



STANDARD PRODUCTS Nicomatic FFC cables are used in board to board interconnections and can be solderded or used with ZIF/LIF



FFC VALUE ADDED OPTIONS Laser & die cutting, bends creasing, variable pitch, video cables....

OTHER NICOMATIC FLAT CABLE TECHNOLOGIES TERMINATED WITH CRIMPFLEX™

Jumper cables, Microflex™ harness, Butt & staple crimps...



CREATIVE INTERCONNECT SOLUTIONS

CONTENT

Nicomatic is using the latest digital technology to allow you to access information on our product services.

In a social media-ruled era and in a more and more connected world, we have less time and still must be able to present a concise and clear message in a few seconds. Who we are and what we do the best has to be understood in a glimpse of a second. This, however, does not mean that we have forgotten about more traditional communication means such as paper literature.



Our communication is available in all possible formats whether digital or printed. You will find media ressources, that include regularly updated new interactive functions by using a QR code.





1 - flash it ! **2**





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INTRO

FFC - Flat Flexible Cables

Nicomatic's Flat Flexible Cable consists of tin plated copper conductors laminated between polyester films with a thermal adhesive for durability. With pitch density down to 0.50 mm and capable of millions of cycles in high flexing environments, FFC cables are used in a wide variety of electronic applications for board to board interconnections. The cables can be directly soldered or used with ZIF or LIF type connectors.

Nicomatic provides a broad range of FFC's

- Standard sizes are from 0.5 mm to 2.54 mm pitches (0.5, 1, 1.25, 1.27 or 2.54 mm)
- Other pitches also possible upon request
 Connection styles: different stripping types for all your
- needs (with or without reinforcement or soldering). • Number of conductors: from 1 to 250 depending on style
- Length between 0030 and 9999 mm, continuous length available
- Different stiffener lengths
- Gold plating to prevent galvanic corrosion of dissimilar metals
- Shielding for EMI/RFI protection
- ZIF/LIF end preparation customized to your supply
- Tailor made customized cables



Main customer benefits...



...don't forget



Standard FFC

 Pitches from 0.5mm to 2.54mm
 UL approved: -55°C to +105°C

 Soldered or used
 with ZIF/LIF connectors

Gold plated FFC

No Galvanic corrosion
Whisker free
Salt spray resistance
High performance w/gold connectors

Shielded FFC

EMI / RFI protection

Gold pla



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FFC Ground options

Internal groundExternal ground

Specific and custom options

Laser & die cutting
Bends & creasing
Black & polyimide materials
Variable pitch
SMD placements with connections

Video cables
Flexcoil, bulk supply

Related products terminated with Crimpflex™

Jumper cables 1.27mm & 2.54mm pitch
Microflex™ Hi-Rel flexible harness
Discrete cable to flat cable connection
Butt & staple crimps





TECHNOLOGY & APPLICATIONS

Quality guaranteed by an efficient automated production

Nicomatic has been a manufacturer of FFC cables for many years & controls FFC cable production from lamination to insulation, laser cutting & shielding. Thanks to a 100% control of the manufacturing process, Nicomatic ensures the quality and lead-time of our products, as well as a wide range and flexibility to specific requirements. Our FFCs are used in a wide variety of electronic applications as board to board interconnections. In order to meet the requirements of the high-technology electronics market, Nicomatic conforms to EN9100 and ISO9001 certification to build its quality system.

The control of all steps from product conception to delivery allows our clients to obtain a product specifically adapted to their needs. Our strategy of continuous quality improvement ensures long term development and growth for all of Nicomatic's partners. Nicomatic is compliant with RoHS and REACH requirements.







MANUFACTURING PROCESS

All of Nicomatic's FFC products are manufactured in-house. Since we do not outsource the production process, we are able to offer quicker turn-around times (from two weeks lead time). We offer wide customization choices. We develop FFCs that are specific to your design needs based on the necessary lengths, contacts, plating, and conductors. Lastly, our manufacturing process limits auality issues & product failures & ensure superior performance.

Quality

EN9100 & ISO9001

In order to meet the requirements of the high-technology electronics market, we conform to EN9100 & ISO9001 certification to build our quality system. The control of all steps from product conception to delivery allows our clients to obtain a product specifically adapted to their needs.

REACH & RoHS

Nicomatic's strategy of continuous quality improvement ensures long term development and growth for all of our partners. Our company is compliant with RoHS and REACH requirements.

High Standards

The company's commitment to provide even higher levels of product quality and customer service is inspired by LEAN Management, and is driven by an internal continuous improvement process called "LEXOR".



