www.efulls.com.tw TEL : 886-3-3113808 FAX : 886-3-3113985 E-Mail : tony@efulls.com.tw

CATALOG

SUMMARIZATION

First, thanks for the noticing of yours on this professional information from E-FULL. Hope we do have the opportunity to cooperate and provide the service to you.

We are the conductor in producing SOCKET and PIN contact in Taiwan with several technology patents which applied for Countries already. Because of the new design products keep on presenting to the public, we can only provide the regular parts of SOCKET in this catalog. If there is any other product in different size you need, we will be pleased to offer full support to design and manufacture for customer!

INTRODUCTION & SOCKET CONTACT TYPE

Socket contact which also called Female contact or Pin receptacles.

All of these can be manufactured with different type of terminations as below：

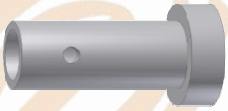
PCBSOLDER TAIL

SMD TERMINATION

PRESS-FIT FOR PCB SOLDERLESS CONNECTION

WRAPOST

WIRING CRIMP



SOLDER CUP

WIRING TURRET

WIRING SLOT

CONTACT SELECTOR BY MATING PIN DIAMETER

The mating pin diameter range and insertion characteristics of socket contacts are identified with the clip code, given by A, B, C… for mating pin diameter range and 6 digits for clip code.

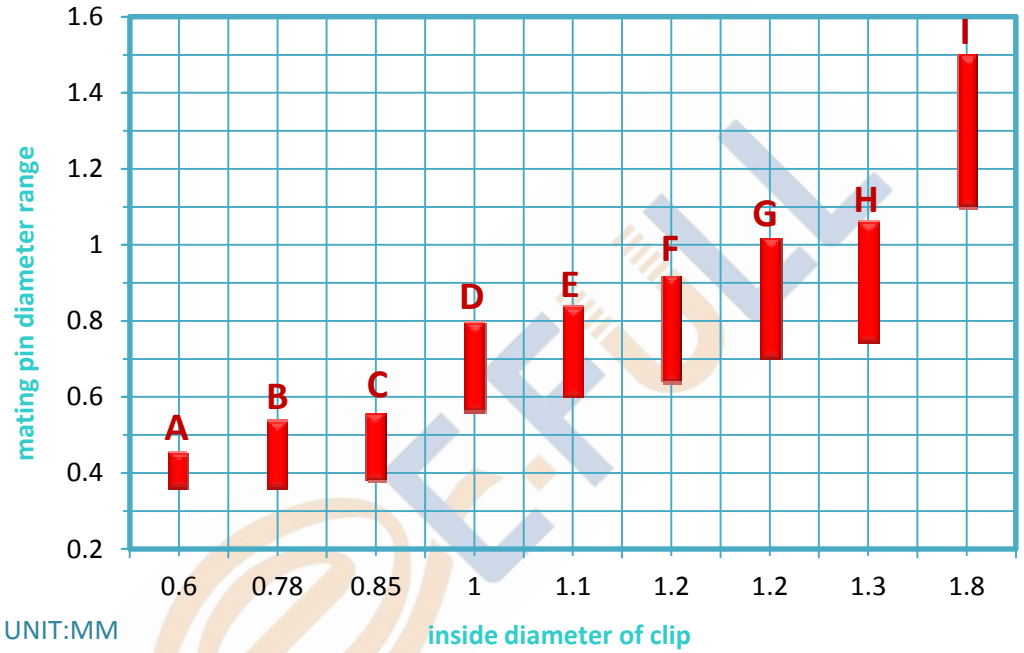
1.To SEARCH A SUITABLE SOCKET CONTACT TO MATE WITH A KNOWN PIN：

With the graph below, find the group code corresponding to the mating pin diameter.

In the table below the graph, search the clip codes corresponding to the group.

All clip codes from the same group are interchangeable within a given contact body.

This allows for contacts with a larger range of insertion characteristics to fulfill the requirements of special applications.



2.TO SEARCH THE CHARACTERISTICS OF A KNOWN CLIP CODE：

Find the corresponding page number for each clip code data sheet in the table below.

