

CrimpFlex™ Products

Selection Guide



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Follow this sign to read some recommendations & tips

INTRODUCTION & HOW TO USE THIS GUIDE

THIS GUIDE AIMS AT COMBINING TOGETHER ALL CRIMPFLEX™ PRODUCTS & FACILITATING THE SELECTION OF THE RIGHT PART FOR USERS, ENGINEERS, & PURCHASERS.

IT IS NOT A TECHNICAL BOOK. YOU CAN ACCESS ALL PRODUCT SPEC & DRAWINGS ONLINE ON WWW.NICOMATIC.COM.

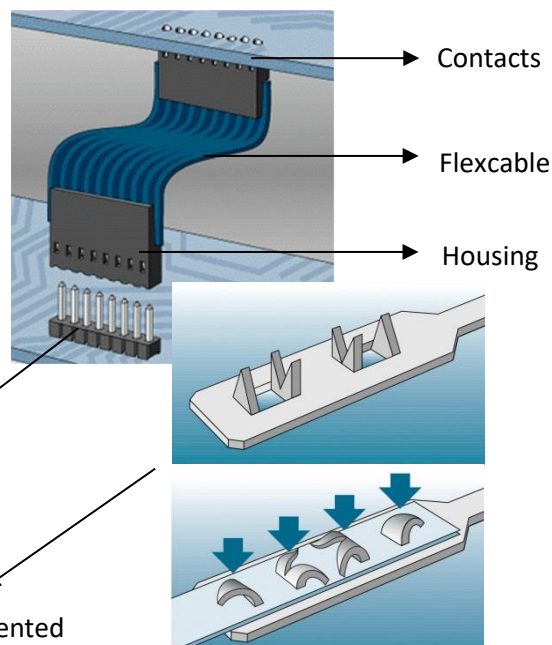
WITH THIS GUIDE, YOU WILL LEARN MORE ON THE TECHNOLOGY & PRODUCT PORTFOLIO AS WELL AS THE MOST COMMON APPLICATIONS FOR THE CRIMPFLEX™ RANGE OF PRODUCTS.

CRIMPFLEX™ is a connector system dedicated to flat cables and flexible circuits where two modules are to be connected.

Applications can be found in membrane switches, touch panels/pads, e-inks, smart textiles, sensors, medical, lighting, white & consumer goods, automotive etc.

It has been designed & patented by Nicomatic.

NICOMATIC's **CRIMPFLEX™** connector families utilize crimp terminals which are separate from the housings. First the terminals are crimped to the circuit tail, subsequently the housing is assembled to the terminals. The crimping of the contact is achieved by piercing the conductor at 6 points: 2 points achieve mechanical retention, and electrical contact by 4 points with reduced contact resistance. The advantages are numerous. Crimping of all the contacts in one operation will save time, cost and improve accuracy. The width of the tail is not restricted by the available housing widths and the housing can be removed if required.



Traditional pin headers

CRIMPFLEX™ system patented by NICOMATIC

Contact technology & generalities

CRIMPFLEX™ contacts ensure excellent mechanical retention and electrical contact by piercing the conductor in 6 points. It is a much more reliable solution vs. ZIF/LIF type of connections & other similar technologies.

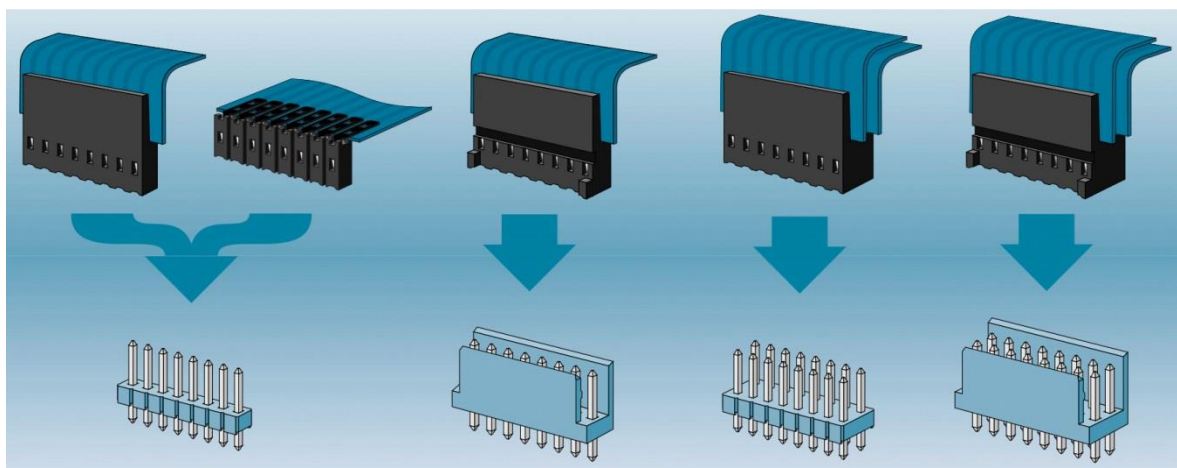
The contacts are available in 2 standard pitch sizes, 1.27mm & 2.54mm, in male, male solder-tab and female versions to meet all market needs. Female contacts are selective gold (-32 (0.15μ), -352 (0.37μ), -372 (0.75μ)) or tin plated (Ni 2μ+ Sn 5μ).

