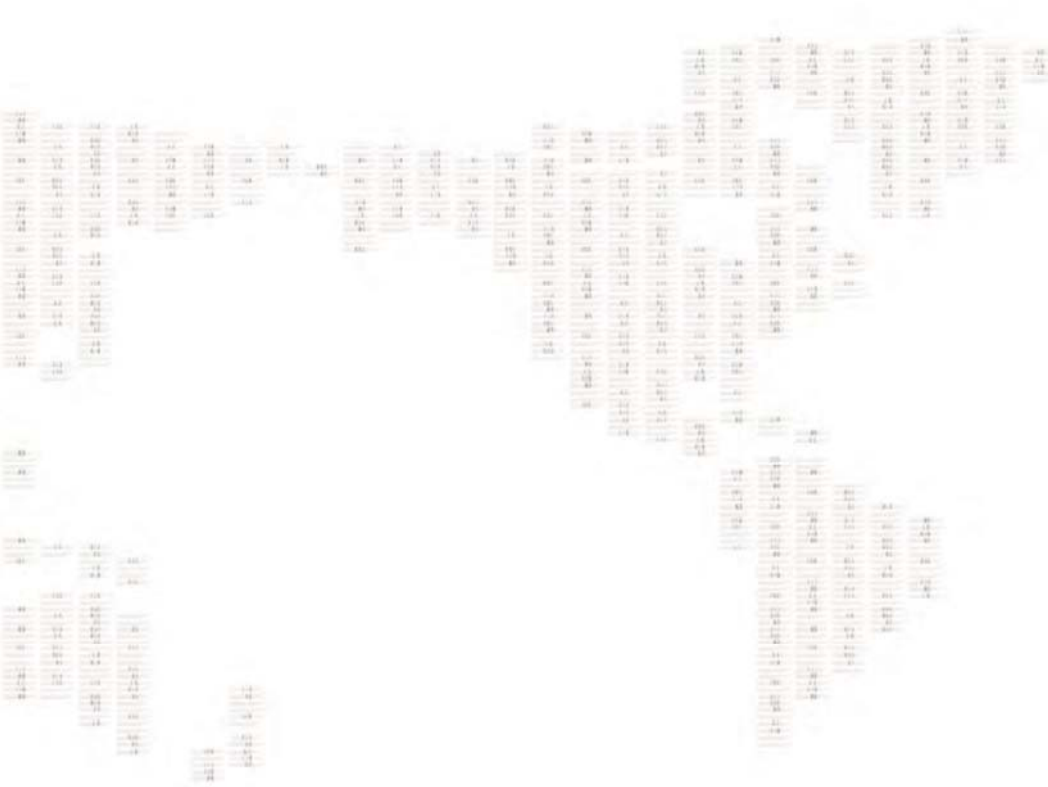


Since 1976

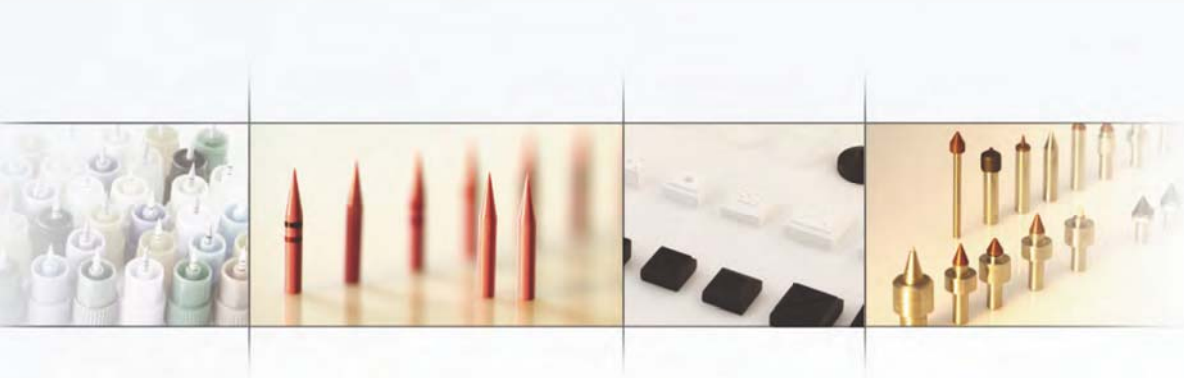
PECO

Semiconductor Production Parts



PECO

Semiconductor Production Parts



» GREETINGS

Welcome to world's leading Precision Engineering Cooperation. As founded in 1976, PECO has started business in domestic markets. Following to the business market trends, we have raised our business with our valuable customers to world wide vendor.

As mentioned, the trends of the market is changing every hour, our outstanding team is always standing by to meet every needs. PECO will be anywhere, at anytime to support you and grow our business together to the next level.

SEMICONDUCTOR
PRODUCTION PARTS

MAJOR HISTORY

Best Technique ...

Best Quality ...

Best Delivery ...



» ABOUT **PECO**

PECO has been the leading wire bonding tool provider since 1976. Having our headquarter, office and the production line in one building, we provide the best service with advanced logistic system. Our location is at the core park of Seoul, Gangnam. This explains that we are environmentally friendly, in which we have the production line in Gangnam - ISO 9001, 14001, RoHS and REACH compliance. Also, all the products that PECO provides are 100% made in PECO, KOREA.

Our mission has been and always will be the customer satisfaction with best service and quality. We would not have been the leading supplier for semiconductor industry without our customer's success. Which every employee in PECO will always have in our minds.

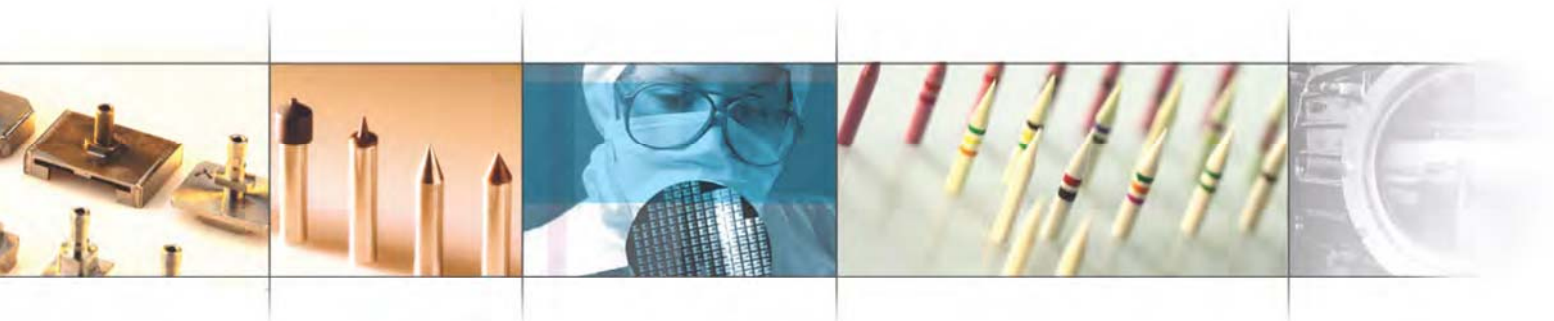
With our best performing technicians, we fabricate the best wire bonding tools from Capillary selections to other spare parts. As the market is changing every now and then we always put our best effort to meet your various needs.

» ABOUT **PECO Tek**

As for the year 2012, PECO is proudly launching the PECOTek, the family company of PECO.

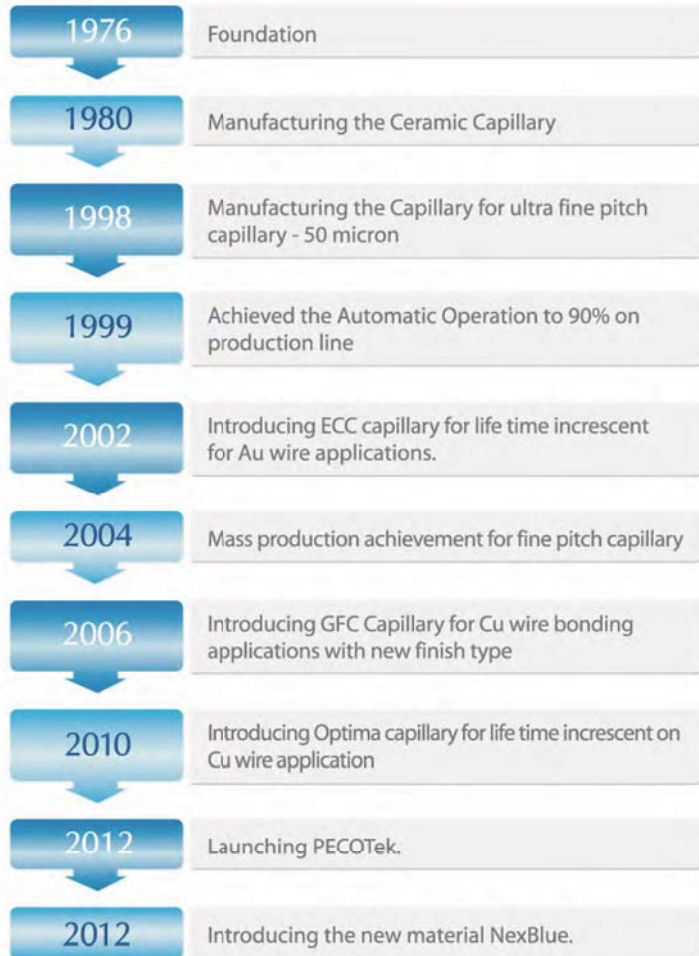
PECOTek is specialized spare parts for the die attach process, to support our valuable customers more closely and deeply.

With our hard working team, specialized for the die attach process, will provide the best support that PECO has proved to our world wide known customers.