GROUP	CLIP CODE	TEST PIN DIAM RANGE(mm)	TEST PIN DIAM (mm)	INSERTION FORCE (kgf)	PAGE
A	406010	0.36~0.46	0.38	0.140	p.6
B	407815	0.36~0.54	0.46	0.260	p.6
C	408515	0.38~0.56	0.48	0.285	p.6
D	610515	0.56~0.80	0.76	0.280	p.7
E	611112	0.60~0.84	0.78	0.330	p.7
F	612010	0.64~0.92	0.80	0.170	p.7
G	412020	0.70~1.02	0.90	0.240	p.8
H	412620	0.74~1.06	0.93	0.280	p.8
I	418020	1.10~1.50	1.35	0.245	p.8

GENERAL TECHICAL SPECIFICATION

The contacts are manufactured by high speed turning process with, if necessary, additional secondary machining operation for example for flats, slots or solder cups. The preferred diameter range lies between 1 and 6 and contact length up to 40mm are standard.

MATERIALS

CONTACT BODIES

Brass CuZn36Pb3, C36000，attribution as below :

- Chemical composition：copper 61.5%, zinc 35.4%, lead 3.1%
- Hardness：80-90 Rock well B
- Density：0.307 lbs/in3
- Electric Conductivity：26% IACS%
- Melting point：900°C / 885°C (liquidus/solidus)

CLIP

BERYLLIUM COPPER ALLOY C17200，ATTRIBUTION AS BELOW：

- Chemical component: copper 98.1%, beryllium 1.9%
- Temper as stamped：TD01

ATTRIBUTION AFTER HEAT-TREATMENT (TH01)：

- Hardness process：36-43 Rock well C
- Mechanical life：100 Cycles Min.
- Density：0.928 lbs/in3
- Electric Conductivity：22% IACS%
- Resistance：10 miliohms Max
- Operating Temperature：-55°C/+125°C
- Melting point：980°C / 865°C (liquidus/solidus)
- Stress Relaxation：96% of stress remains after 1,000 hours @ 100 °C；70% of stress remains after 1,000 hours @ 200 °C

All these materials are compliant with RoHS requirements. Lead content of copper alloys is less than 4% in accordance with Exception 6 of the RoHS directive 2002/95/CE.

PLATING

Contact plating is made up of basis underplating acting as diffusion barrier and of finishing layer.

UNDERPLATING

• Nickel（Ni） electro-deposited，according to SAE-AMS-QQ-N-290

FINISH

• Gold（Au），according to ASTM B488，type II C

• Tin（pure tin Sn），standard tin plating with excellent solder ability，RoHS compliant

• Tin-Lead（SnPb90／10），according to ASTM B545. This plating is **not RoHS compliant**

• Silver（Ag），according to ASTM B700

ELECTRICAL AND MECHANICAL CHARACTERISTICS

See individual description in page 5

ENVIRONMENTAL CHARACTERISTICS

The contacts withstands following environmental tests without mechanical and electrical defects :

• Dry heat steady state IEC 60512-11-9.11i／60068-2-2.Bb：125°C，16h

• Damp heat cyclic IEC 60512-11-12.11m／60068-2-30.Db：25／55°C，90–100%rH，1 cycle of 24 hours

• Cold steady state IEC 60512-11-10.11j／60068-2-1.A：-55°C，2h

• Thermal shock IEC 60512-11-4.11d／60068-2-14.Na：-55／125°C，5 cycles 30 min

• Sinusoidal vibrations IEC 60512-6-4.6d／60068-2-6.Fc：10 to 500Hz，10g，1 octave/min，10 cycles for each axis

• Shock IEC 60512-6-3.6c／60068-2-27.Ea：50g，11ms，3 shocks in three axis

During the above two tests，no contact interruption > 50n does appear.

• Solder ability J-STD-002A，test A，245°C，5S，solder alloy SnAg3.8Cu0.7

• Resistance to soldering heat J-STD-020C，260°C，20S

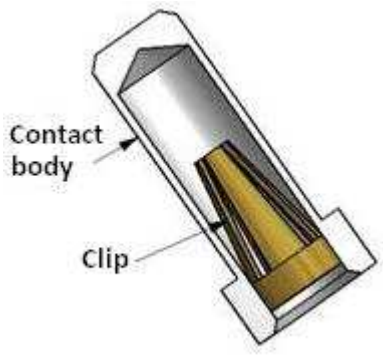
• Resistance to corrosion：

1） Salt spray test IEC 60068-2-11.Ka：48hrs

2） Sulfur dioxide(SO_2) test IEC 60068-2-42.Kc：96 hours at 25 ppm SO_2，25°C，75%rH

3） Hydrogen sulfide(H_2S) test IEC 60068-2-43.Kd：96 hours at 12ppm H_2S，25°C，75%rH

