



Connectors For Flexible Circuitry



Applications



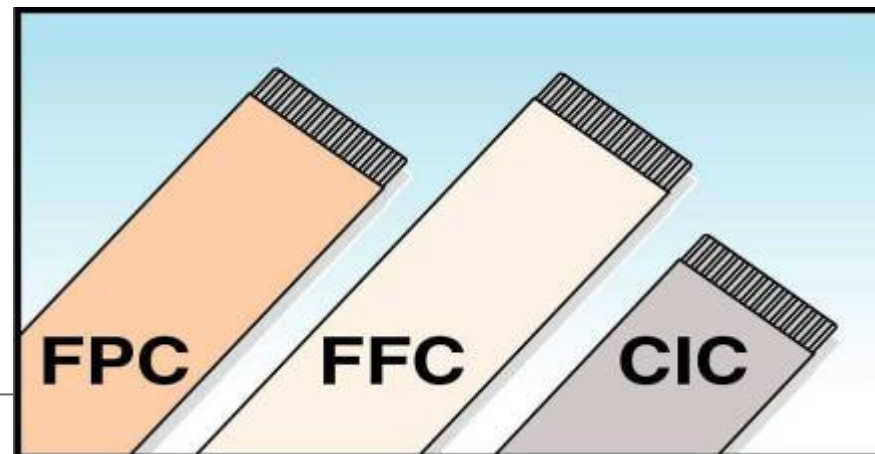
- Mobile Handsets
- Car navigation systems/ other CMD
- Point of Sale equipment (terminal & printer)
- Test and measurement equipment
- Medical equipment
- Education & Retail
- DVD-player / writer
- Flat panel televisions
- LCD's
- Set-top boxes
- Handheld scanner
- PDA's
- MP3 player



Cable types



- FFC – Flat Flexible Cable
 - Flat metal conductors laminated between two dielectric films, typically polyester or polyimide
 - Highest current carrying capability, most robust
- FPC – Flexible Printed Circuit
 - Chemically etched copper conductors on a base film of Mylar or similar material
 - Lighter weight, utilizes stiffener for termination into board connector
- CIC – Conductive Ink Circuit
 - Conductive paste of carbon or copper laminated within Mylar or polyester film
 - Lightest weight, lowest current carrying capability, requires stiffener for termination





FF&FPC connector Connectors types

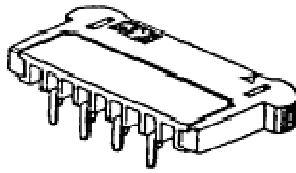


Board Termination Styles

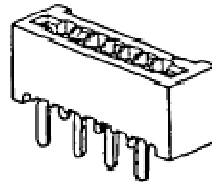


Termination type (Dip & SMT)

THROUGH HOLE

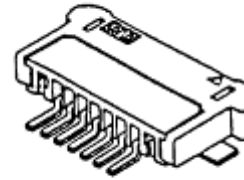


Right Angle

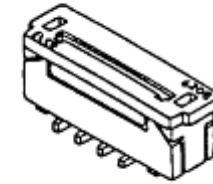


Straight

SURFACE MOUNT



Right Angle

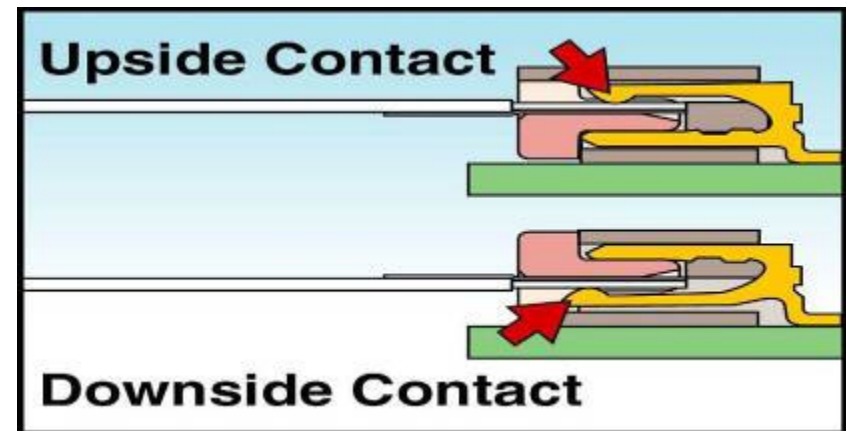
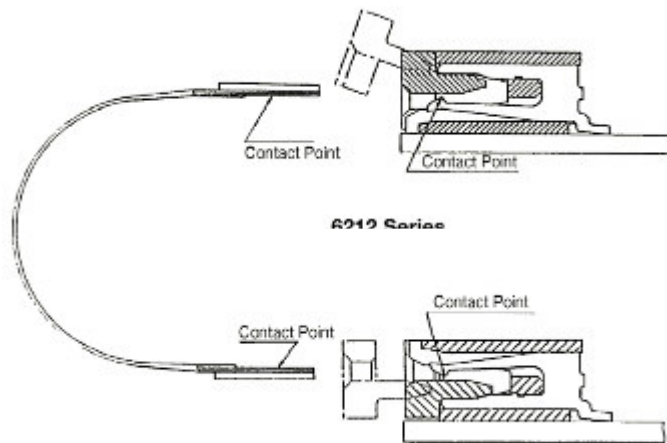