MAJOR HISTORY





» OUR PRODUCTS

PECO

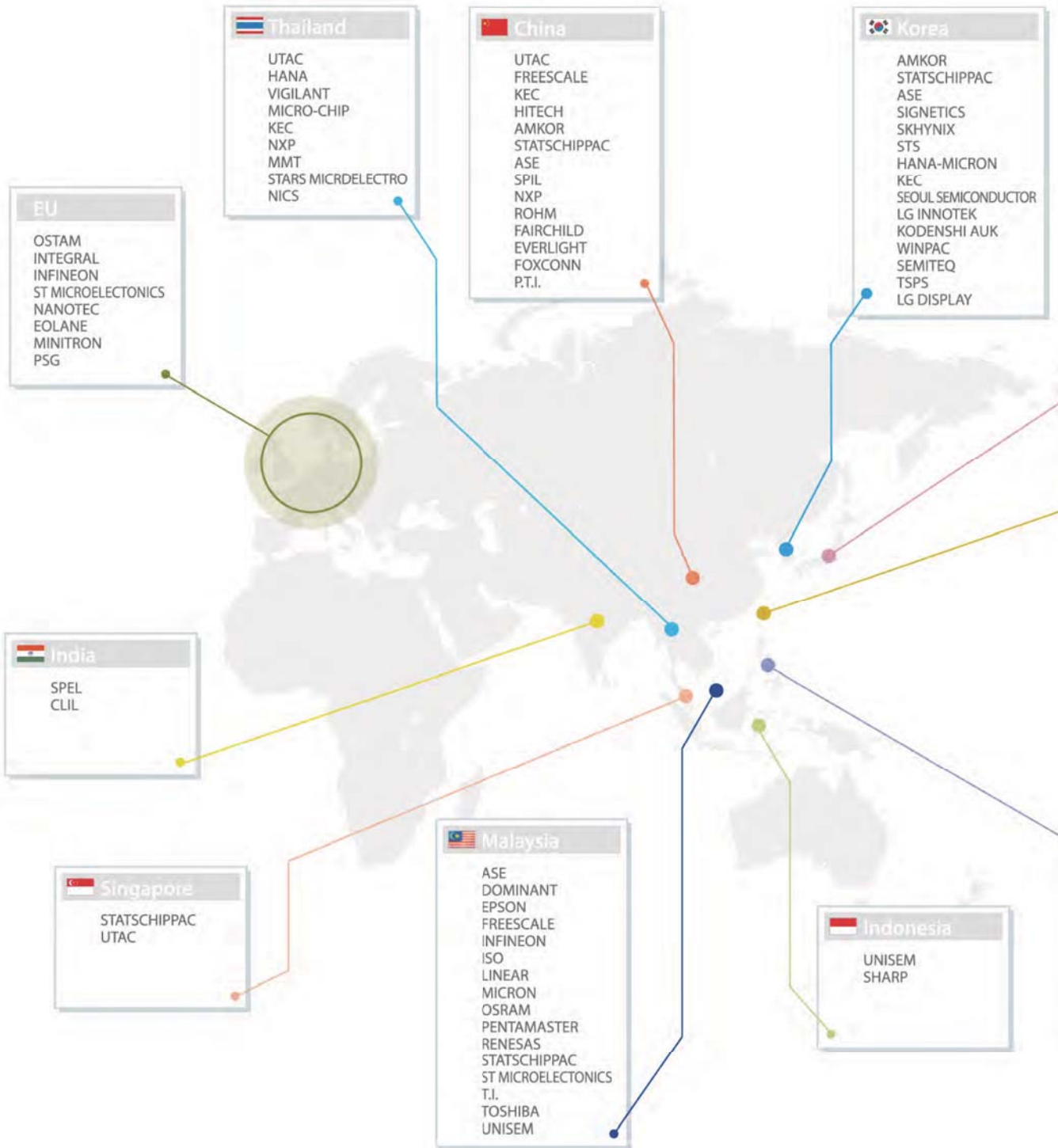
Capillary



PECO Tek

Spare Parts





Global Customers



Japan

- PANASONIC
- TOSHIBA
- ROHM
- AMKOR
- MITSUBISHI
- MTEX
- SHARP
- J-DEVICE
- ASAHI KASEI
- RENESAS

Taiwan

- ASE
- SPIL
- PTI
- GREATEK
- TI
- NXP
- LINGSEN
- FATC
- OSE
- TICP
- EVERLIGHT
- KY-TECH
- MTI
- ATT

South America

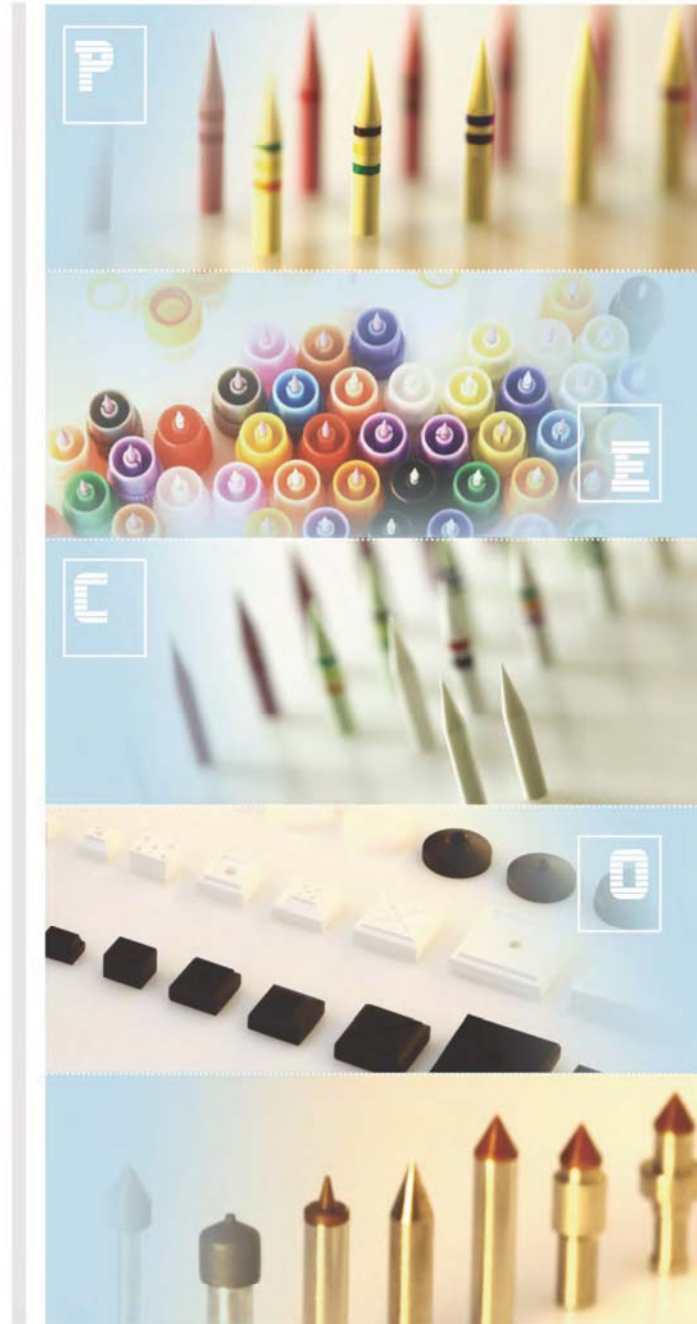
- SMART MODULAR
- HT MICRON

Philippine

- AMKOR
- VISHAY
- SANYO
- ON-SEMI
- TI
- ATEC
- FAIRCHILD
- TONG HSING
- CIRTEK
- SAMSUNG
- STATSCHIPPAC
- ROAM
- ST MICROELECTONICS

Mexico

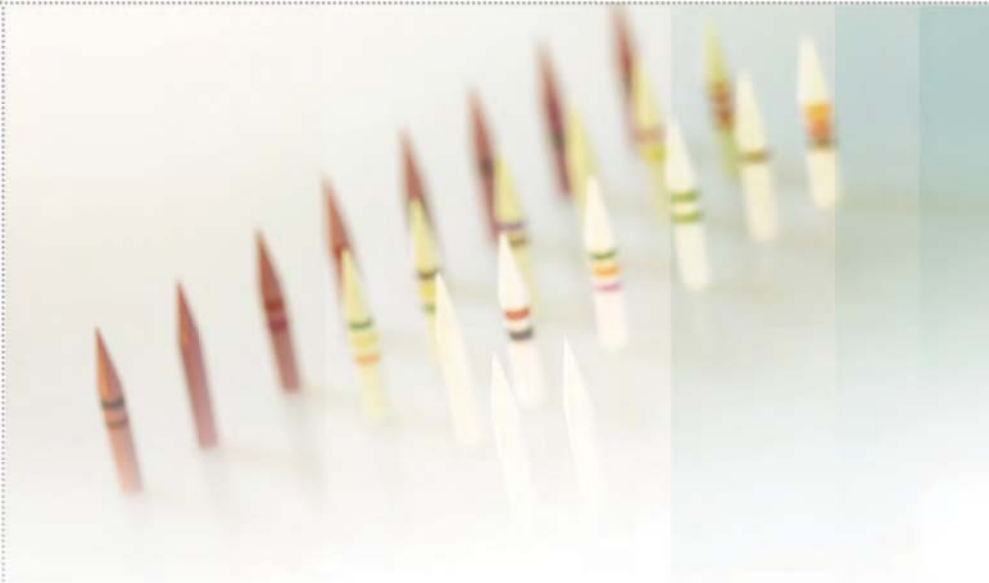
- SKYWORKS
- TI





CAPILLARY INTRODUCTION

■ GFC ■ OPTIMA ■ NEXBLUE





1 CAPILLARY

CAPILLARY DIMENSION

I . Capillary Dimensions

1	Hole Dia.	
2	Tip Dia.	
3	Chamfer Dia.	
4	Outer Radius	
5	Face Angle	
6	Inner Chamfer Angle	
7	Cone Angle	
8	Bottleneck Angle	
9	Bottleneck Height	
10	Length	
11	Finish	Polish Matte MUF SUF



II . Bonding Elements

12	Wire Dia.	
13	Bond Pad Pitch	
14	Bond Pad	
15	Bond Pad Opening	
16	Bond Dia.	
17	Free Air Ball	
18	Loop Height	

PECO Capillary Tolerance

By Tip Diameter	Hole		Chamfer Dia		Tip Dia		Outer Radius	
	inch	mm	inch	mm	inch	mm	inch	mm
1 TIP ≤ 2.2	+0.00005"	+0.0013	+0.00005"	+0.0013	+0.0001"	+0.0025	+0.0001"	+0.0025
	-0	-0	-0	-0	-0.0001"	-0.0025	-0.0001"	-0.0025
2 2.2 < TIP < 4.0	+0.0001"	+0.0025	+0.0001"	+0.0025	+0.0001"	+0.0025	+0.0001"	+0.0025
	-0	-0	-0	-0	-0.0001"	-0.0025	-0.0001"	-0.0025
3 4.0 ≤ TIP < 5.0	+0.0001"	+0.0025	+0.0001"	+0.0025	+0.0001"	+0.0025	+0.00015"	+0.0038
	-0	-0	-0.0001"	-0.0025	-0.0001"	-0.0025	-0.00015"	-0.0038
4 5.0 ≤ TIP < 6.0	+0.0001"	+0.0025	+0.0001"	+0.0025	+0.00015"	+0.0038	+0.00015"	+0.0038
	-0	-0	-0.0001"	-0.0025	-0.00015"	-0.0038	-0.00015"	-0.0038
5 6.0 ≤ TIP	+0.0001"	+0.0025	+0.0001"	+0.0025	+0.0002"	+0.0050	+0.0002"	+0.0050
	-0.0001"	-0.0025	-0.0001"	-0.0025	-0.0002"	-0.0050	-0.0002"	-0.0050

Wire bonding info - Capillary design consideration.

Wire

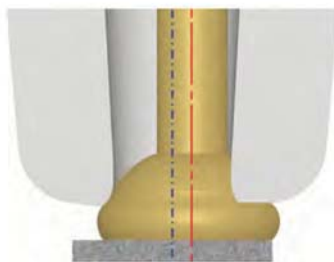
The type of wire is the key for the material choice. Since Cu is hard to bond PECO suggests the material as shown on the following table.