EN 9100: 2009 EN9001: 2008

I FFC CABLE

Applications













Al - Internal Ground One End Al – Internal Ground Both Ends AI - External Ground One End and Both Ends

TECHNICAL DATA

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FFC CABLE

TECHNICAL DATA

Product specs with added value options

Our standard FFCs are capable of millions of cycles in high flexing environments, work at high temperatures, and are UL approved. The gold version guarantees the absence of tin whiskers at a small pitch. Different types of stripping and reinforcement tapes are offered, dependent on the connection type: P3, P5, P7 or P8. Our automatic P/N builder online allows you to easily find the product that will fit your needs. Our FFCs are designed for board-to-board interconnections in a wide variety of electronic systems. Nicomatic Flat Flexible Cables (FFC) are made up of tin plated copper conductors laminated between polyester films with a thermal adhesive for durability.

From 0.50 mm pitch for space saving to 2.54 mm, a large variety of pitches are available to suit your needs. In addition to the standard range, we have developed custom designed flat flex cables such as retractable FFCs, gold plated FFCs, FFCs incorporating shields, grounds, bends & creasing, variable pitch, special marking or SMD placements with connections.

Flat flexible cables are compatible with ZIF and LIF connectors.

Specification

Part Number	050P3NNKLLLL-406406	100P3NNDLLLL-510510	125P3NNCLLLL-510510	127P3NNCLLLL-510510	254P3NNALLLL-510510
Pitch	0.5 mm	1.00 mm	1.25 mm	1.27 mm	2.54 mm
Cable width	(N+1) 0.50	(N+1)	(N+1) 1.25	(N+1) 1.27	(N+1) 2.54
Cable thickness	0.22	0.25	0.25	0.25	0.25
Conductor width	0.28	0.66	0.8	0.66	1.57
Conductor thickness	0.035	0.076	0.076	0.076	0.076
Exposed length	4	5	5	5	5
Stiffener length	6	10	10	10	10
Mating thickness	0.3	0.3	0.3	0.3	0.3
Margin	0.36	0.66	0.85	0.86	1.68
Conductor material	Tin plated copper				
Insulation	Polyester	Polyester	Polyester	Polyester	Polyester
High temp. insulation material	Yes: polyimide substrate up to +125°C				
Voltage (max.)	90 V	90 V	300 V	300 V	300 V
Temperature	-55°C to +105°C				
UL flame rating	VW-1	VW-1	VW-1	VW-1	VW-1
Dielectric strength	5 000 V				
Insulation resistance	5 000 Mega Ohm				
RoHs	Yes	Yes	Yes	Yes	Yes
Folding	yes	yes	yes	yes	yes
Bending diameter	10KK cycles at 25mm				



All dimensions in cm

Typical standard FFC types



Ordering information

pitch (mm)	0.5	1.00	1.25 / 1.27	2.54
Min. / Max. number of conductors	4 - 100	2 - 100	2 -80	2 - 41

- The maximum cable length with standard part numbering is 9.99 meters. Please contact your Nicomatic sales representative for pricing on longer lengths.

- 1 to 250 conductors possible upon request

- Packaging: Supplied flat or coiled depending on length, with lot number & date code. Sometimes also supplied banded together or cardboard on edge

- The minimum cable length per pitch is as follows:

pitch (mm)	0.5	1.00	1.25 / 1.27	2.54
Min. Length for Cable Style P3* (mm)	30.00	30.00	30.00	30.00
Min. Length for Cable Style P5* (mm)	30.00	30.00	30.00	30.00

*Shorter lengths may be possible if required, depending on construction. Consult us.

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OUR PRODUCTS AND P/N

Standard product range & specific requirements

Nicomatic provides RoHS compliant FFC cables. Our termination options meet industry standards for LIF and ZIF connections & soldered versions. Our value-added options allow our customers to perfectly fit to their application needs - whether looking for a market standard, or a tailor made solution including gold termination, EMI-RFI protection, higher retention values etc.

We are a leading manufacturer of a wide variety of standard and custom FFC cables. Nicomatic, an ISO 9001/EN 9100 certified company, has over a decade of experience manufacturing FFC cables. Not only have we served the industry but we have also consistently exceeded customer expectations and industry standards.



Part numbering system

	 MEASURED IN MM FROM END TO END	

How to order		- left end right end -
100 P3 14	D 0305	5 10 5 10
PITCH STYLE NB OF CONDUCTO	CONDUCTOR LENGTH S SIZE	EXPOSED STIFFENER EXPOSED STIFFENER LENGTH LENGTH LENGTH LENGTH
Step Pitch 050 - 0.50 mm 125 - 1.25 m 100 - 1.00 mm 127 - 1.27 m		
2 Style	P5	P7 P8
Step 3 Number of conductors (from	02 to 100*)	
4 Conductor size (tinned) K - 0.035 mm x 0.28 mm D - 0.076 mm x 0.66 mm C - 0.076 mm x 0.80 mm A - 0.076 mm x 1.57 mm	Pitch (mm) 0.50 1.00 / 1.27 1.25 / 1.27 2.54	
5 Length in mm (measured f	rom end to end)	From 0030 to 9999mm: any above possible upon request
6 Exposed length in mm		
7 7 Stiffener length in mm		
*view page 13		