General features:

- Low contact resistance (5 m Ω max.) with high mechanical force (50 N min. parallel to tracks)
- UL E125469 (consultable on www.ul.com)
- Can crimp all kind of supports: polyester, FR4, polyimide, PTFE, etc.
- Temperature range from -55°C to +150°C
- 2.54mm pitch: 3 female contacts: Hi-Flex, Low Insertion Force, High Insertion Force
- 1.27mm pitch: miniaturization to fit with pin headers of dimension 0.38 to 0.45mm
- Many options for male solder tabs
- All contacts & solder-tabs are produced in-house to ensure the highest standards

Typical applications for female contacts:

- The contacts are crimped on FFC cables or printed flexible circuits,
- a **CRIMPFLEX™** housing is selected & placed onto the contacts,
- a mating is operated by hand with standard square or round pin headers, or walled headers for removable connections,
- A 3rd alternative is for use with latched housings







HOW & WHERE TO USE OUR CRIMPFLEX™ CONTACTS?

Female contact

All contacts are available in tin plated (thickness Ni 2 μ + Sn 5 μ) or selective gold plated (standard: Ni 2 μ + Au 0.15 μ) versions.

-12 = tin plated / -32 = selective gold plated (eg. 14106-32)

14106	11506	10025	16068
			
2.54mm pitch	2.54mm pitch	2.54mm pitch	1.27mm pitch
1st technical choice* 500 cycles	Low Insertion force 100 cycles	High Insertion force 20 cycles	Miniature pitch
Hi-Flex with wider insertion angle Stable insertion force High resistance to damage by bent or angled pins	For low current applications, no high vibration and a medium number of mating cycles Same mechanical structure as 10025	For low current applications, higher vibration and recommended for up to 12 contacts max. 1st Nicomatic design	Hi-Flex equivalent design in smaller pitch

* 14106 is a multi-insertion & multi-flex contact designed to offer a stable insertion force over a large number of mating cycles. It is more resistant to damage by bent or angled pins, primarily on test devices.

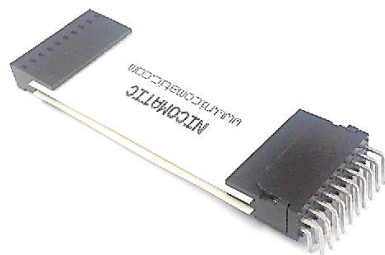


On next 3 pages you can see 3 mating tables for the use of **CRIMPFLEX™** female contacts

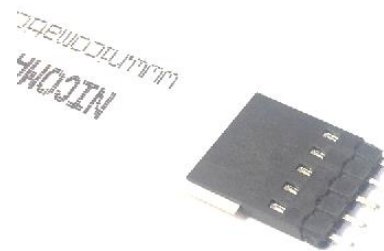
- Connection to PCB board with female contacts in 2.54mm pitch
- Connection to PCB board with female contacts in 1.27mm pitch
- Connection to wire or flat cable with female contacts in 2.54mm pitch

		Female side			Male side	
14106 - 10025 - 11506 Female		0Fxx / 0FHxx		Mates with	12-17-1x1-nn-1	
		7F10xx			12-21-2x1-nn-1	
		0Mxx / 0MHxx		1L-10-1x1-nn-1		
		0Lxx / 0LHxx		1L-10-2x1-nn-1		
	+	0Jxx / 0JHxx		1L-10-5Y1-XX-1-P → New: 90° SMT header w/ PCB pegs		
		2Exx		1Y-10-1x1-nn-1		
		4Exx		1Y-20-1x1-nn-1	1Y-20-2x1-nn-1	
	4Fxx		16-17-1x1-nn-1	16-21-2x1-nn-1		