Straight

Contact Locations



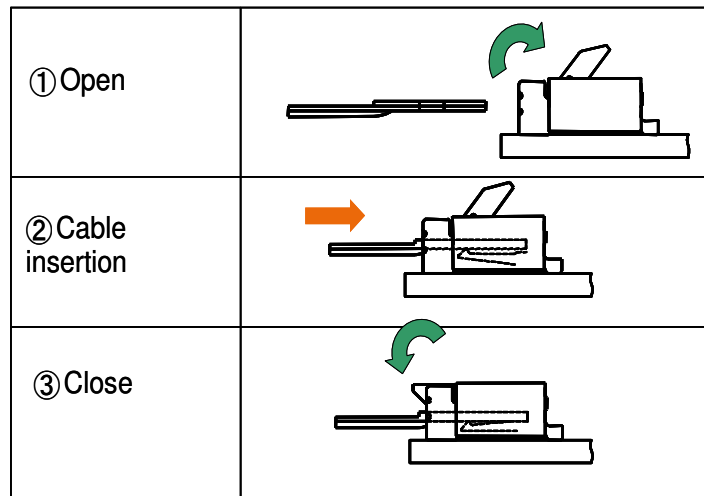
- Provides design flexibility allowing for different positioning of PCB's and easy routing of the cable.



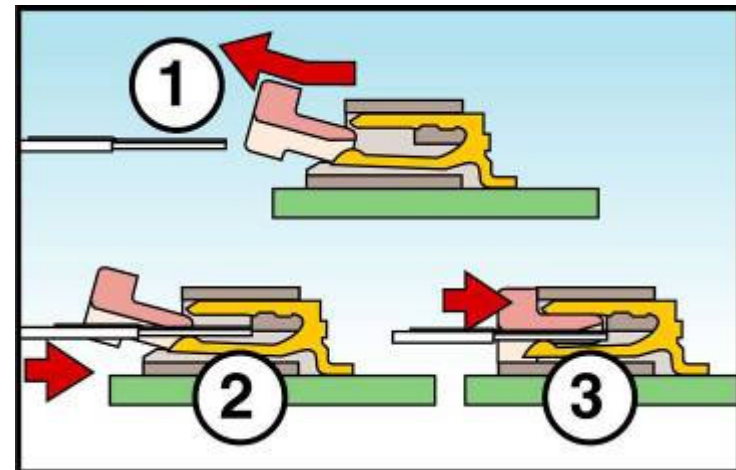
Cable Insertion - ZIF



- Very Small (“Zero”) insertion force of conductor into the connector
- Prevents cable buckling
- Avoids excessive scraping of contact surfaces
 - Allows highest possible number of mating cycles
- Utilizes an actuator to retain cable
 - Slider activation ensures a smooth insertion and a firmly locked connection
 - Flip lock activation provides easy operation



Top Flip Actuator



Slide Actuator

Other Actuation Types - ZIF



(ZIF alternative – Flip lock)