Wire type	Material
Au	GFC / NexBlue
Cu	GFC / OPTIMA / NexBlue
PdCu	GFC / OPTIMA / NexBlue
Ag	GFC / NexBlue

Hole

A wire diameter is the key factor to determine the hole size of the capillary

The optimum hole size is essential during the first bonding as well as during the looping process



large hole



optimized hole

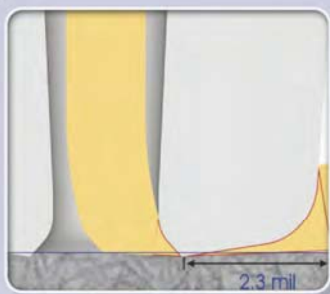
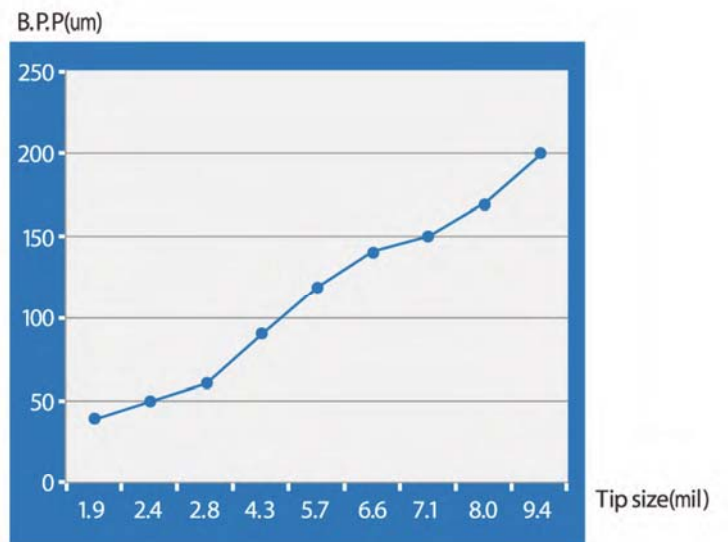
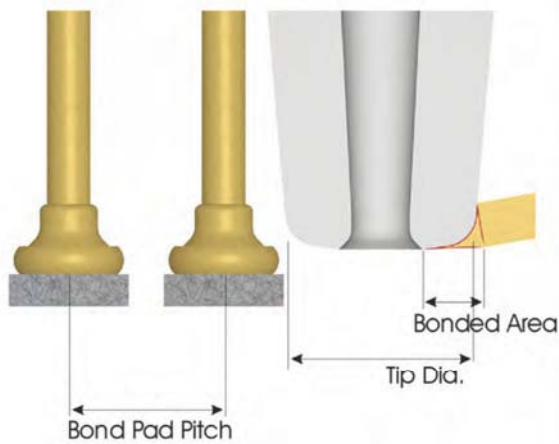


small hole

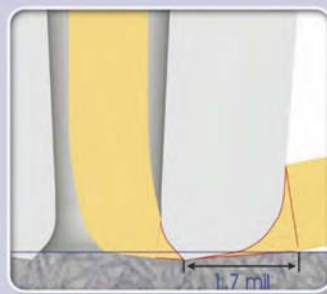


Tip

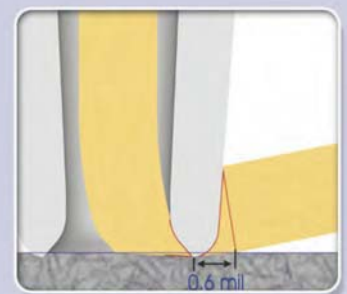
The optimized tip size is determined with the Bond Pad Pitch.



large tip



optimized tip



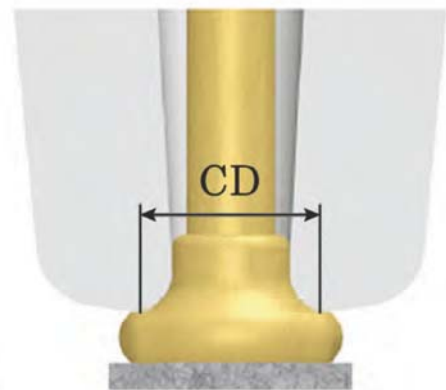
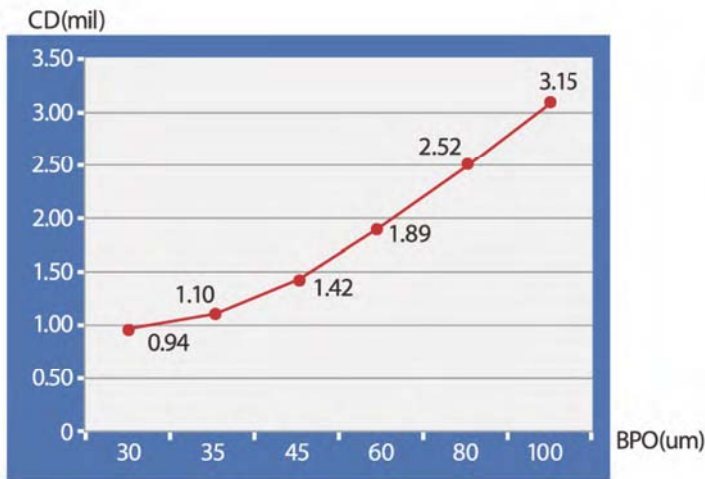
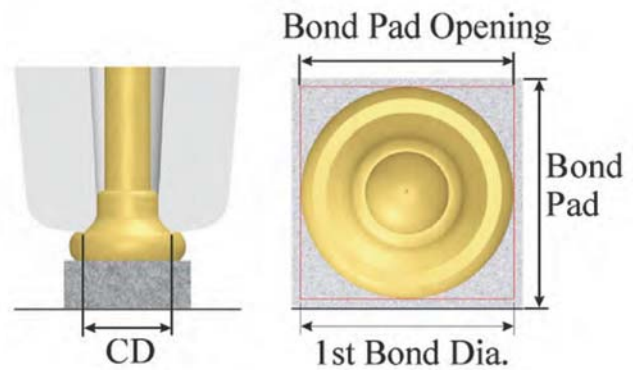
small tip

Wire bonding info - Capillary design consideration.

CD

The CD (Chamfer Diameter) holds the Free Air Ball for the 1st bonding

The CD size needs to be optimized with Bond Pad Opening



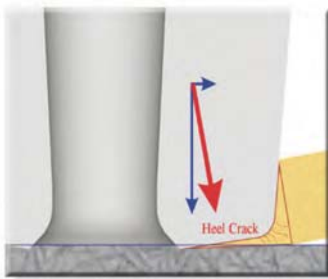
Too large CD transfers USG during the 1st bonding and too much of the mashed ball can create the damage to the pad

Also shown in the picture:
CD leaves that are too small and no gap between CD and hole, can cut the wire too early during the second bonding. This can possibly lead to missing wires

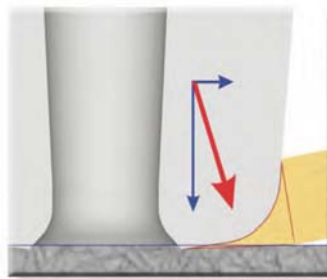




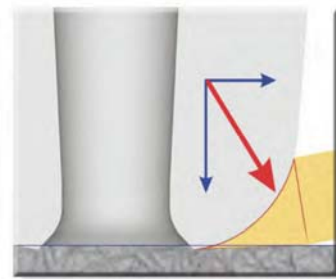
Outer Radius and Face Angle



Small OR



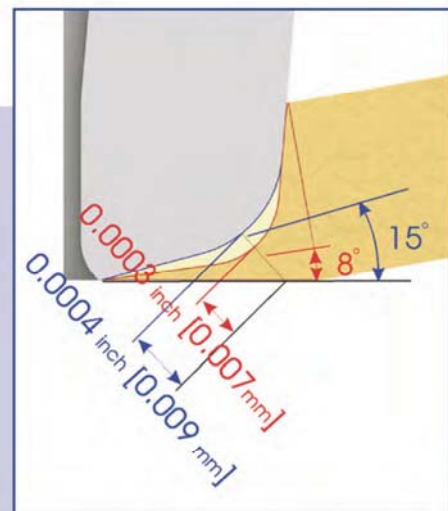
Optimum OR



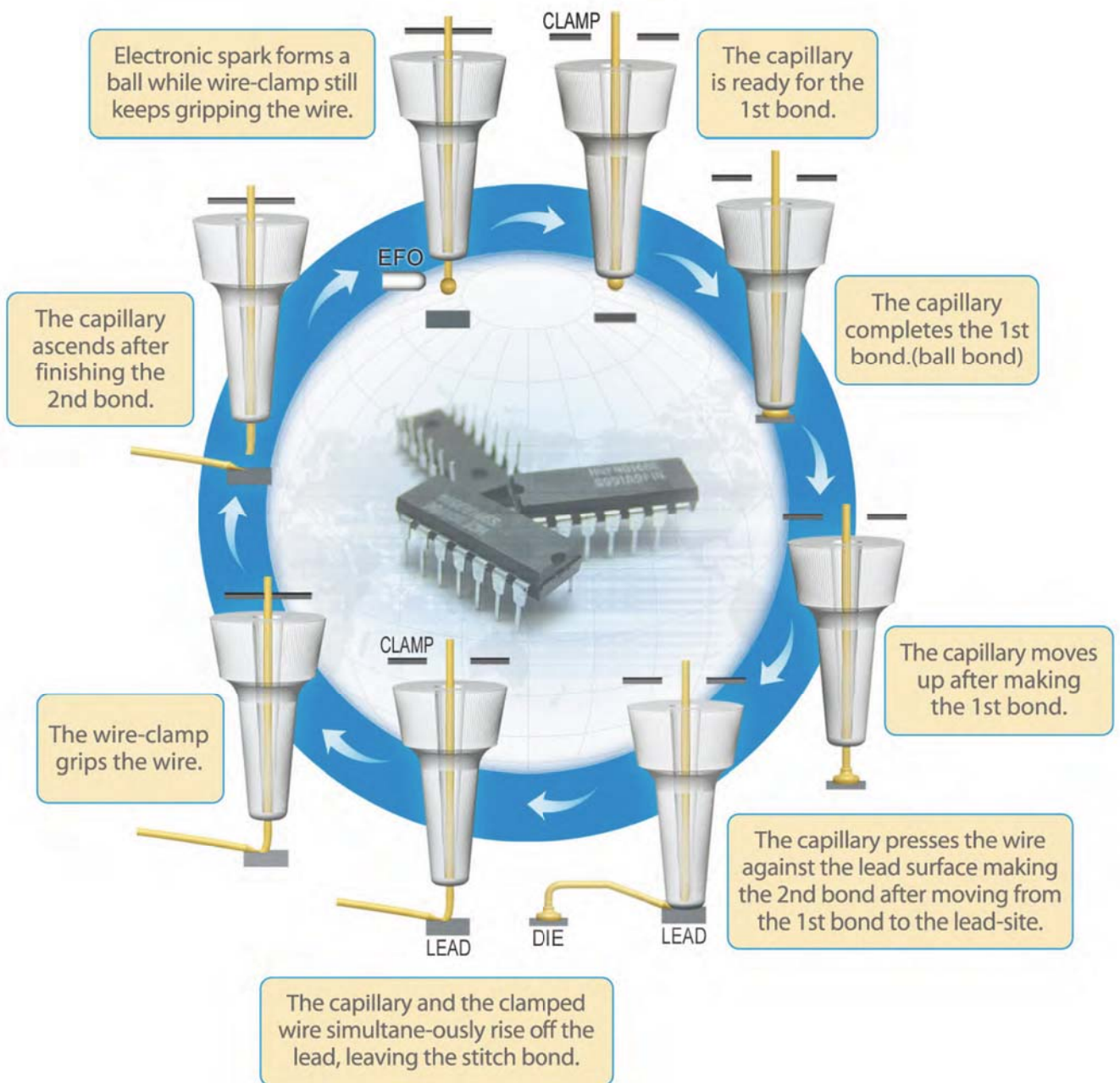
Large OR

The Outer Radius shows its ability during the 2nd bonding, especially in the stitch readings. A small OR can cause the heel to crack as in the picture above which won't show good stitch pull reading. On the other hand too large OR leaves no space for FA to have its area. This also can bring up the stitch reading issue.