SOCKET CONTACT



The E-FULL technology for socket contacts is based on a two-parts design:

• Contact body

• Multi-finger contact spring called clip

These socket contacts with clip are compatible with all existing machined and stamped mating pin contacts of same size

CONTACT BODIES AND CLIPS ARE MANUFACTURED AND PLATED SEPARARLY

The contact bodies are manufactured by high speed turning process with additional secondary machining operation if necessary. The clip are stamped and formed from sheet material. Depending on size and characteristics, the clips are designed with 3 to 8 contact finger. The choice of heat treated beryllium copper alloy gives the best possible combination of mechanical and electrical properties for use in electrical contacts. More than 20 clips are pre-tooled, covering a mating pin diameter range from 0.25 to 2.5 mm. They can accept square or rectangular pin. The clip is assembled into the contact body by press-fit on automatic equipment including on-line inspections.

MAIN ADVANTAGES OF THE TECHNOLOGY

• In giving a precision combination for exiting standard clip with different contact bodies and presenting with stable clipping. Applied with several patents for countries, clip will not be easily pulled out.

• E-FULL automatic high speed contact assembly lines are optimized for large production runs but also for smaller series custom specifications, price provided competitive.

MECHANICAL CHARATERISTICS

• Insertion characteristics

Insertion and withdrawal force for standard clips are displayed on the corresponding data sheets. The values are measured with polished steel gauges and are typical average measurements. These data are for general information and selection of best suited clip for a given application.

• Clip retention

This is the force needed to pull-out the press-fitted clip from its contact body. Clip retention is greater than 40 kgf.

• Mechanical life

The mechanical life expectancy is dependent on the surface smoothness and diameter of the mating pin and on the plating. For some applications, more than 1000 mating cycles are possible.

ELECTRICAL CHARATERISTICS

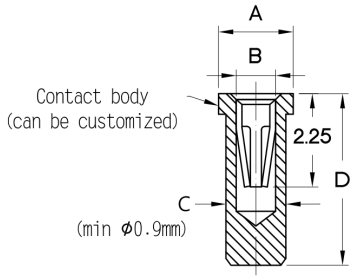
• Current rating

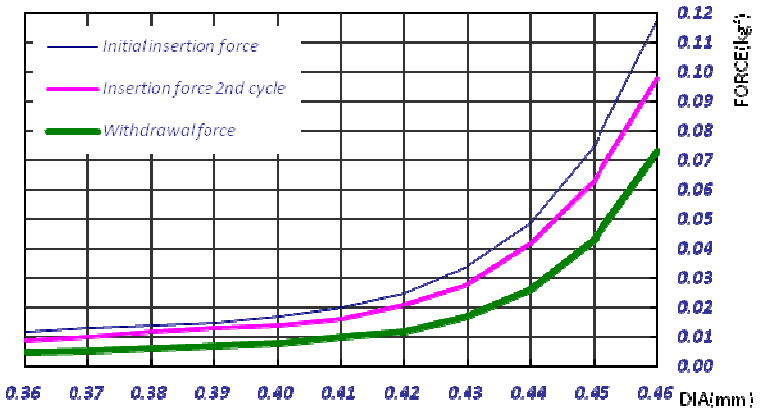
The given currents are for one mated combination of socket and pin contact, in free air and for 10°C temperature rise.