Front flip actuator

① Open	
② Cable insertion	
③ Close	

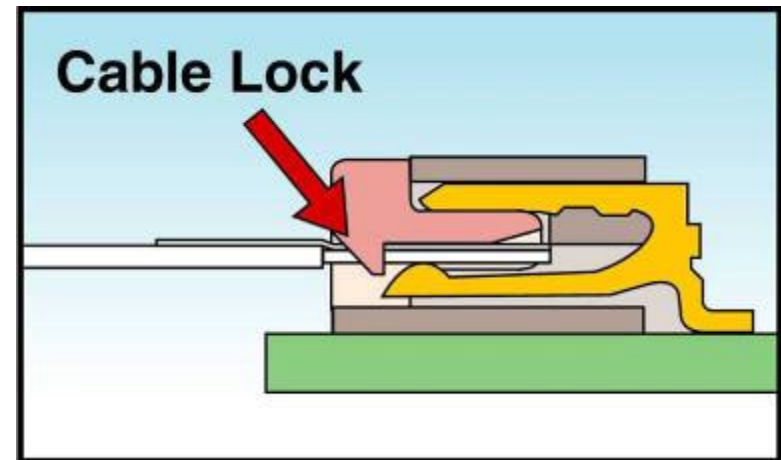
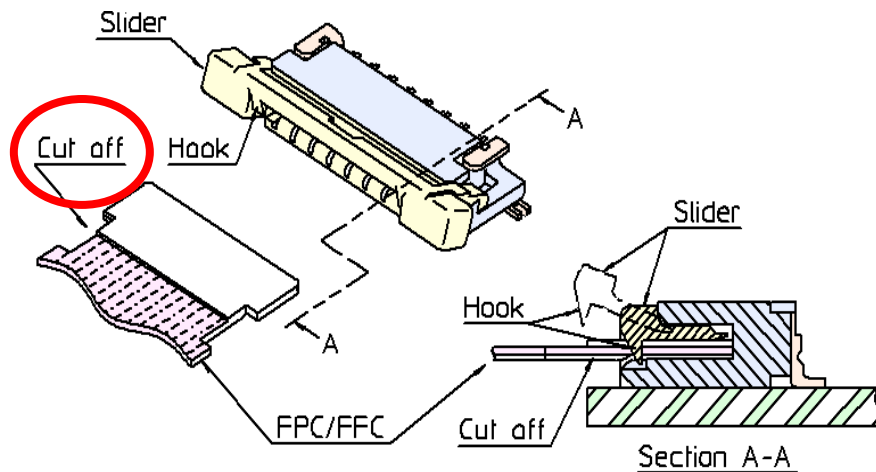
Back side flip actuator

① Open	
② Cable insertion	
③ Close	

Cable Lock



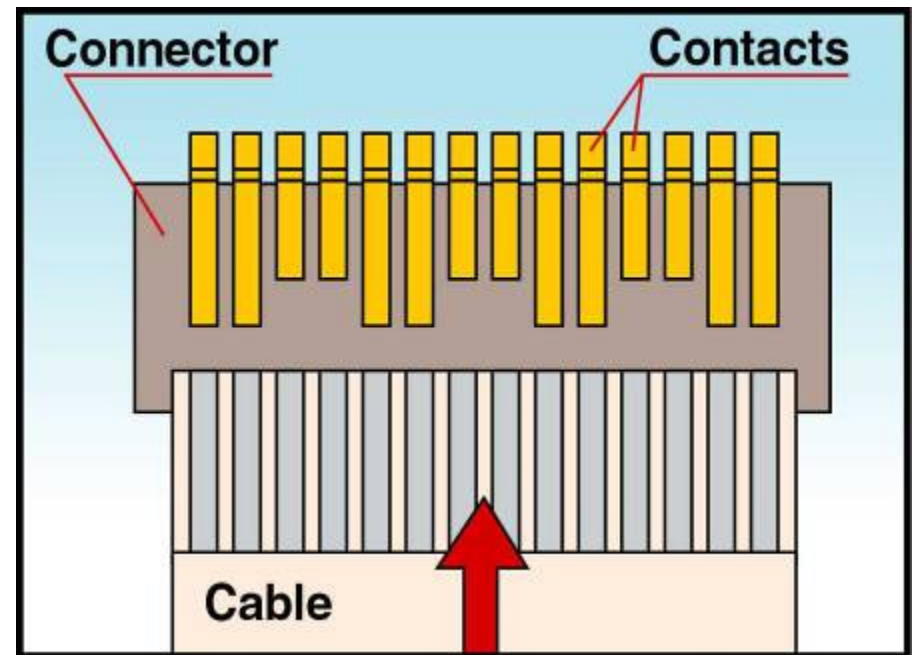
- Ensures proper alignment during mating even if the cable is inserted at a slight angle
- Prevents unintentional cable release
- Utilizes feature cut into flex cable