The FA cannot always be recommended, due to each package and the bonding Environment, being different for all the customers. The FA has to be considered with the OR size to have enough space, otherwise the stitch won't have space during the 2nd bonding.



Bonding Cycle





POWER

Controlled by power, the energy vibrates the capillary while generating ultrasonic energy which is a factor of producing bonding heat.

IMPEDANCE

Energy does not always output as much as it was input. Sometimes, the output energy may not be as full as it was programmed. This is caused by one of the improperly installed accessories, wrong tolerance of bonder and an unstable set-up of the capillary.

Transducer Horn condition plays an important role in bringing a consistent bonding result. A looser or tighter screwing of the capillary affects the transference of ultrasonic energy leading to a far different bondability from the given specifications.



TORQUE VS. ULTRASONIC ENERGY

Torque Wrench is one of the important tools when stable bondability is taken into consideration.

The looser or tighter wrenching of capillary affects the output of ultrasonic energy during bonding, bringing unstable bondability. Torque Wrenches are used to ensure consistent capillary locking conditions for steady bondability when the capillary is inserted into the transducer horn.

FORCE

A force to push the capillary downward against the bond pad and the lead surface and to affect the ultra-sonic power operation. An excessive force gives a deeper tool mark to the 2nd bond and an over-squashed height to the 1st bond.

TIME

The duration for the ultrasonic power to work to bond the gold wire on the pad and the lead.

TEMPERATURE

Heat from the Heat-block and Ultrasonic Power works on the gold wire when a capillary bonds the wire on the pad and the lead. Lower temperatures can be one of the reasons for a weak bond in the 1st bond and the tight wire in looping due to less flexibility. Higher temperatures can cause a wider 1st bond and a sagging wire due to the excessive softness of the wire.

2 GFC- Green Force Ceramic

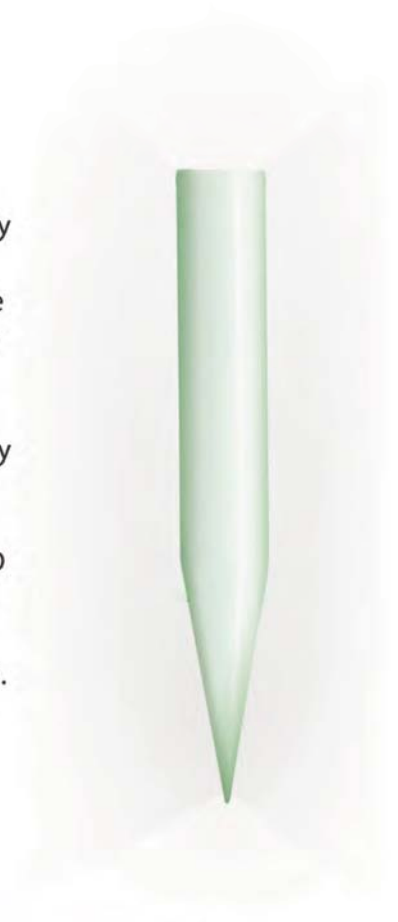
The GFC Capillary was developed in 2006, as the market tried to apply Cu wire for bonding.

Due to copper's higher mechanical properties compared to gold, the capillary needs to be more compact and have a much higher density material that can withstand higher bonding application.

PECO's R&D division has developed GFC Capillary material With easy identification having green body.

Also GFC Capillary can be applied to AU wire bonding specially for the LED solution.

The GFC Capillary provides the following surface types for each application.



Polish & MUF & SUF





3 OPTIMA

The OPTIMA Capillary, the result of the life time improvement project for Cu and PdCu wire, provides various outstanding results for the applications.

Since the introduction to the market in 2010, PECO has taken most of the Cu and PdCu wire application shares.

Lifetime increase has met with all the customers with our applied state of the art technology.

The OPTIMA Capillary provides the following surface types.



MUF & SUF



4 NexBlue



Higher Thermal Shock Resistance.

Repetitive cooling, recurring heat and gas mixture during wire bonding may affect Capillary properties making it vulnerable to thermal shock. This gives huge stress in the Capillary material. PECO new material has high endurance resistance and effective USG transfer with less porosity in it. In terms of material characteristic, even if material quality is perfectly good, depending on where and how it is used, being lowered of physical property of its material is unavoidable.

Easy Clarification /Surface Roughness Growth.

PECO new material called Grain Growth Regulator helps develop high density, hardness and wear resistance. During UF process, fine grain limits the size of granular on the tip finish. Therefore to solve this problem, Grain Growth Regulator is added to help to increase the capillary tool life

5 LED

PECO Capillary Designed for LED PKG.

Peco Capillary designed for LED PKG. application, improves wire bonding bond ability and capillary lifetime Through introduction of customized cone angle, tip finish both on GFC and OPTIMA capillary material.

- 15° Cone Angle improves wire ultrasonic energy transfer (bond ability) using PECO GFC/ OPTIMA material.
- The granular tip finish - MUF / SUF, contributes to having a better 2nd stitch formation.
- It can be used for wide range of LED application and well- suited both for CU and any other wire types.

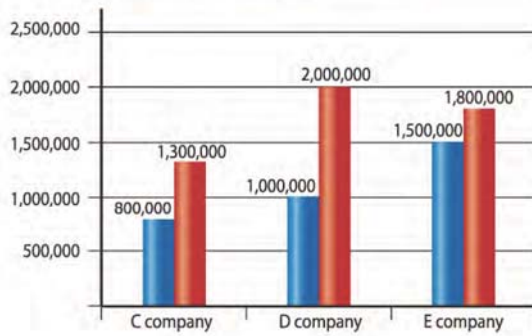




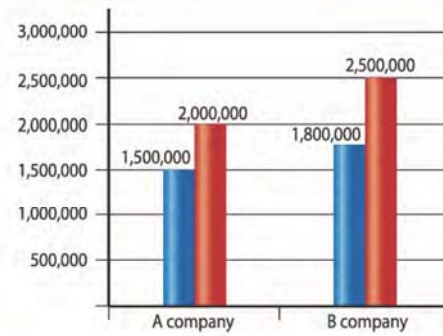
6 Comparison of Capillary Material

This is based on the evaluation result done at, both domestic and overseas Market.
Using OPTIMA Capillary, decrease in defect rates of Capillary, short tail & build up is observed, which contribute to its life time increase.

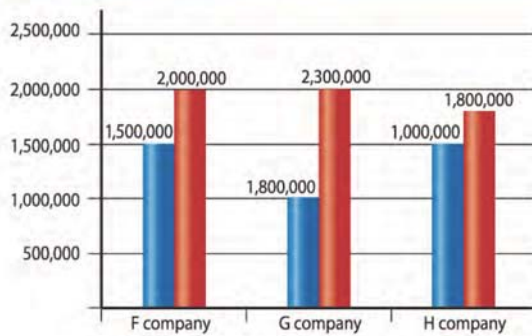
Clogging & Build up Improvement



Worn out Improvement

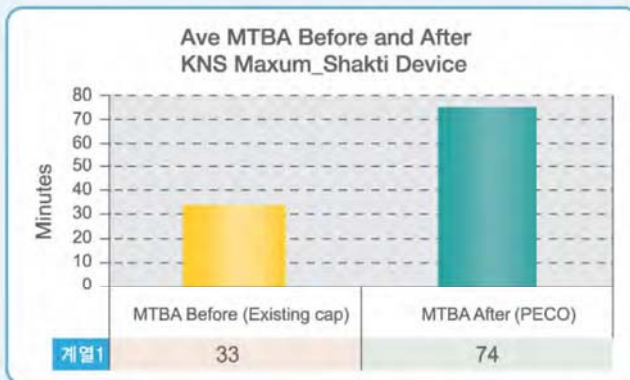
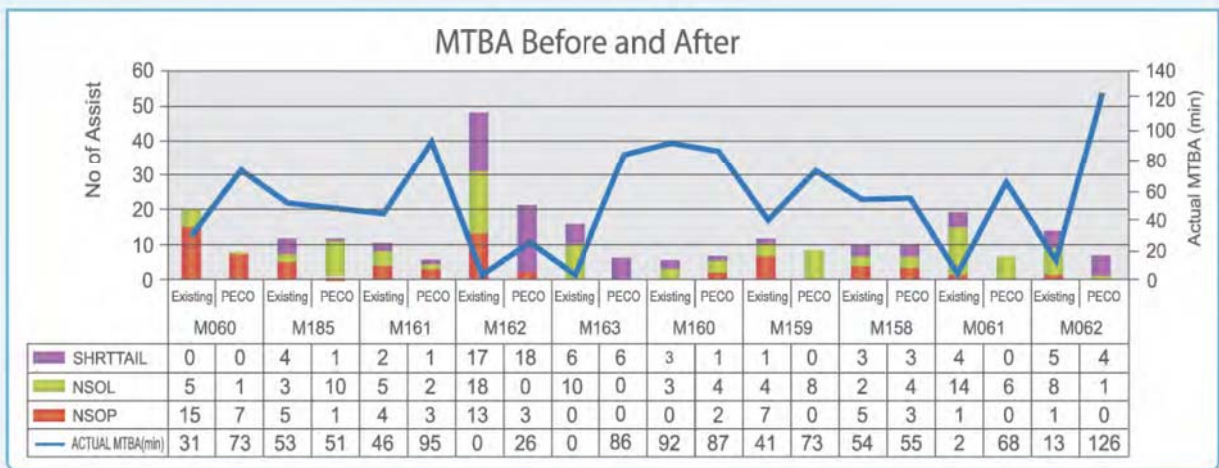


Lifetime Improvement



CUSTOMER	Wire Size	Tip Size	Problem	PKG	Before	After	%
					GFC	OPTIMA	
A	1.2 mil	8.9 mil	Worn Out	BGA	1.5KK	2.0KK	133%
B	0.8 mil	2.7 mil	Worn Out	BGA	1.8KK	2.5KK	139%
C	1.0 mil	3.9 mil	Build up	QFN	0.8KK	1.3KK	163%
D	0.8 mil	3.5 mil	Build up	QFN	1.0KK	2.0KK	200%
E	0.8 mil	3.3 mil	Build up	QFN	1.5KK	1.8KK	120%
F	1.0 mil	3.4 mil	Life time	TQFP	1.5KK	2.0KK	128%
G	1.0 mil	3.9 mil	Life time	MQFP	1.8KK	2.3KK	133%
H	1.5 mil	4.0 mli	Life time	TSSOP	1.0KK	1.8KK	143%