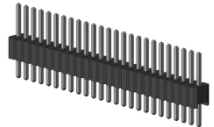
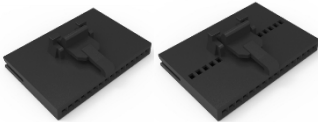
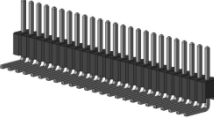

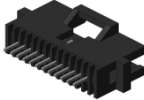

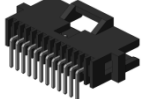
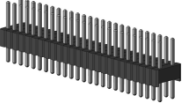
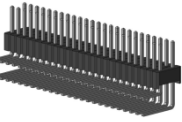
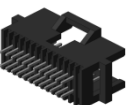
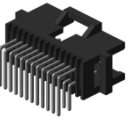
Example with 4E20 + 1Y-20-211-20-1



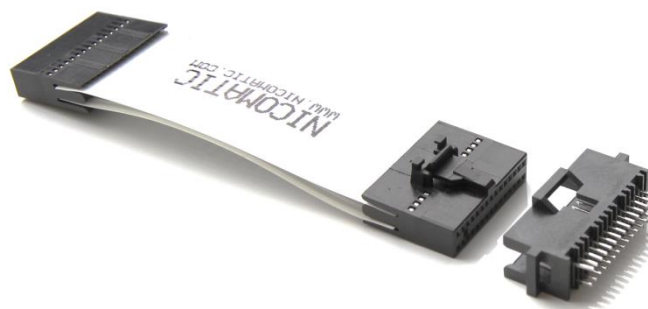
Example with 0FH05 + 12-17-111-05-1



Check the function of each housing on pages 14-15

CONNECTION TO PCB BOARD W/ FEMALE CONTACTS (1.27mm pitch)						
Female side			Male side			
16068 Female	+	M0Fxx		Mates with	12-09-1xM-nn-1	
		M0Jxx / M0Rxx	 LATCHED		12-21-2x1-nn-1	
		M4Fxx			1L-10-1xM-nn-1	
		M4Jxx			1L-10-2xM-nn-1	
					16-09-1xM-nn-1	
					16-09-2xM-nn-1	
					1L-20-1xM-nn-1	
					1L-20-2xM-nn-1	

Example with M4J30 + 1L-20-11M-30-1:



CONNECTION TO WIRE W/ FEMALE CONTACTS (2.54mm)					
Female side			Male side		
14106 - 10025 - 11506 Female	0Fxx / 0FHxx		Mates with	13595-12	
	0Lxx / 0LHxx			1Lxx + 12410-x2	
	0Mxx / 0MHxx			1SMxx + 14671-1x	
	0Jxx / 0JHxx				
0Pxx / 0PHxx		1Pxx+12410-x2 (upon request)			

Example with 1SM04 w/ 14671-10 contacts + 0L04 w/14106-12 contacts:






Use hand crimp tool P/N 14841 to crimp 14671 contacts on wire (AWG 28 – 22)

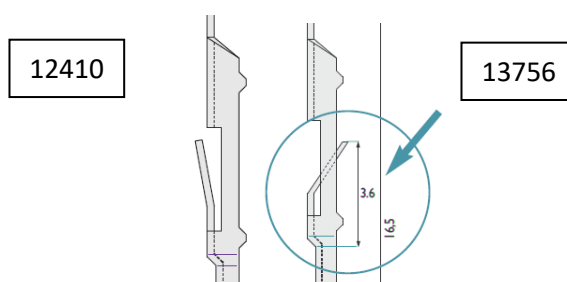
HOW & WHERE TO USE OUR CRIMPFLEX™ CONTACTS?

Pin (Square male)

The main use for square male pins is for flex to flex connections as an extension, but they are also used to solve other connection issues like flex to discrete wire or flex to PC board.