Cable Insertion – LIF (non-ZIF)



- Low insertion force (LIF) of cable into the connector.
- Simpler product design
- Straight-forward insertion process
- Lower number of mating cycles than ZIF
- The contact positioning provides reliable and easy mating operation

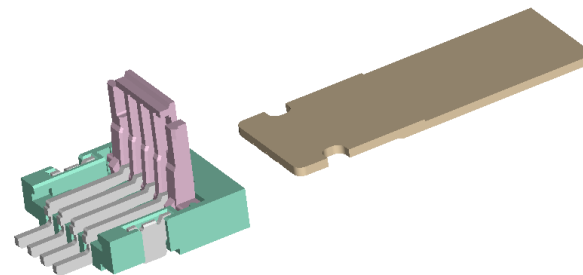
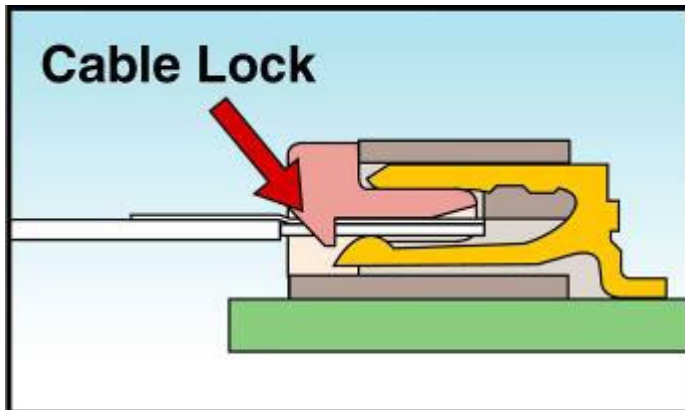
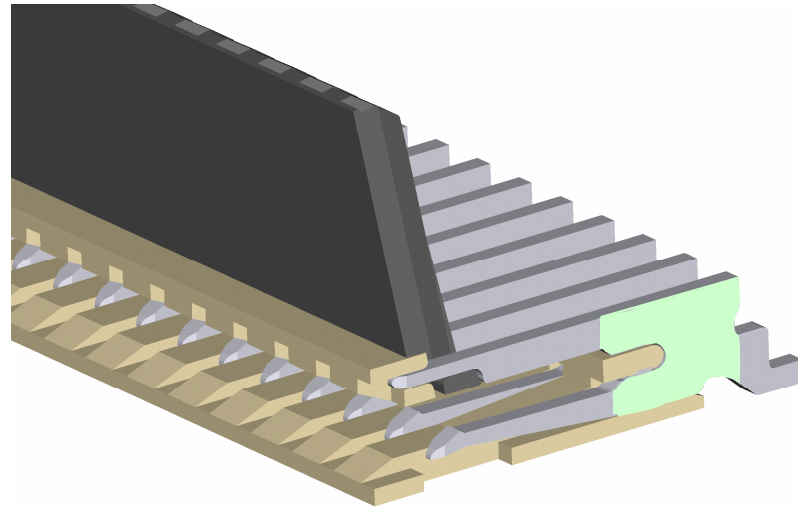
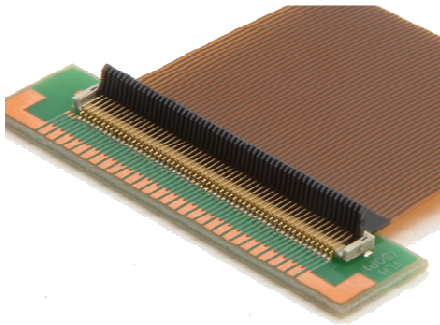


ZIF vs. LIF Comparison



	<i>Durability</i>	<i>Reliability</i>	<i>Cost</i>	<i>Size</i>
<i>ZIF</i>	<i>Better</i>	<i>Better</i>	<i>Good</i>	<i>Good</i>
<i>LIF</i>	<i>Good</i>	<i>Good</i>	<i>Better</i>	<i>Better</i>