CONTACT DATA

CLIP CODE : 406010 4-FINGER

MATING PIN DIA RANGE 0.36-0.46mm
MATING PIN DIAMETER 0.38mm

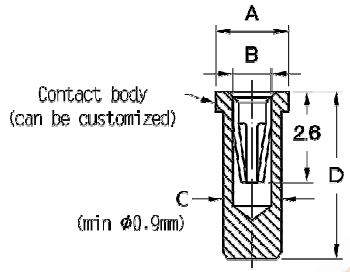


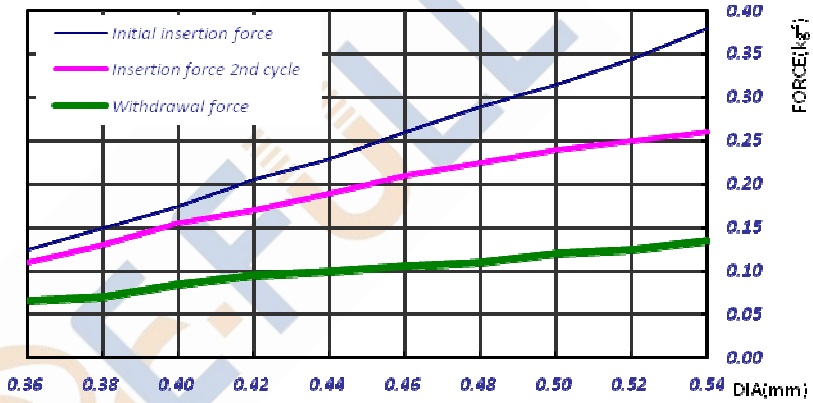


	PART NO.	A	B	C	D
STOCKS	16000	ϕ1.73	ϕ0.76	ϕ1.25	5.08L
	16000-ld	ϕ1.73	ϕ1.05	ϕ1.25	5.08L