ON THE OPPOSITE SIDE



REINFORCEMENTS ON BOTH SIDES AT THE EDGE

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Part numbering system

 MEASURED IN MM FROM END TO END	

Н	ow to	orde	r			- left	tend-	- right	ht end -	
1	.00	P3	14	HG	0102	4	06	4	06	
Ρ	ІТСН	STYLE	NB OF CONDUCTO	CONDUCTOR RS SIZE	LENGTH	EXPOSED LENGTH	STIFFENER LENGTH	EXPOSED LENGTH	STIFFENER LENGTH	
	SARY									
step 1	Pitch 050 - 0.50 100 - 1.00		125 - 1.25 r 127 - 1.27 r		4 mm					
step 2	Style									
			P3		E		P5		P8	
step 3	Number	of could	uctors (fron							
step 4	Number	or cond	IUCTORS (fron	n 02 to 99*)						
	Conduct RG - 0.03 HG - 0.07 GG - 0.07 EG - 0.07	5 mm x 0 6 mm x 0 6 mm x 0	.28 mm 0.66 mm 0.80 mm	Pitch (mm) 0.50 1.00 / 1.27 1.25 / 1.27 2.54			uctor with 1 ld in expose		nickel	
step 5	Length i	n mm (r	neasured	from end to e	nd)	From 0030 1	to 9999 mm: an <u>j</u>	/ above possib	ible upon request	
step 6										
$\mathbf{\vee}$			gth in mm gth in mm							
*vi	iew page 13									

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Table summary

pitch (mm)	0.5	1.00	1.25 / 1.27	2.54
Conductor Width (mm)	0.28	0.66	0.80	1.57
Conductor Thickness (mm)	0.035	0.076	0.076	0.076
Tin Plated Copper Designation	K	D	С	A
Gold Designation	RG	HG	GG	EG

*Nicomatic recommendation: gold to gold connection ensures optimal performance

** High nickel underplated thickness

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Part numbering system

-																		
-																		
																-		
-																		

How to order	- left end - right end -
100 P3 14 K 0102	5 10 5 10 EXT
PITCH STYLE NB OF CONDUCTOR LENGTH CONDUCTORS SIZE	EXPOSED STIFFENER EXPOSED STIFFENER GROUNDING LENGTH LENGTH LENGTH
GLOSSARY	
1 Pitch	
050 - 0.50 mm125 - 1.25 mm254 - 2.54 mm100 - 1.00 mm127 - 1.27 mm	
step 2	
Style	
P3	P5 P8
sten	
Step 3 Number of conductors (from 02 to 99*)	
4 Conductor size (gold) Conductor size (tinned)	Pitch (mm)
RG - 0.035 mm x 0.28 mm K - 0.035 mm x 0.28 mm	0.50
HG - 0.076 mm x 0.66 mm D - 0.076 mm x 0.66 mm	1.00 / 1.27
GG - 0.076 mm x 0.80 mm C - 0.076 mm x 0.80 mm EG - 0.076 mm x 1.57 mm A - 0.076 mm x 1.57 mm	1.25 / 1.27 2.54
Length in mm (measured from end to end)	From 0030 to 9999: any above possible upon request
step 6	
6 4 - Exposed length in mm 6 - Stiffener length in mm	
step 7	
EXT external ground INT intern INT 1: ground	
and pin NN of	n one end
	d to pin 1 & pin NN on both ends



ADVANTAGES





Various types of grounds given your needs
Shielding effectiveness (see chart p.22)

Multiple types of shieldings:

Type of Ground	External	Internal	Internal
Designation	EXT	INT1	INT2
Grounding	Ground is located on one end of the cable only	Ground to first and last conductors on one end only	Ground to first and last conductors on both ends

- Shielding:

Nicomatic shielded cables are shielded by wraping an insulated aluminum foil on polyester FFC cables



Comparative chart of different shielding effectiveness



Internal ground



I FFC CABLE

Retention Tabs for FFC

Nicomatic has a high retention solution for your specific requirement

Mating with hirose[™] FH28, FH40 and FH41 connector systems

These connectors feature a robust locking mechanism and accomodate "side-catchers" on the FFC, up to 2.5 times better retention versus the traditional ZIF/LIF connectors. Typical applications include: LCD and board-to-board applications in medical devices/ machines, test and measurement equipment, industrial equipment, consumer electronics and other devices that need a small, rugged and reliable solution.

Nicomatic's solution is a fine-pitch 0.50 mm FFC, in either our P3 or P5 styles, enabling space-efficient wiring inside equipment.

The FCC can be bent/creased, this flexibility delivers easier wiring inside equipment.