Innovative Features to Look For

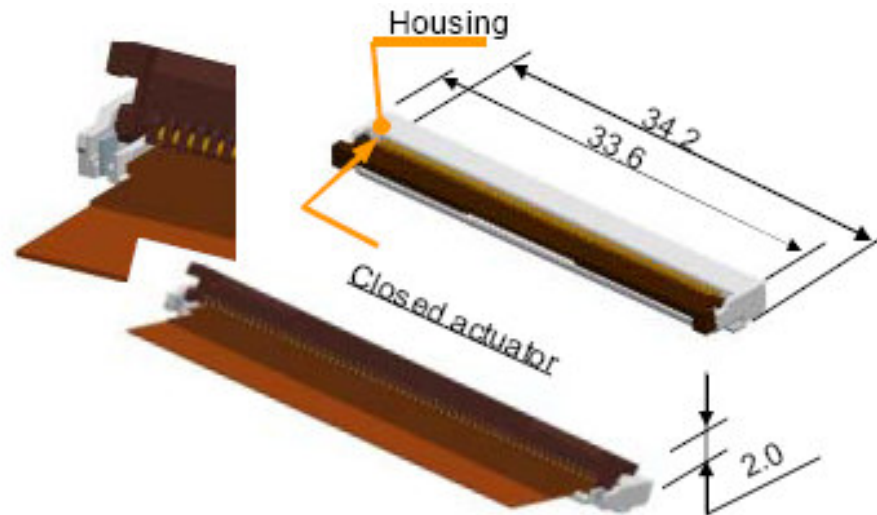


Error Free Cable Insertion - Pokayoke



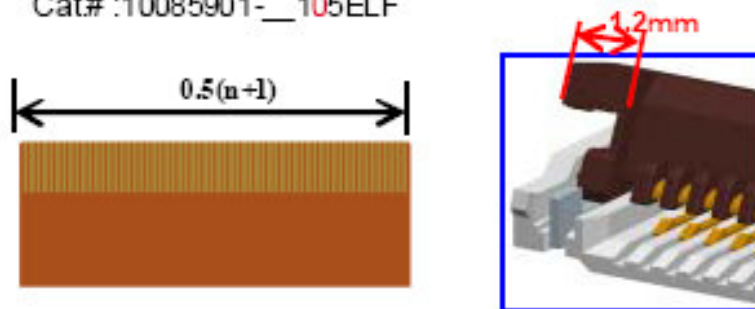
> VHC Series: SMT

- ZIF
- Right Angle
- 40 to 60 or 70 positions
- 2.0 mm height
- FFC and FPC
- Down side contact
- Robustness design
- with cable lock and without



Standard Type (w/o cable lock)