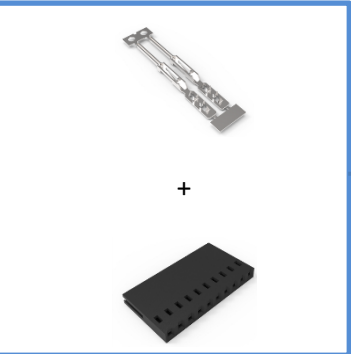
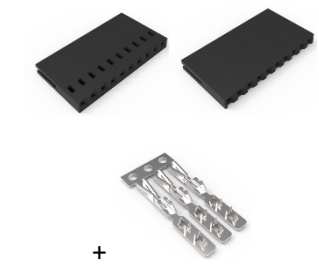
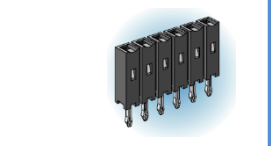

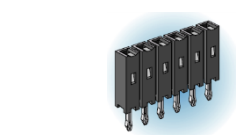
12410	13756	13595
		
2.54mm pitch	2.54mm pitch	2.54mm pitch
0.635mm (.025") square male	0.635mm (.025") reverse square	Short square male pin
Designed to accept a 0.635mm pin header For flex to flex connections	Same as 12410 but with reverse clip (position latch up to user)	Hybrid use with mating with female housing or for direct use to header (no housing)

* 13756 is with the same feature as 12410, but the reverse clip allows to position the latched housing 1L to the opposite direction.



On next 2 pages you can see 2 mating tables for the use of **CRIMPFLEX™** square male pins:

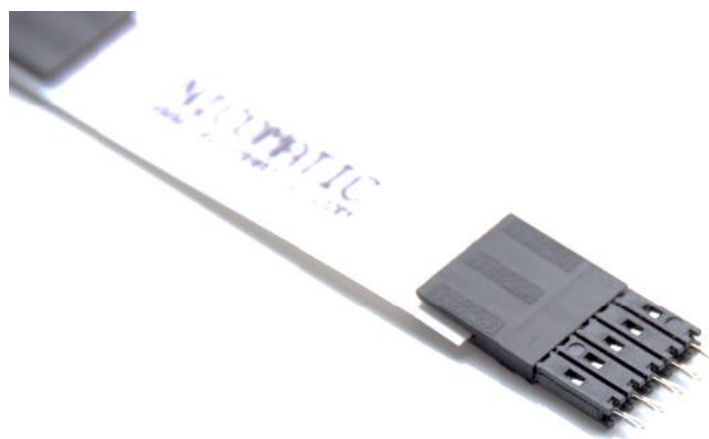
- Connection to PCB board with square male pins in 2.54mm pitch
- Connection to wire or flat cable with square male pins in 2.54mm pitch

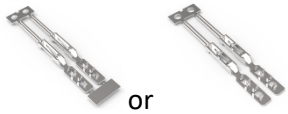





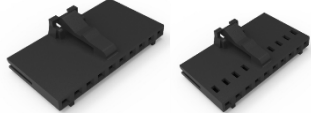
CONNECTION TO PCB W/ MALE PINS (2.54mm)				
<p>12410-x2 + OF / OFHxx</p>		<p>Mates with</p>	<p>OFxx / OFHxx + 14106-x2</p>	
			<p>8Y-10-1x1-nn-1</p>	
<p>13595-x2</p>			<p>8Y-10-1x1-nn-1</p>	



Save the use of a housing with 13595 short square male pins!

Example with OF05 / 12410-12 + 8Y-10-111-05-1:

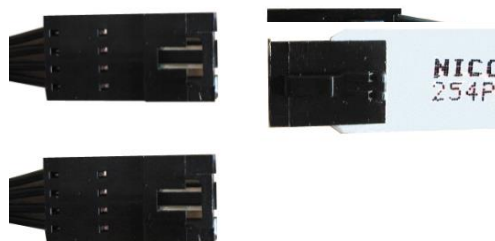


CONNECTION TO DISCRETE WIRE OR FLEX W/ MALE PINS (2.54mm)				
Male side		Female side		
12410-x2 or 13756-x2	 or +	Mates with	2SLxx+14672	 +
+			0Lxx / 0LHxx+ any female	
1Lxx			0Mxx/0MHxx+ any female	
			0Jxx / 0JHxx+ any female	
				

Example with 1L04 with 12410-12 contacts + 2SL04 with 14672-12 contacts:



Also exists in wire to wire extension: 1SM04 (w/ 14671 contacts) + 2SL04 (w/ 14672 contacts) or +0L04 (w/ 14106 contacts)










Or FFC to FFC: 1L05 (w/ 12410 contacts) + 0M05 (w/ 14106 contacts)