CLIP CODE : 407815 4-FINGER

MATING PIN DIA RANGE 0.36-0.54mm
MATING PIN DIAMETER 0.46mm

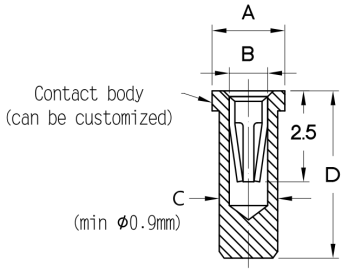


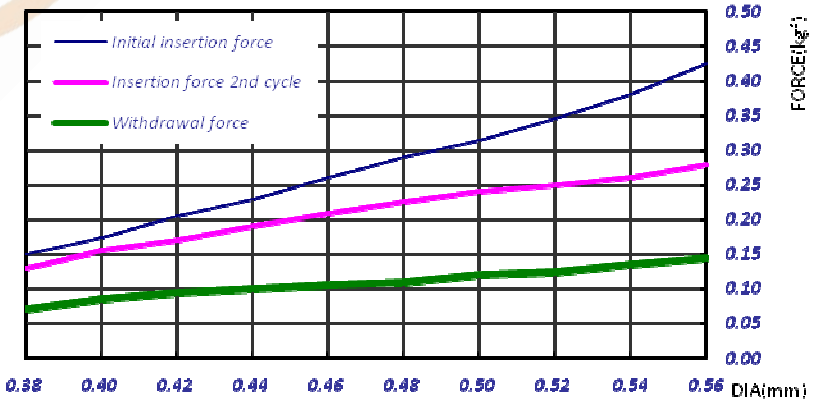


	PART NO.	A	B	C	D
STOCKS	--	--	--	--	--

CLIP CODE : 408515 4-FINGER

MATING PIN DIA RANGE 0.38-0.56mm
MATING PIN LENGTH MIN 0.48mm

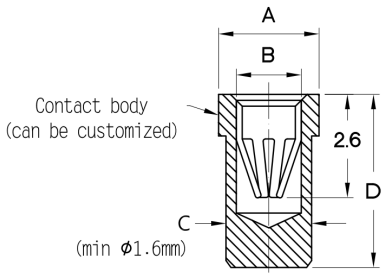


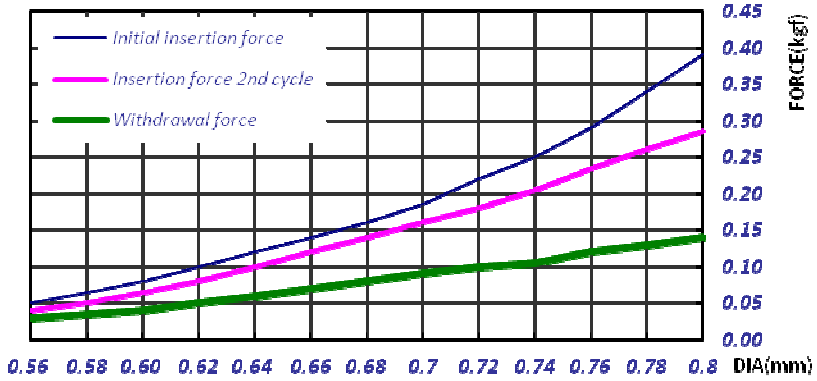


	PART NO.	A	B	C	D
STOCKS	--	--	--	--	--

CLIP CODE：610515 6-FINGER

MATING PIN DIA RANGE 0.56-0.8mm
MATING PIN LENGTH MIN 0.76mm

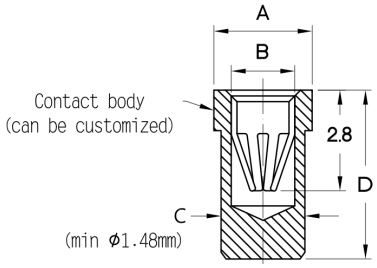


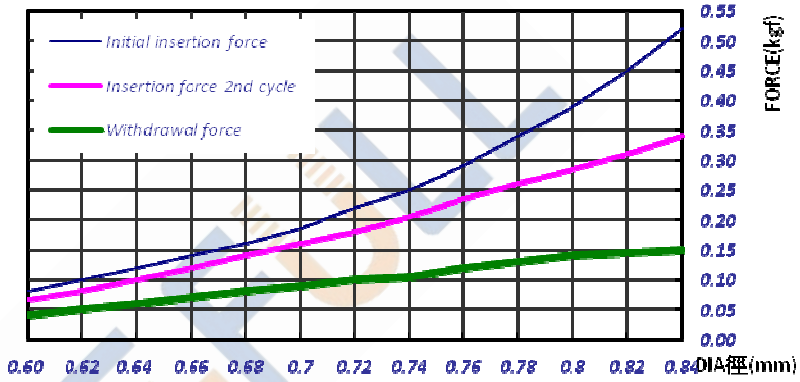


PART NO.	A	B	C	D
STOCKS	--	--	--	--

CLIP CODE：611112 6-FINGER

MATING PIN DIA RANGE 0.6-0.84mm
MATING PIN LENGTH MIN 0.78mm

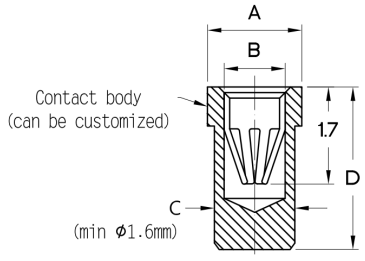


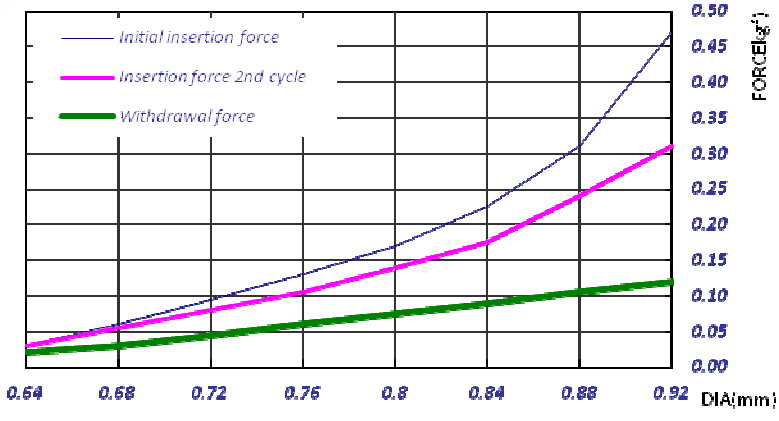


PART NO.	A	B	C	D
STOCKS 14007	φ1.82	φ1.30	φ1.48	7.00L
19000	φ1.82	φ1.30	φ1.48	5.08L
13020	φ2.16	φ1.30	φ1.55	5.08L
14011	φ1.82	φ1.30	φ1.48	7.00L

