro Punch / Probe Needle D=.020 A=10 R=.0005 L=0.60
#015-1 - Micro Punch / Probe Needle D=.020 A=10 R=.00035 L=0.60
#017-1 - Micro Punch / Probe Needle D=.030 A=10 R=.00075 L=0.75
#017-2 - Micro Punch / Probe Needle D=.030 A=10 R=.00075 L=0.75
#018-1 - Micro Punch / Probe Needle D=.030 A=10 R=.00075 L=0.75
#018-2 - Micro Punch / Probe Needle D=.030 A=10 R=.00075 L=0.75
#025 - Micro Punch / Probe Needle D=.028 A=40 R=.005 L=0.625
#026 - Micro Punch / Probe Needle D=.028 A=40 R=.0025 L=0.60
#028 - Micro Punch / Probe Needle D=.025 A=10 R=.00025 L=0.45
#030-1 - Micro Punch / Probe Needle D=.030 A=20 R=.0005 L=0.75
#030-2 - Micro Punch / Probe Needle D=.030 A=20 R=.0005 L=0.75
#031-1 - Micro Punch / Probe Needle D=.025 A=30 R=.0005 L=0.45
#031-2 - Micro Punch / Probe Needle D=.025 A=30 R=.0005 L=0.45
#032 - Micro Punch / Probe Needle D=.025 A=8 R=.00025 L=0.40
#036-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#039 - Micro Punch / Probe Needle D=.025 A=5 R=.00025 L=0.75 Flat Tip
#046-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#049-1 - Micro Punch / Probe Needle D=.028 A=40 R=.0065 L=0.625
#049-2 - Micro Punch / Probe Needle D=.028 A=40 R=.0065 L=0.625
#050 - Micro Punch / Probe Needle D=.028 A=15 R=.001 L=0.375
#052-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#056 - Micro Punch / Probe Needle D=.025 A=18 R=.0005 L=0.75
#058-1 - Micro Punch / Probe Needle D=.013 A=10 R=.00075 L=0.525
#059 - Micro Punch / Probe Needle D=.013 A=8 R=.00075 L=0.525
#061 - Micro Punch / Probe Needle D=.028 A=20 R=.0005 L=0.75
#070-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#084-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#084-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#086 - Micro Punch / Probe Needle D=.028 A=15 R=.00035 L=0.45
#090 - Micro Punch / Probe Needle D=.028 A=15 R=.00075 L=0.75
#091-1 - Micro Punch / Probe Needle D=.028 A=15 R=.00065 L=0.75
#091-2 - Micro Punch / Probe Needle D=.028 A=15 R=.00065 L=0.75
#092-1 - Micro Punch / Probe Needle D=.028 A=15 R=.00065 L=0.75
#092-2 - Micro Punch / Probe Needle D=.028 A=15 R=.00065 L=0.75
#095-1 - Micro Punch / Probe Needle D=.020 A=8 R=.00035 L=0.625
#095-2 - Micro Punch / Probe Needle D=.020 A=8 R=.00035 L=0.625
#096-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#096-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#098-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#098-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25

#099-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#099-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#105 - Micro Punch / Probe Needle D=.020 A=0 R=.010 L=0.625
#106-1 - Micro Punch / Probe Needle D=.020 A=0 R=.010 L=0.625
#106-2 - Micro Punch / Probe Needle D=.020 A=0 R=.010 L=0.625
#107-1 - Micro Punch / Probe Needle D=.020 A=0 R=.010 L=0.625
#107-2 - Micro Punch / Probe Needle D=.020 A=0 R=.010 L=0.625
#115-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#115-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#116-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#116-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#117-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#117-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#118-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#118-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#119-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#119-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#120-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#120-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#121-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#121-2 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#122-1 - Micro Punch / Probe Needle D=.020 A=11 R=.00025 L=1.25
#128 - Probe Needle, Beryllium Copper D=.0275 A=20 R=.0025 L=1.25
#129 - Probe Needle, Beryllium Copper D=.0275 A=20 R=.005 L=1.25

Many more sizes available upon request.

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