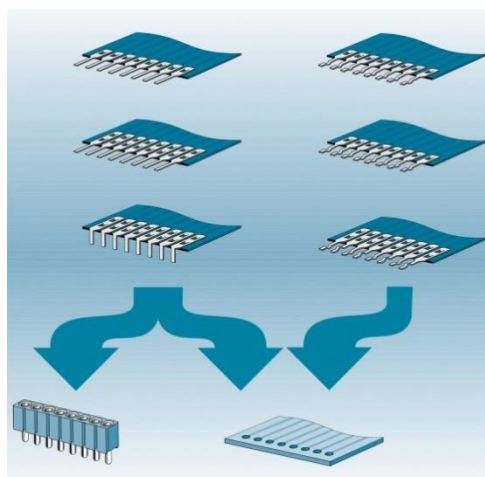


HOW & WHERE TO USE OUR CRIMPFLEX™ CONTACTS?

Male solder-tab

- Solder pins are used with I.C. sockets, wipe contacts with single or double points
- They can also be directly soldered onto printed circuits

10141	10241	10067	10167	12887	11612	16069
						
2.54mm pitch	2.54mm pitch	2.54mm pitch	2.54mm pitch	2.54mm pitch	2.54mm pitch	1.27mm pitch
Standard short male	Standard male	Retention short male	Retention male	Double retention male	Long male	1.27mm pitch standard male
To solder or to fit into I.C. sockets or wipe contacts – applications w/ restricted crimped areas	To solder or to fit into I.C. sockets or wipe contacts – applications on flexible supports	For use in tight fitting applications – complies with high density packaging requirements	Longer version	Best retention during wave-soldering. Each pin is formed in an opposite direction.	For connections to EL lamps – allows connection in screw terminal blocks	To solder For miniaturization needs



HOW & WHERE TO USE OUR CRIMPFLEX™ HOUSINGS?

List of housings by type & function

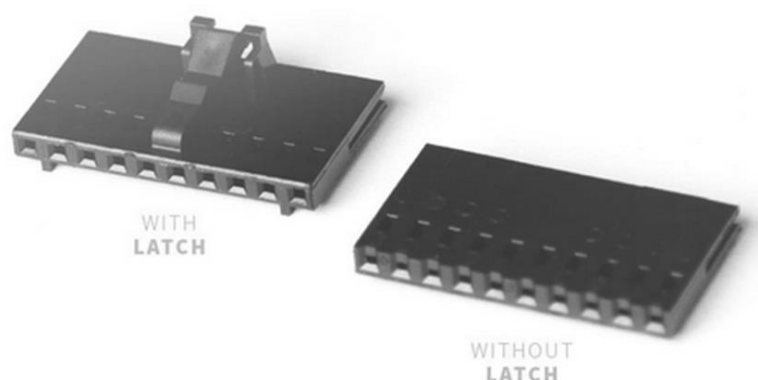
Selection Tips

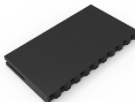





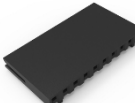





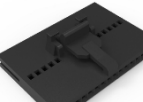


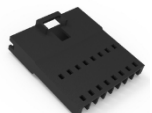
CrimpFlex™ Housings

CrimpFlex™ housings are made of thermoplastic classified UL94V-0. They are separated into two product ranges in 1.27mm & 2.54mm pitch and are dedicated to a use with Nicomatic contacts. They are also compatible with our headers and most of existing market standards.

General features:

- UL E 125469
- Application scope: PCB connection, on discrete wire or flat cable, and extension cable
- Single and double row (2-50 in 2.54mm and 4-100 in 1.27mm)
- Locking (0J, 0L, 0M, 1L, M0J, M0JR, M4J) or detent style (OD)
- No polarization or locking (0F, 4F, 7F10, M0F, M4F)
- High density package in 90° (7F10)
- Connection to male walled headers (2E, 4E)
- Extension housings (0P, 1P)
- Option through holes to place the latch on the desired side of the FFC