7 Snap Shot MTBA on machine level



Average MTBA of 10 machines : 125% MTBA improvement was recorded

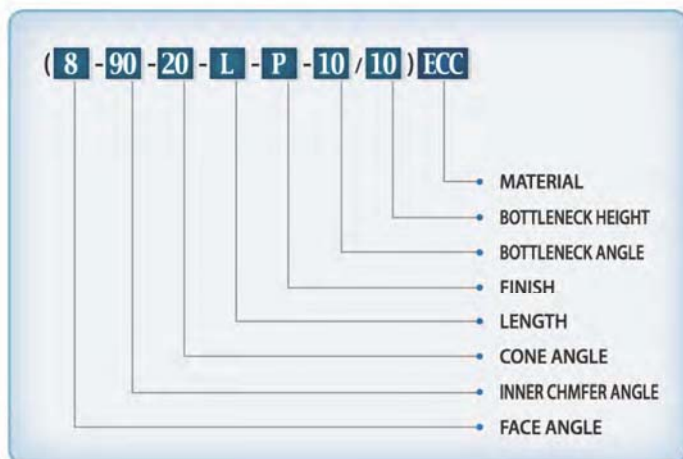
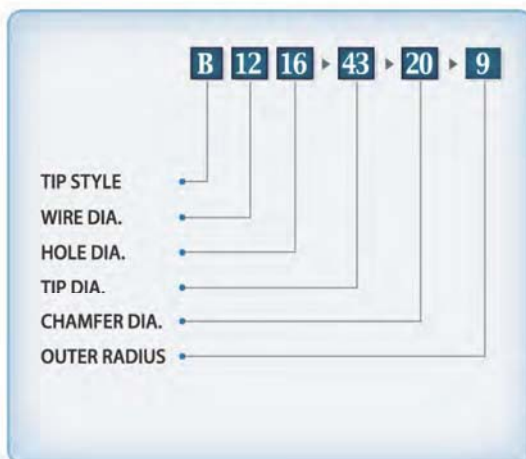
Snap Shot MTBA on machine level •
 USE THE COLOR CODING •
 How to Order •



8 COLORS FOR PRODUCTION LINE

RING CODING		CAP COLOR		INNER RING COLOR	
CLEAR	X	CLEAR	•	CLEAR	X
BLACK	•	BLACK	•	BLACK	•
DARK BLUE	•	DARK BLUE	•	DARK BLUE	•
BROWN	•	BROWN	•	BROWN	•
GREY	•	GREY	•	GREY	X
GREEN	•	GREEN	•	GREEN	•
ORANGE	•	ORANGE	•	ORANGE	•
PINK	•	PINK	•	PINK	X
PURPLE	•	PURPLE	•	PURPLE	•
RED	•	RED	•	RED	•
SKY BLUE	•	SKY BLUE	•	SKY BLUE	•
WHITE	X	WHITE	•	WHITE	X
YELLOW	•	YELLOW	•	YELLOW	•
IVORY	X	IVORY	•	IVORY	X

9 How to Order

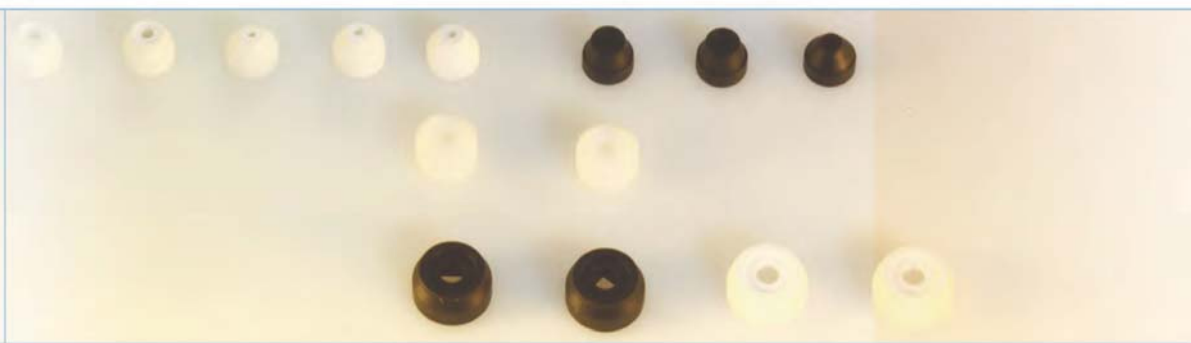


PECO TEK

PECO TEK is part of PECO Company specializing in the manufacturing special tools.

We are producing and providing the BOND TOOL and PICK-UP-TOOL such as Rubber collet, Vespel collet, Magnetic collet, Ejector pin etc.

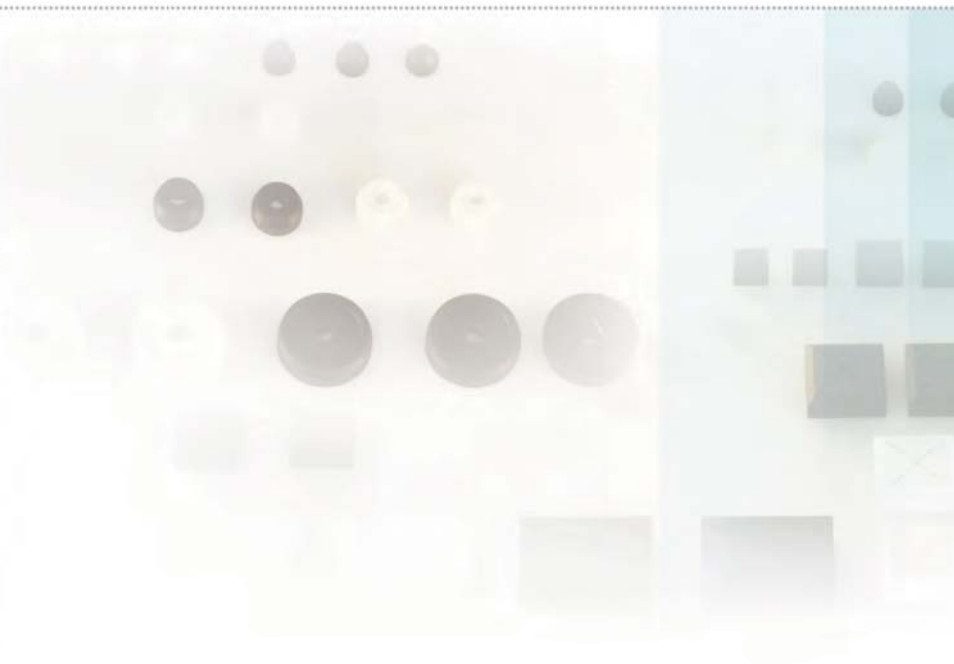
PECO TEK upholds the slogan of taking customer satisfaction to top priority, maintaining reliable quality & supply, and bringing quality to service to the foundation of accumulated KNOW-HOW with technology.



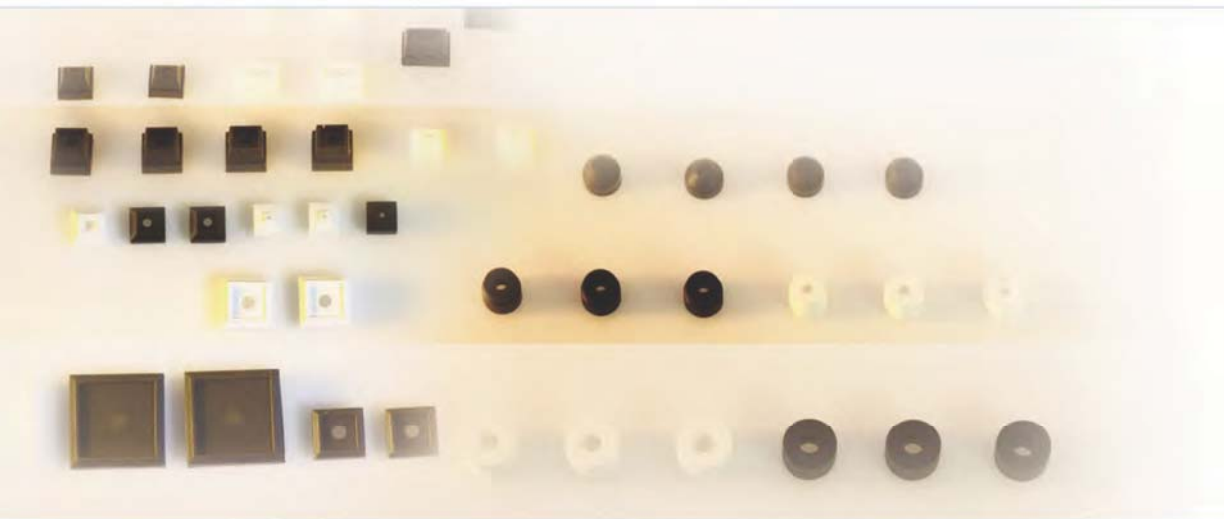


DIE ATTACH TOOLS INTRODUCTION

- COLLET
- EJECTOR PIN



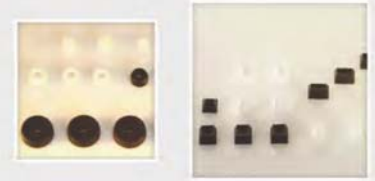
1 RUBBER COLLET



Material Properties

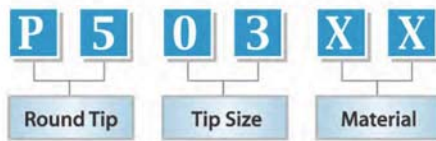
NO	ITEM	UNIT	PROPERTIES				
			Silicon Rubber			Nitrile Butadiene Rubber	
1	Polymer		SW	SB	SB-D	NBR	NBR-D
2	Appearance		White	Black	Black	Black	Black
3	Tensile Strength	Mpa	7.5	6.7		10.1	12.4
4	Ultimate Elongation	%	143	141		57	119
5	Durometer Hardness(Type A)	-	85	80		95	92
6	Specific Gravity((23/23)°C)	-	1.470	1.390		1.561	1.550
7	Rebound Resilience	%	58	57		17	14
8	Abrasion Resistance(Weight Loss)	mg	28	13		94	38
9	Surface Resistance		Insulative	Conductive	Dissipative	Conductive	Dissipative

RUBBER COLLET



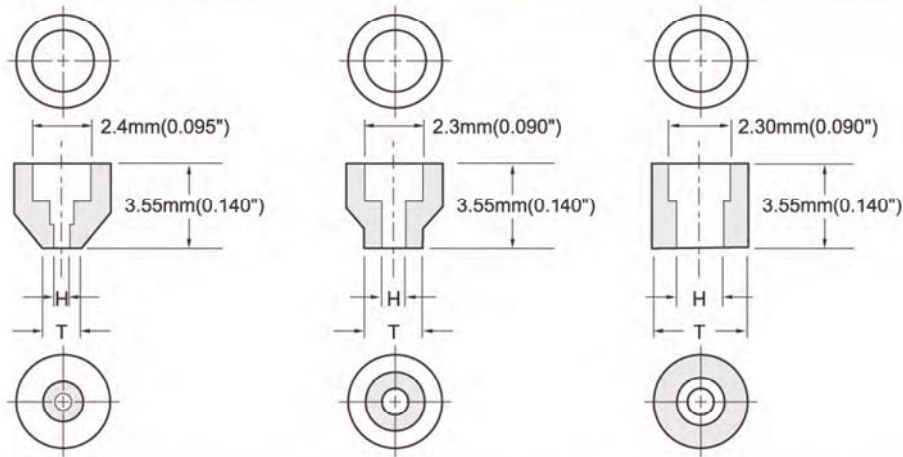
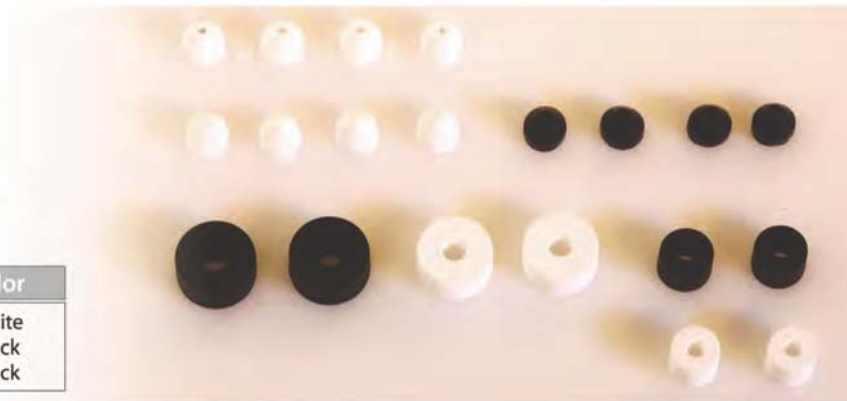
1》P5 TYPE