Our Retention Tab line is available for the nonshielded Hirose[™] FH28 & FH40 connector series as well as their shielded FH41 & FH48 connector series. Drawn below all the two FCC layouts Hirose[™] recommends; one for their FH28 & FH40 connectors

Technical Drawings



and another layout for their FH41 & FH48 series. In-order to differentiate the four connectors; both the Hirose[™] FH28 & FH41 are horizontal connectors and both the Hirose[™] FH40 & FH48 are vertical connectors. If mating with either the FH41 or FH48 Hirose[™] shielded connectors, keep in mind to account for ground contacts, both series are equipped with ground plating. The number of ground contacts will vary depending on the overall number of contacts.

STD28/STD40



STD41/STD48



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Retention Tabs for FFC

Part Numbering System



If mating with the Hirose[™] FH28 or FH40 we recommend shielding with external grounding if space is available

Specific & custom made FFCs

Illustrations and short definitions



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Laser & die cutting

Multi way configuration Multi connectors cables Compatible cable ends for mating with Hirose connector ranges



Bends & creasing

Cable ready to be integrated

Black & polyimide materials

High temparature up to 125°C Discrete integration



Variable pitch

Custom sizes Low resistance Good performance



Please contact your sales representative or visit us: www.nicomatic.com



Wide copper FFC

High power applications



SMD placements with connections

Variable soldering different component on flat cable: LED - connectors - ...



Video cables

Ready to plug connector Compliance w/ LVDS protocol



RJ45 cables

Quick off the shelf insertion / extraction (standard 1mm pitch) Availaible in 6/8 positions



Flexcoil

Compact design Flexibility in tighter spaces



Bulk supply

Reel packaging Can be cut to your needs Compatible with Crimpflex™

Related products terminated with crimpflex[™]

Terminated FFC with Crimpflex™



Jumper cables 1.27 & 2.54mm pitch

For use with extension cables on as board for board interconnection. Exists with more than 15 styles of contacts and 12 styles of housings



Microflex™ Hi-Rel flex harness

High vibration resistant flexible solutions Female-female, solderpin & Octopus versions available



Discrete cable to flat cable connection

Easy mating from flat to discrete wire at industry standard 2.54 mm pitch. Fully recyclable & RoHS compliant tool available



Butt & staple crimps

Crimp link between two flat flexible supports

Crimpflex[™] crimping technology



Crimpflex[™] system patented by NICOMATIC

description

crimping environment Developed and patented by NICOMATIC, the CRIMPFLEX™ connection system complies with the most rigorous electrical and mechanical requirements. The crimping of the contacts is obtained by

Copper conductors, silver or carbon ink printed conductors, EL lamps. All types of flexible circuits for which thickness ranges from 50μ m to 500μ m (0.002'' to 0.019''). For other thicknesses,

piercing the conductor in 6 points. This ensures excellent mechanical retention by 2 points and electrical contact by 4 points with the lowest possible contact resistance.

please contact NICOMATIC. Can pierce all kinds of supports: polyester, FR4, polyimide, PTFE, etc.

advantages

- Use of contacts in reel at final pitch of 2.54 mm (0.100 $^{\prime\prime})$ and 1.27mm (0.050 $^{\prime\prime})$
- Mass termination of all contacts in one press stroke which saves time and allows more accuracy
- Crimp is easily inspected

- The housing is assembled after crimping

- The width of the circuit is not limited by the width of the housing
- The housing can be removed
- The broadest range of crimp connectors in the industry

Our main product ranges





CMM CONNECTORS





DMM CONNECTORS

MICROFLEX™

FLEXIBLE CIRCUIT & FFC cables



CRIMPFLEX™ JUMPERS





CRIMPING MACHINES

DOMES **& COMPONENTS**

for man/machine interface



SWITCH'AIR™ DOMES



CRIMPFLEX™ CONTACTS

DOME ARRAYS



LEDS FOR MEMBRANE SWITCHES



• Technic

TIME SAVING

RESPONSIVENESS

RELIABLE ANSWER

Fast & reliable technical support - all standard product ranges answer under 24 hours. Technical FAQ also available online.

Custom solution

Specific product design - reply in under 5 days, technical & sales support for all your custom designs: feasibility study, quote, drawing, engineer to engineer direct contact...

Quality

Dedicated quality service – set up to direct all quality requests, e.g. Material certificates, plating, conformity, customer claims...

Notes

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NICOMATIC maintains a policy of ongoing development and improvement. It therefore reserves the right to change design, dimensions and specifications without notice. All information stated inside this catalogue is not contractual and subject to change (eg. standard connector configurations).

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CAREER

COME & JOIN US • Improving technology • Diversity & gender equality • We promote initiative & responsibility

READY TO JOIN OUR TEAM? recruitment@nicomatic.com