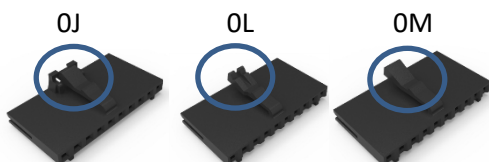
	LIST OF HOUSINGS BY TYPE & FUNCTION (In blue 1.27mm pitch)						
Housings	1 row  0F/OFH	  7F10	1 row  2E	1 row  0M/OMH/OL/ OLH/OJ/OJH	1 row  0D/ODH	1 row  0P	1 row  1L
	2 rows  M0F		2 rows  4E	2 rows  M0J			
	2 rows  4F			2 rows  M0JR			
	2 rows  M4F			2 rows  M4J			1 row  1SM
Main feature	For removable connection w/ square or round pin headers	Low profile For 90° connection & high density (50% shorter vs. 0F/OFH)	For walled pin headers connection	Latching Easy mating/ unmating by finger pressure	Detent style (retention)	Connects w/ 1P housings available upon request	For the locking with female latching or discrete wire 2SL housings
Removable	Y	Y	N	N (by finger)	N	N	N (by finger)
Polarized	N	N	Y	Y	Y	Y	Y
Locked	N	N	Y (retention)	Y	Y	N	Y
Side to side stackable	Y	Y	N	N	N	N	N

Y = yes

N = No



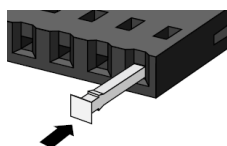
- **“H” feature** in all P/Ns: alternate housing with through holes allowing for latch to be oriented in either direction thus enabling to avoid compatibility problems, in 1.27mm housings M0JR, the “H” is replaced by “R” and means the same thing,
- All 1 row housings in 2.54mm pitch are available from 02 to 25 ways, except 0Dxx from 03 to 25 and all 2 rows housings are available from 04 to 50 ways,
- All 1 row housings in 1.27mm pitch are available from 04 to 50 ways and all 2 rows from 8 to 100.
- Why should I choose a 0M, and not 0L or 0J? They are all latched housings.



0J / 0JH: housing w/ extra mechanical protection to prevent the latch breaking or tearing, 4 chamfers for an easier & better insertion guiding & fully compatible with all industry standards,

0L / 0LH & 0M / 0MH: the latch shape on the housing fits to most of industry standards but you need to make sure that it is compatible with your application in case of replacement,

- The detent feature in 0D/0DH provides a more secure mate – while not as strong as a latch or lock, the detent keeps a thin profile and will help maintain a secure connection,
- Whether you are using extender cables off your circuitry or transitioning to discrete wires, Nicomatic CrimpFlex™ can provide a solution. Our standard square male pins will mate to all of our female offerings,
- All Nicomatic housings are made of a black thermoplastic material, UL94-V0 classified & are marked CrimpFlex™,
- Options: other plastic materials can be provided upon request. In medical sector, PPC Chalk housings are very popular (supplied in white colour), accessories for 2.54mm pitch housings:



Polarization keys (keys to plug into the housings to ensure polarization)

- **7F10** housings are an ideal solution for 90° connections:



DO YOU NEED A CRIMPING EQUIPMENT FOR YOUR ASSEMBLY?

Manual equipments - Semi-automatic or electrical equipments

CrimpFlex™ crimping assembly equipments



Nicomatic crimping presses are dedicated to the manual & pneumatic crimping of male and female contacts in a 1.27mm or 2.54mm pitch. All Nicomatic CrimpFlex™ presses are guaranteed 2 years for parts and labour except for transport and wear parts.

With more than 650 presses used worldwide, our machines are known for their reliability, ruggedness, easy set-up, simplicity of use, speed and precision.

General features:

- fastest crimping equipment on the market (up to 50 contacts in one stroke and 25 cycles per minute)
- Easy set up after unpacking
- 6 versions for 2.54mm pitch: 10025-MO (-MOM, -MOF, -SP), 10500-SA (-SAP)
- 2 versions for 1.27mm pitch: 16068-MO (manual) & 16068-SE (electric)
- 1 version of 1.27mm pitch hand crimp tool: HCT-127
- Changeover of tooling on the same press
- Press with evolutive tooling (possible to complete after acquisition)
- Pneumatic: 6bar dry compressed air, no electrical requirement
- Quality of crimp easy to check, and removable housing
- Availability of wear parts & user manuals
- Training tools (video, manual, on-site training...)
- **Crimping service available in-house at customer wish**

Manual equipments

The contacts are moved forward from stop to stop by hand via the side loader and the crimping is operated via the upper lever.