How to Understand Part No



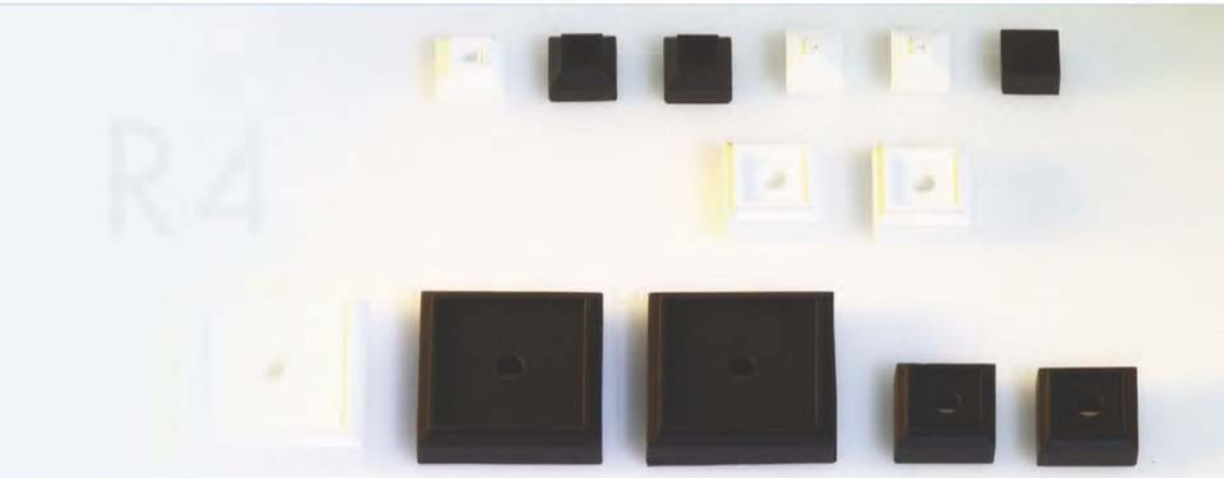
Material (XX)

XX	Material	Color
SW	Silicone rubber	White
SB	Silicone rubber	Black
NB	Nitrile Butadiene	Black

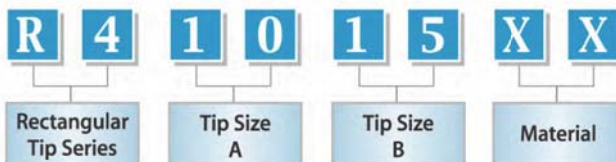


P/N	T		H		P/N	T		H		P/N	T		H	
	inch	mm	inch	mm		inch	mm	inch	mm		inch	mm	inch	mm
P5 014	0.014	0.36	0.008	0.20	P5 09	0.090	2.29	0.036	0.91	P5 16	0.160	4.06	0.060	1.52
P5 016	0.016	0.41	0.008	0.20	P5 10	0.100	2.54	0.042	1.07	P5 18	0.180	4.57	0.066	1.68
P5 018	0.018	0.46	0.009	0.23	P5 11	0.110	2.79	0.042	1.07	P5 20	0.200	5.08	0.072	1.83
P5 020	0.020	0.51	0.009	0.23	P5 12	0.120	3.05	0.045	1.14	P5 22	0.220	5.59	0.080	2.03
P5 025	0.025	0.64	0.015	0.38	P5 13	0.130	3.30	0.048	1.22	P5 24	0.240	6.10	0.080	2.03
P5 03	0.030	0.76	0.015	0.38	P5 14	0.140	3.56	0.052	1.32	P5 25	0.250	6.35	0.084	2.13
P5 04	0.040	1.02	0.015	0.38	P5 15	0.150	3.81	0.056	1.42	P5 26	0.260	6.60	0.084	2.13
P5 05	0.050	1.27	0.024	0.61						P5 27	0.270	6.86	0.084	2.13
P5 06	0.060	1.52	0.024	0.61						P5 28	0.280	7.11	0.090	2.29
P5 07	0.070	1.78	0.032	0.81						P5 30	0.300	7.62	0.090	2.29
P5 08	0.080	2.03	0.032	0.81						P5 32	0.320	8.13	0.090	2.29
										P5 34	0.340	8.64	0.090	2.29
										P5 36	0.360	9.14	0.090	2.29
										P5 38	0.380	9.65	0.090	2.29
										P5 40	0.400	10.16	0.090	2.29

2》 R4 Type

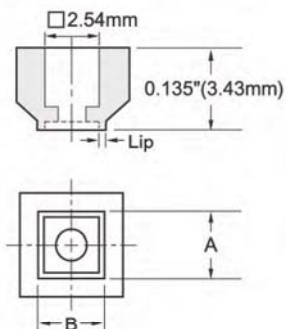


How to Understand Part No



XX	Material	Color
SW	Silicone rubber	White
SB	Silicone rubber	Black
NB	Nitrile Butadiene	Black

R4 Type Drawing



A or B Size	Lip Size
0.060 (1.52) ~ 0.090 (2.29)	0.012 (0.30)
0.100 (2.54) ~ 0.190 (4.83)	0.012 (0.30)
0.200 (4.57) ~	0.20 (0.51)