CLIP CODE：612010 6-FINGER

MATING PIN DIA RANGE 0.64-0.92mm
MATING PIN LENGTH MIN 0.80mm

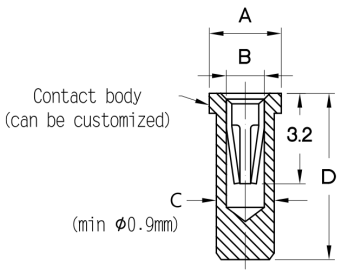


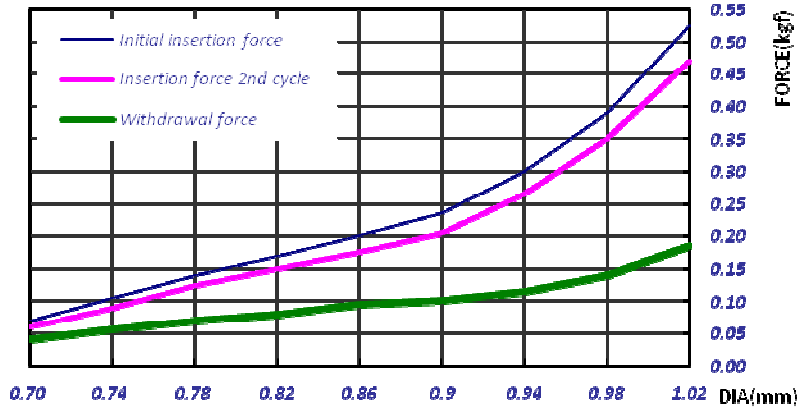


PART NO.	A	B	C	D
STOCKS	--	--	--	--

CLIP CODE : 412020 4-FINGER

MATING PIN DIA RANGE 0.7-1.02mm
MATING PIN DIAMETER 0.90mm

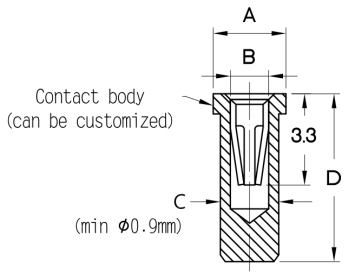


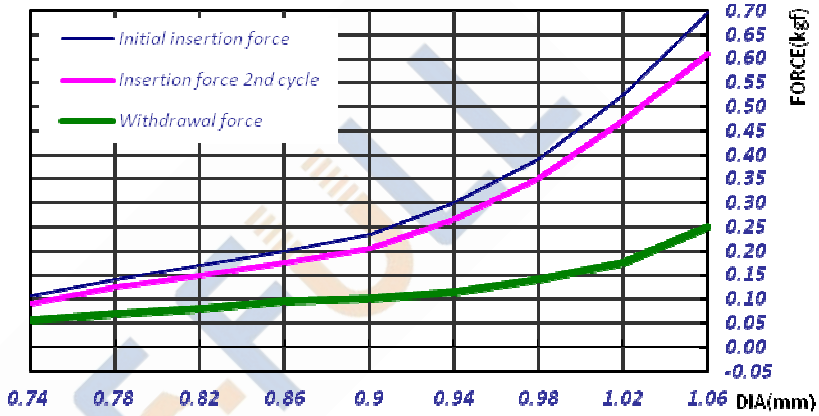


	PART NO.	A	B	C	D
STOCKS	04001	ϕ2.40	ϕ1.50	ϕ1.77	6.35L

CLIP CODE : 412620 4-FINGER

MATING PIN DIA RANGE 0.74-1.06mm
MATING PIN DIAMETER 0.93mm

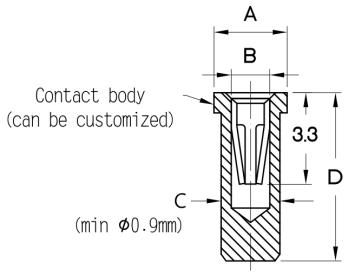


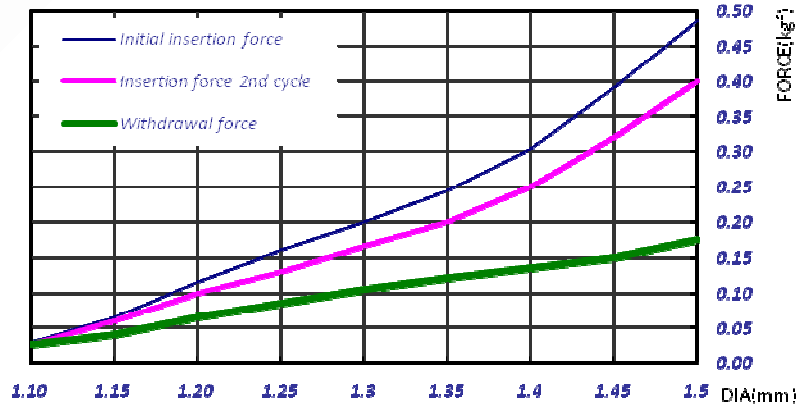


	PART NO.	A	B	C	D
STOCKS	1001G	ϕ2.30	ϕ1.62	ϕ1.84	5.23L
	05001	ϕ2.50	ϕ1.63	ϕ2.00	5.23L
	10001	ϕ2.30	ϕ1.63	ϕ1.83	5.23L
	14008	ϕ2.40	ϕ1.63	ϕ1.85	5.50L

CLIP CODE : 418020 4-FINGER

MATING PIN DIA RANGE 1.1-1.5mm
MATING PIN DIAMETER 1.35mm





	PART NO.	A	B	C	D
STOCKS	AD000	ϕ3.15	ϕ2.18	ϕ2.46	5.50L