Easy set – up
 Reliable crimping & cost effective
 Easy to use
 Simple & quick change of tooling
 From 1 to 25 contacts crimped in one stroke (2.54) & up to 50 (1.27)
 Up to 7 cycles per minute

LIST OF MANUAL CRIMPING EQUIPMENTS (blue: 1.27mm)

10025-MO	10025-MOF	10025-MOM	10025-SP	16068-MO	HCT-127
w/male & female tooling	w/ female tooling only	w/ male tooling only	w/ tool for square male contacts only	w/male & female tooling	Hand crimp tool For male/female
For: all except 12410 / 13756	For female contacts: 10025 / 11506 / 14106 & Male pin 13595 / 11612	For male solder-tabs: 10141 / 10241 / 10067 / 10167 / 12887	For male pins: 12410 / 13756	For female contacts: 16068 For male solder tabs: 16069	For female contacts: 16068 For male solder tabs: 16069



2.54mm pitch: crimps from 1 to 25 contacts,

1.27mm pitch: crimps from 1 to 50 contacts, & hand crimp tool from 1 to 10

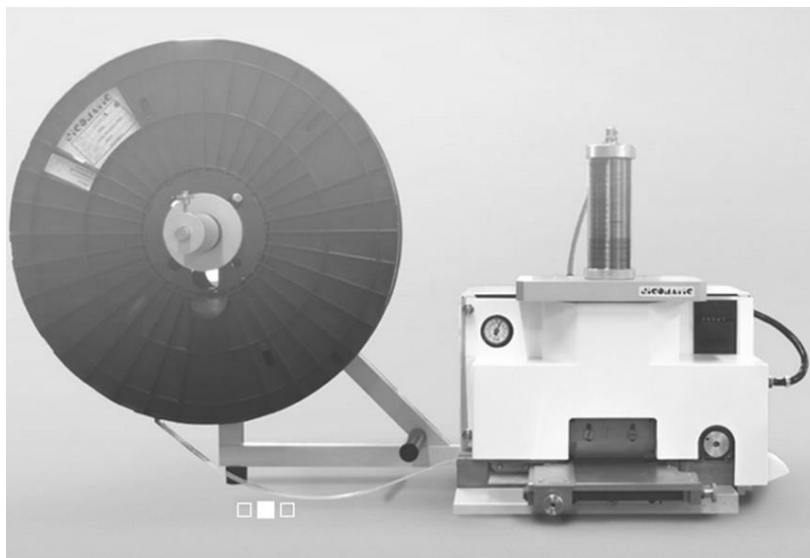
For the 1.27mm press, you need to install 2 reels of contacts and not one as on the 2.54mm pitch.

(33 000 contacts in reel for 1.27mm / 35 000 contacts in reel for 2.54mm)

Pneumatic & automatic equipments

On 2.54mm pneumatic presses, the contacts are moved into the tool automatically according to graduated positions on the rotative cylinder, corresponding to the required number of contacts to be crimped (from 1 to 36). The machine is also equipped with a downcounter, which allows pre-selecting a precise number of operations and stops automatically once it is back to 0. The press is operated by foot pedal.

On 1.27mm electrical presses (upon request), up to 50 contacts can be crimped in one stroke (contact us for more details).



Higher reliability (automatic)

Easy to use

No electrical requirement for 2.54mm

6 bar dry air

From 1 to 36 contacts in one stroke on 2.54mm & 50 on 1.27mm

Up to 25 cycles per minute

LIST OF AUTOMATIC CRIMPING EQUIPMENTS (blue: 1.27mm)

10500-SA	10500-SAP	16068-SE (Electric - custom made)
w/male & female tooling	w/ additional tooling for square male pins	w/male & female tooling
For male solder tabs: 10141/ 10241/ 10067/ 10167/ 12887 Male pins: 11612 / 13595 Female contacts: 10025 /11506 /14106	For : Same as on left hand side + 12410 / 13756	For female contacts: 16068 For male solder tabs: 16069



Possibility to move from –SA to –SAP anytime by acquiring the tooling for square male contacts

MARKETS & EXAMPLES OF USE

A large number of applications exist for **CRIMPFLEX™** contacts, from traditional membrane switches to printed electronics such as flex sensors, wearable sensors (eg. Printed heat / smart clothing) or piezoresistive sensors... They can be used in pressure sensing buttons & keypads, to detect a person presence or position (medical imaging, chairs, beds, car seats, grip detection such as power assisted controls etc.). Lighting, white & consumer goods & automotive industries have also been using **CRIMPFLEX™** technologies for many years.