※ The exceptional item exists

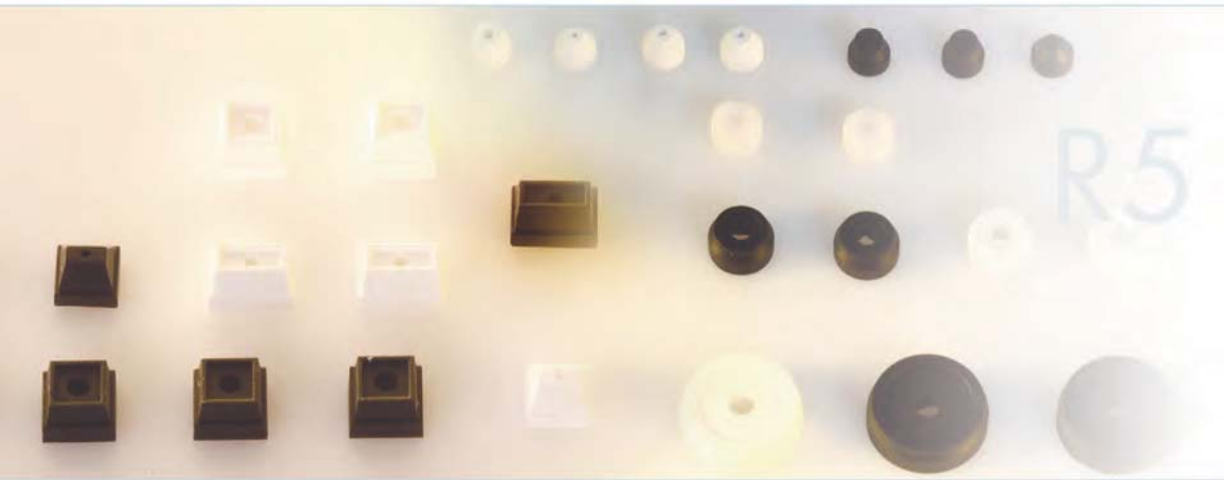
RUBBER COLLET



|| R4 Type Part No

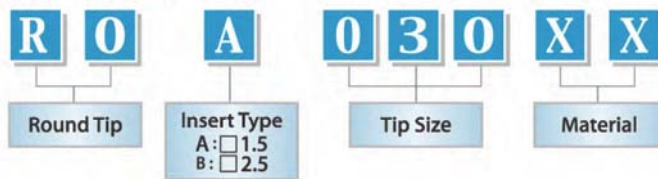
P/N	A	B	P/N	A	B	P/N	A	B
	inch / mm	inch / mm		inch / mm	inch / mm		inch / mm	inch / mm
R4-03 03	0.030 / 0.76	0.030 / 0.76	R4-10 10	0.100 / 2.54	0.100 / 2.54	R4-20 20	0.200 / 5.08	0.200 / 5.08
R4-03 04	0.030 / 0.76	0.040 / 1.02	R4-10 12	0.100 / 2.54	0.120 / 3.05	R4-20 25	0.200 / 5.08	0.250 / 6.35
R4-03 05	0.030 / 0.76	0.050 / 1.27	R4-10 15	0.100 / 2.54	0.150 / 3.81	R4-20 30	0.200 / 5.08	0.300 / 7.62
R4-03 06	0.030 / 0.76	0.060 / 1.52	R4-10 17	0.100 / 2.54	0.170 / 4.32	R4-20 35	0.200 / 5.08	0.350 / 8.89
R4-03 08	0.030 / 0.76	0.080 / 2.03	R4-10 20	0.100 / 2.54	0.200 / 5.08	R4-20 40	0.200 / 5.08	0.400 / 10.16
R4-03 10	0.030 / 0.76	0.100 / 2.54	R4-10 30	0.100 / 2.54	0.300 / 7.62	R4-20 60	0.200 / 5.08	0.600 / 15.24
R4-03 12	0.030 / 0.76	0.120 / 3.05	R4-11 11	0.110 / 2.79	0.110 / 2.79	R4-22 22	0.220 / 5.59	0.220 / 5.59
R4-04 04	0.040 / 1.02	0.040 / 1.02	R4-11 13	0.110 / 2.79	0.130 / 3.30	R4-22 33	0.220 / 5.59	0.330 / 8.38
R4-04 05	0.040 / 1.02	0.050 / 1.27	R4-11 16	0.110 / 2.79	0.160 / 4.06	R4-22 44	0.220 / 5.59	0.440 / 11.18
R4-04 06	0.040 / 1.02	0.060 / 1.52	R4-11 19	0.110 / 2.79	0.190 / 4.83	R4-24 24	0.240 / 6.10	0.240 / 6.10
R4-04 07	0.040 / 1.02	0.070 / 1.78	R4-11 22	0.110 / 2.79	0.220 / 5.59	R4-24 36	0.240 / 6.10	0.360 / 9.14
R4-04 08	0.040 / 1.02	0.080 / 2.03	R4-12 12	0.120 / 3.05	0.120 / 3.05	R4-24 48	0.240 / 6.10	0.480 / 12.19
R4-04 10	0.040 / 1.02	0.100 / 2.54	R4-12 15	0.120 / 3.05	0.150 / 3.81	R4-26 26	0.260 / 6.60	0.260 / 6.60
R4-04 12	0.040 / 1.02	0.120 / 3.05	R4-12 18	0.120 / 3.05	0.180 / 4.57	R4-26 39	0.260 / 6.60	0.390 / 9.91
R4-05 05	0.050 / 1.27	0.050 / 1.27	R4-12 21	0.120 / 3.05	0.210 / 5.33	R4-26 52	0.260 / 6.60	0.520 / 13.21
R4-05 06	0.050 / 1.27	0.060 / 1.52	R4-12 24	0.120 / 3.05	0.240 / 6.10	R4-28 28	0.280 / 7.11	0.280 / 7.11
R4-05 07	0.050 / 1.27	0.070 / 1.78	R4-12 30	0.120 / 3.05	0.300 / 7.62	R4-28 42	0.280 / 7.11	0.420 / 10.67
R4-05 08	0.050 / 1.27	0.080 / 2.03	R4-12 36	0.120 / 3.05	0.360 / 9.14	R4-28 56	0.280 / 7.11	0.560 / 14.22
R4-05 10	0.050 / 1.27	0.100 / 2.54	R4-13 13	0.130 / 3.30	0.130 / 3.30	R4-30 30	0.300 / 7.62	0.300 / 7.62
R4-06 06	0.060 / 1.52	0.060 / 1.52	R4-13 16	0.130 / 3.30	0.160 / 4.06	R4-30 45	0.300 / 7.62	0.450 / 11.43
R4-06 07	0.060 / 1.52	0.070 / 1.78	R4-13 19	0.130 / 3.30	0.190 / 4.83	R4-30 60	0.300 / 7.62	0.600 / 15.24
R4-06 09	0.060 / 1.52	0.090 / 2.29	R4-13 22	0.130 / 3.30	0.220 / 5.59	R4-32 32	0.320 / 8.13	0.320 / 8.13
R4-06 10	0.060 / 1.52	0.100 / 2.54	R4-13 26	0.130 / 3.30	0.260 / 6.60	R4-32 48	0.320 / 8.13	0.480 / 12.19
R4-06 12	0.060 / 1.52	0.120 / 3.05	R4-13 30	0.130 / 3.30	0.300 / 7.62	R4-34 34	0.340 / 8.64	0.340 / 8.64
R4-06 14	0.060 / 1.52	0.140 / 3.56	R4-14 14	0.140 / 3.56	0.140 / 3.56	R4-34 51	0.340 / 8.64	0.510 / 12.95
R4-06 16	0.060 / 1.52	0.160 / 4.06	R4-14 17	0.140 / 3.56	0.170 / 4.32	R4-36 36	0.360 / 9.14	0.360 / 9.14
R4-06 18	0.060 / 1.52	0.180 / 4.57	R4-14 20	0.140 / 3.56	0.200 / 5.08	R4-36 54	0.360 / 9.14	0.540 / 13.72
R4-07 07	0.070 / 1.78	0.070 / 1.78	R4-14 24	0.140 / 3.56	0.240 / 6.10	R4-38 38	0.380 / 9.65	0.380 / 9.65
R4-07 09	0.070 / 1.78	0.090 / 2.29	R4-14 28	0.140 / 3.56	0.280 / 7.11	R4-38 57	0.380 / 9.65	0.570 / 14.48
R4-07 11	0.070 / 1.78	0.110 / 2.79	R4-14 42	0.140 / 3.56	0.420 / 10.67	R4-40 40	0.400 / 10.16	0.400 / 10.16
R4-07 13	0.070 / 1.78	0.130 / 3.30	R4-16 16	0.160 / 4.06	0.160 / 4.06	R4-40 60	0.400 / 10.16	0.600 / 15.24
R4-07 15	0.070 / 1.78	0.150 / 3.81	R4-16 20	0.160 / 4.06	0.200 / 5.08	R4-44 44	0.440 / 11.18	0.440 / 11.18
R4-08 08	0.080 / 2.03	0.080 / 2.03	R4-16 24	0.160 / 4.06	0.240 / 6.10	R4-48 48	0.480 / 12.19	0.180 / 12.19
R4-08 10	0.080 / 2.03	0.100 / 2.54	R4-16 28	0.160 / 4.06	0.280 / 7.11	R4-52 52	0.520 / 13.21	0.520 / 13.21
R4-08 12	0.080 / 2.03	0.120 / 3.05	R4-16 32	0.160 / 4.06	0.320 / 8.13	R4-56 56	0.560 / 14.22	0.560 / 14.22
R4-08 14	0.080 / 2.03	0.140 / 3.56	R4-16 48	0.160 / 4.06	0.480 / 12.19	R4-60 60	0.600 / 15.24	0.600 / 15.24
R4-08 16	0.080 / 2.03	0.160 / 4.06	R4-18 18	0.180 / 4.57	0.180 / 4.57	R4-64 64	0.640 / 16.26	0.640 / 16.26
R4-08 24	0.080 / 2.03	0.240 / 6.10	R4-18 22	0.180 / 4.57	0.220 / 5.59	R4-68 68	0.680 / 17.27	0.680 / 17.27
R4-09 09	0.090 / 2.29	0.090 / 2.29	R4-18 26	0.180 / 4.57	0.260 / 6.60	R4-72 72	0.720 / 18.29	0.720 / 18.29
R4-09 11	0.090 / 2.29	0.110 / 2.79	R4-18 31	0.180 / 4.57	0.310 / 7.87	R4-76 76	0.760 / 19.30	0.760 / 19.30
R4-09 13	0.090 / 2.29	0.130 / 3.30	R4-18 36	0.180 / 4.57	0.360 / 9.14			
R4-09 15	0.090 / 2.29	0.150 / 3.81	R4-18 54	0.180 / 4.57	0.540 / 13.72			
R4-09 18	0.090 / 2.29	0.180 / 4.57						
R4-09 24	0.090 / 2.29	0.240 / 6.10						

3》 R5 Type

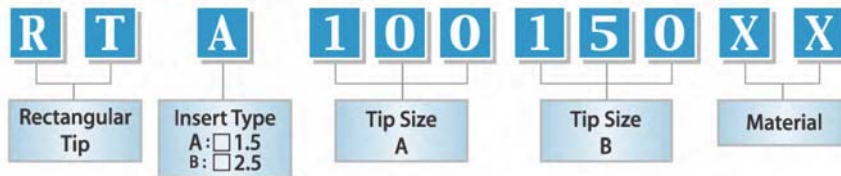


How to Understand Part No

ROA & ROB TYPE



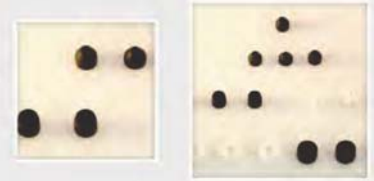
ROA & ROB TYPE



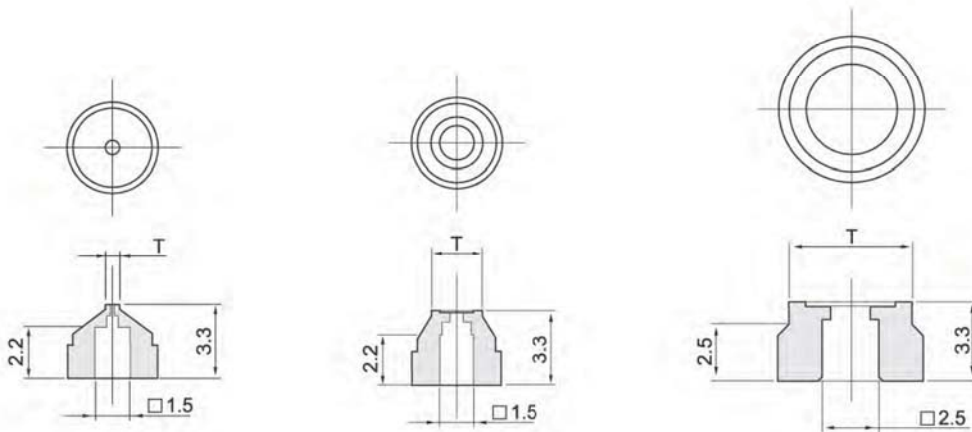
Material (XX)

XX	Material	Color
SW	Silicone rubber	White
SB	Silicone rubber	Black
NB	Nitrile Butadiene	Black

RUBBER COLLET



ROA & ROB Drawing & Part No



ROA TYPE

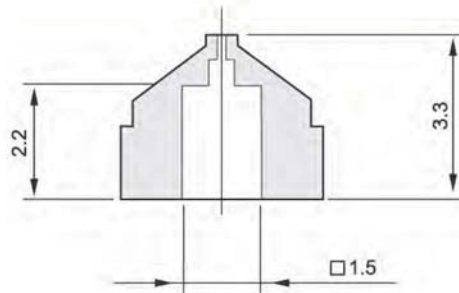
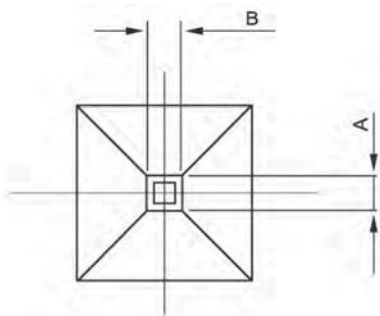
P/N	Tip dia.		Hole	
	inch	mm	inch	mm
ROA 025	0.025	0.64	0.015	0.38
ROA 030	0.030	0.76	0.015	0.38
ROA 035	0.035	0.89	0.015	0.38
ROA 040	0.040	1.02	0.015	0.38
ROA 045	0.045	1.14	0.015	0.38
ROA 050	0.050	1.27	0.024	0.61
ROA 060	0.060	1.52	0.024	0.61
ROA 070	0.070	1.78	0.024	0.61
ROA 080	0.080	2.03	0.024	0.61

P/N	Tip dia.		Hole	
	inch	mm	inch	mm
ROA 090	0.090	2.29	0.036	0.91
ROA 100	0.100	2.54	0.042	1.07
ROA 110	0.110	2.79	0.042	1.07
ROA 120	0.120	3.05	0.045	1.14
ROA 130	0.130	3.30	0.048	1.22
ROA 140	0.140	3.56	0.052	1.32
ROA 150	0.150	3.81	0.056	1.42
ROA 160	0.160	4.06	0.060	1.52
ROA 180	0.180	4.57	0.066	1.68

ROB TYPE

P/N	Tip dia.		Hole	
	inch	mm	inch	mm
ROB 200	0.200	5.08	0.072	1.83
ROB 220	0.220	5.59	0.080	2.03
ROB 240	0.240	6.10	0.080	2.03
ROB 260	0.260	6.60	0.084	2.13
ROB 280	0.280	7.11	0.090	2.29
ROB 300	0.300	7.62	0.090	2.29
ROB 320	0.320	8.13	0.090	2.29
ROB 340	0.340	8.64	0.090	2.29
ROB 360	0.360	9.14	0.090	2.29
ROB 380	0.380	9.65	0.090	2.29
ROB 400	0.400	10.16	0.090	2.29
ROB 420	0.420	10.67	0.092	2.34
ROB 440	0.440	11.18	0.092	2.34
ROB 460	0.460	11.68	0.092	2.34
ROB 480	0.480	12.19	0.092	2.34
ROB 500	0.500	12.70	0.092	2.34

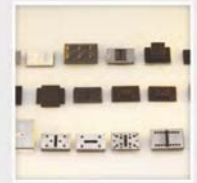
3》 R5 Type



RTA Drawing & Part No

P/N	A	B
	inch / mm	inch / mm
RTA 030 030	0.030 / 0.76	0.030 / 0.76
RTA 030 045	0.030 / 0.76	0.045 / 1.14
RTA 030 060	0.030 / 0.76	0.060 / 1.52
RTA 040 040	0.040 / 1.02	0.040 / 1.02
RTA 040 060	0.040 / 1.02	0.060 / 1.52
RTA 040 080	0.040 / 1.02	0.080 / 2.03
RTA 050 050	0.050 / 1.27	0.050 / 1.27
RTA 050 075	0.050 / 1.27	0.075 / 1.91
RTA 050 100	0.050 / 1.27	0.100 / 2.54
RTA 060 060	0.060 / 1.52	0.060 / 1.52
RTA 060 090	0.060 / 1.52	0.090 / 2.29
RTA 060 120	0.060 / 1.52	0.120 / 3.05
RTA 070 070	0.070 / 1.78	0.070 / 1.78
RTA 070 105	0.070 / 1.78	0.105 / 2.67
RTA 070 140	0.070 / 1.78	0.140 / 3.56
RTA 080 080	0.080 / 2.03	0.080 / 2.03
RTA 080 120	0.080 / 2.03	0.120 / 3.05
RTA 080 160	0.080 / 2.03	0.160 / 4.06

P/N	A	B
	inch / mm	inch / mm
RTA 090 090	0.090 / 2.29	0.090 / 2.29
RTA 090 135	0.090 / 2.29	0.135 / 3.43
RTA 090 180	0.090 / 2.29	0.180 / 4.57
RTA 100 100	0.100 / 2.54	0.100 / 2.54
RTA 100 150	0.100 / 2.54	0.150 / 3.81
RTA 100 200	0.100 / 2.54	0.200 / 5.08
RTA 120 120	0.120 / 3.05	0.120 / 3.05
RTA 120 150	0.120 / 3.05	0.150 / 3.81
RTA 120 200	0.120 / 3.05	0.200 / 5.08
RTA 140 140	0.140 / 3.56	0.140 / 3.56
RTA 140 210	0.140 / 3.56	0.210 / 5.33
RTA 140 280	0.140 / 3.56	0.280 / 7.11
RTA 160 160	0.160 / 4.06	0.160 / 4.06
RTA 160 240	0.160 / 4.06	0.240 / 6.10
RTA 160 320	0.160 / 4.06	0.320 / 8.13
RTA 180 180	0.180 / 4.57	0.180 / 4.57
RTA 180 270	0.180 / 4.57	0.270 / 6.86
RTA 180 360	0.180 / 4.57	0.360 / 9.14



4» MAGNETIC COLLET

1. Designed for thin chip application that requires stable, accurate die bonding.
2. It can be easily replaced.
3. It can help to minimize the risk of rubber's expansion and contraction.



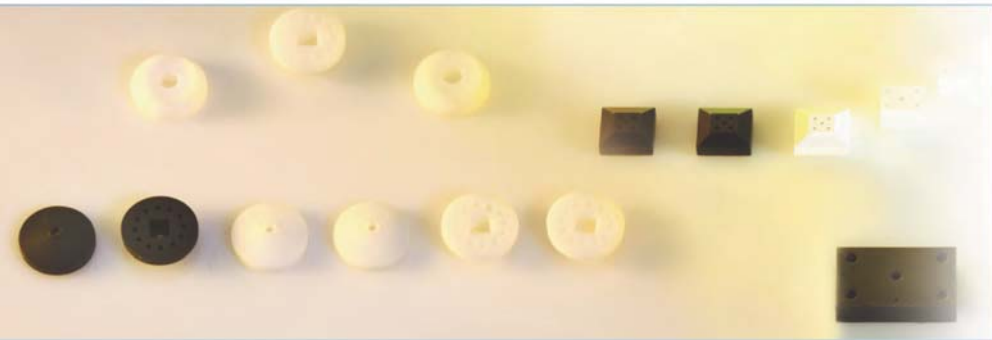
5» VESPEL COLLET

1. Designed for picking up small die sizes using high temperature application during die attach process.
2. Made from durable, rigid plastic and anti static material that can last on continuous die bonding at high temperature.

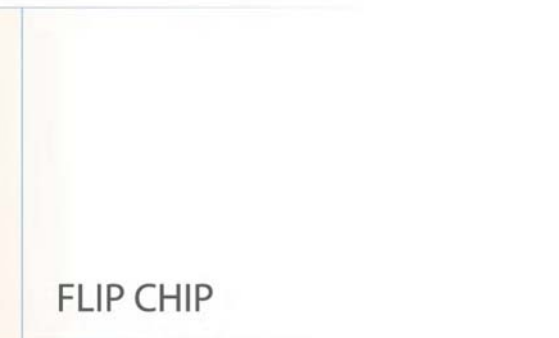
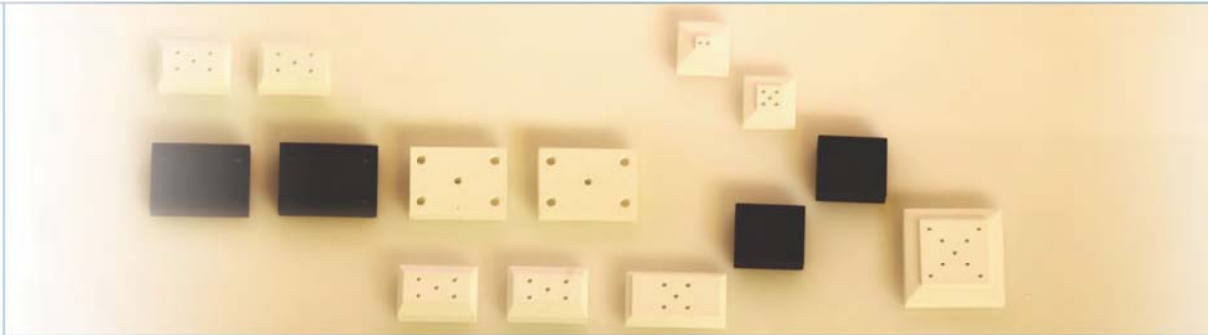


6》CUSTOMIZING

PECO TEK pick-up tools are designed and customized based on strict manufacturing standards, higher quality and strict specifications. Based on customer die bonding application. This is normally used for FLIP CHIPS, THIN CHIPS, and CAMERA MODULES.



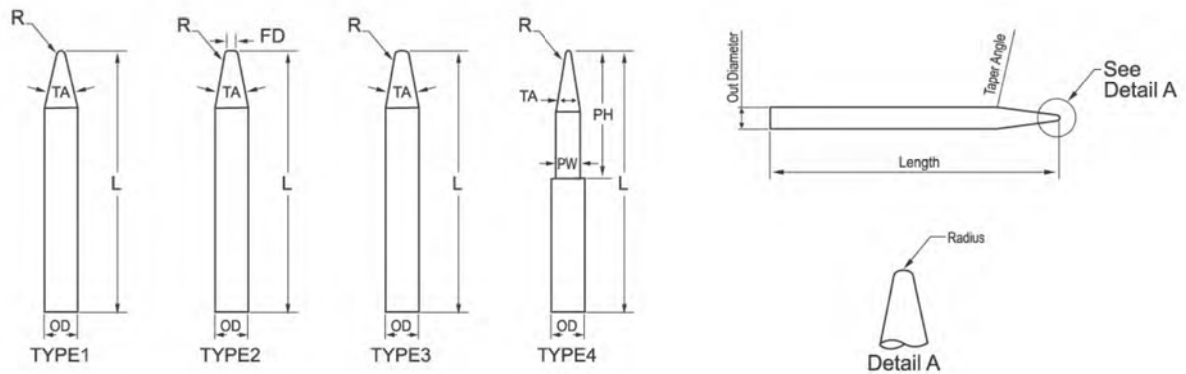
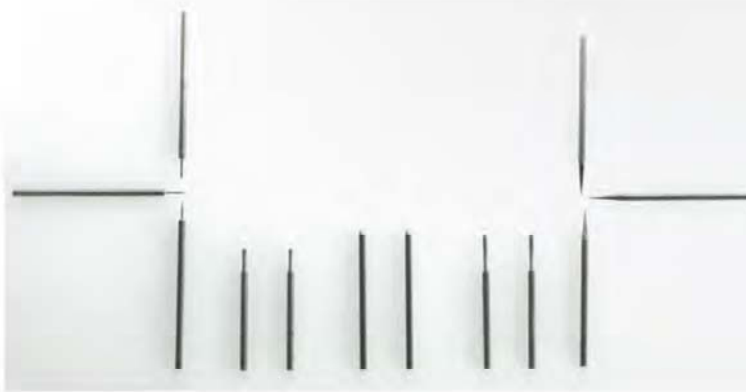
FLAT



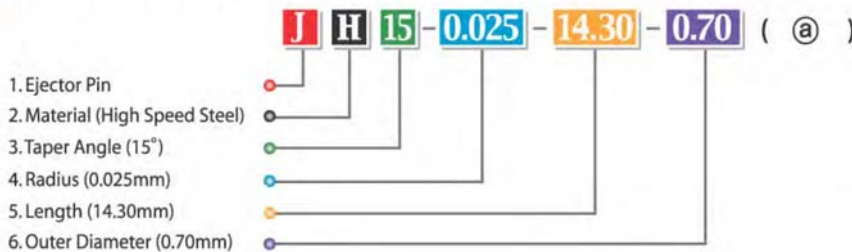
EJECTOR PIN



2 EJECTOR PIN



How to Understand Part No(mm)



1. Ejector Pin
2. Material (High Speed Steel)
3. Taper Angle (15°)
4. Radius (0.025mm)
5. Length (14.30mm)
6. Outer Diameter (0.70mm)

a	
TYPE 1	N.A
TYPE 2	(FD : 0.01mm)
TYPE 3	N.A
TYPE 4	(PH : 0.01mm, PW : 3mm)

MATERIAL	
JT	Tungsten Carbide
JH	High Speed Steel

Standard Diameter			
inch	mm	Tolerance	
0.0275"	0.70	+0.0010" -0.0010"	+0.025mm -0.025mm
0.0268"	0.68		
0.0260"	0.66		
0.0157"	0.40		
Material	Tungsten carbide		
	High speed steel		

If your requirement is different from those specified in the display, please inform us of the detail specification. We customize design to meet your requirements.



Q. A. System

⇒⇒⇒ PECO BEST QMS/EMS introduce.

Precision measuring	Accurate measurement available using scanning electron microscope and laser scanning, non-contact 3D Machine
ECO Partner	Assurance through the governments test qualification and through those conditions, manufacturing ECO friendly products.
Customer satisfaction	Assuring the products specialty through SEM, EDX, Hardness, Bending strength test
Optimization of product quality	Maximizing the product quality through every process control from material property to Packing
Automation Inspection System	Quality assurance through 100% inspections using our self-made automotive inspection tools for every process
Best QMS/EMS	Building Quality Management System and Environmental Management System through ISO 9001/14001
Evaluation system	Excellent evaluation system using Hardness tester, Bending strength tester, etc.



Company Policy

••• The Best Quality

With our finest engineering team and perfect team work, we proudly deliver outstanding quality for every product made by PECO and PECOTek

••• The Best Technology

Every Capillary manufacturing machine is made by our special engineering team who studies all the time to deliver the various needs of our valuable customers.

••• The Best Delivery

With its globally known logistics system PECO can deliver the goods right on time, when you need them, and wherever you want them.

••• Prompt Reaction

Great team work of our sales department with the coordination of related departments, whenever you want to contact us, we will be there for you.



Order No.	Part No.	Part Name	Unit	QTY	Price	Total Price
001	001	001	001	001	001	001
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003	003	003	003	003	003	003
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