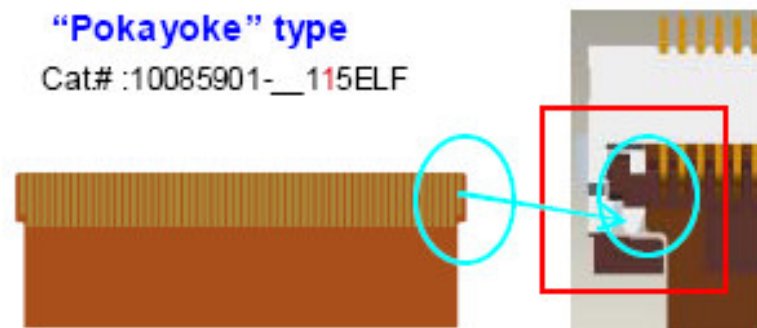
Cat# :10085901-__105ELF



Cable Lock Type

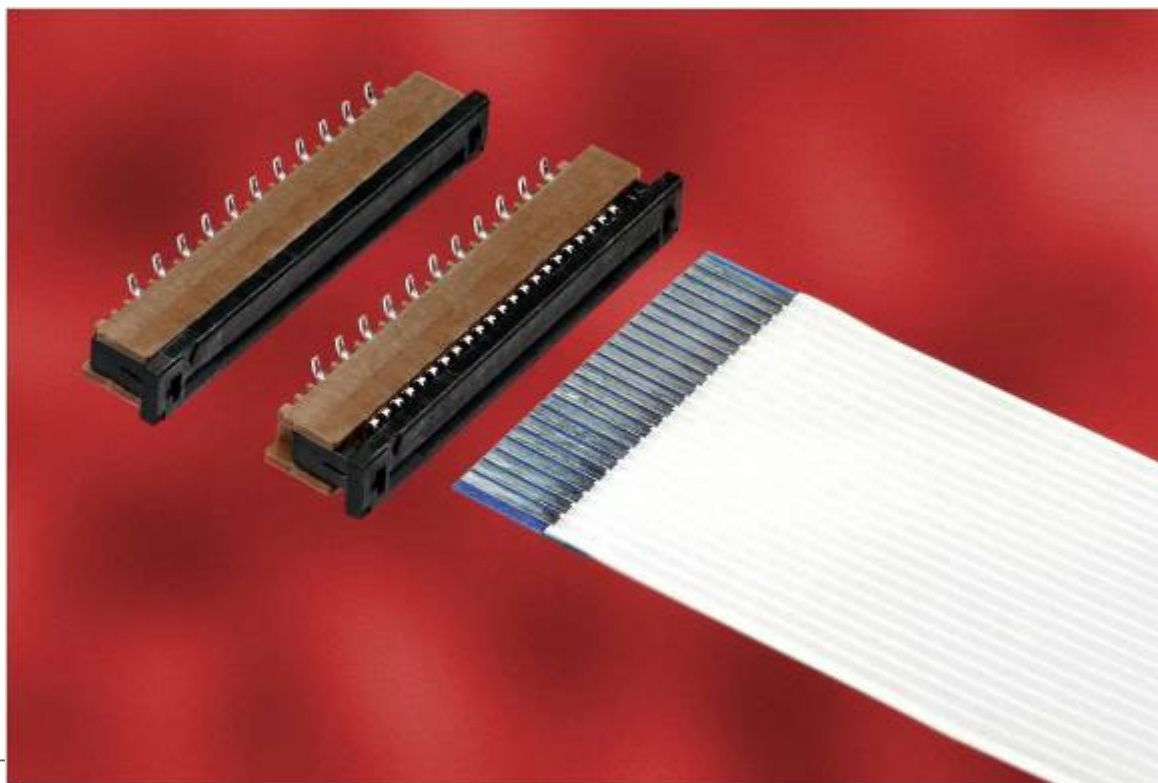
"Pokayoke" type

Cat# :10085901-__115ELF



ZIF with Prehold

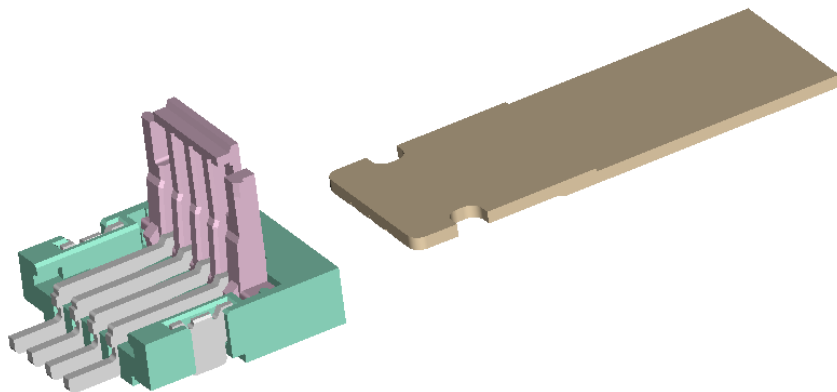
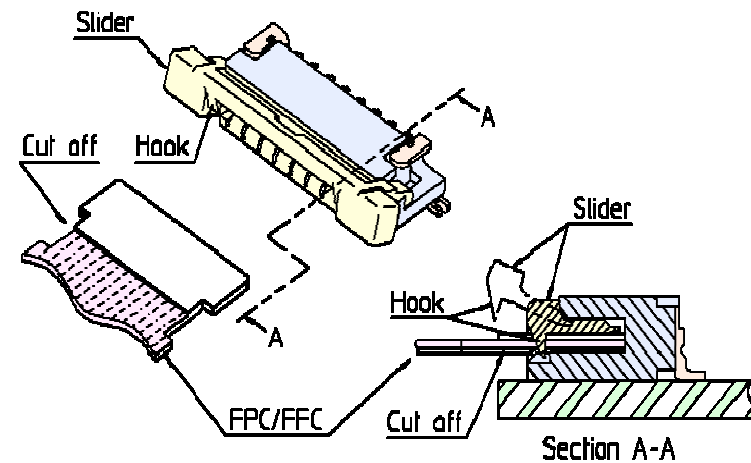
- ▀ Provides slight retention after flex insertion
- ▀ Holds flex in place until actuator deployed
- ▀ Prevents flex cable from slipping out during manufacturing process
 - ▀ Results in fewer defects – higher quality



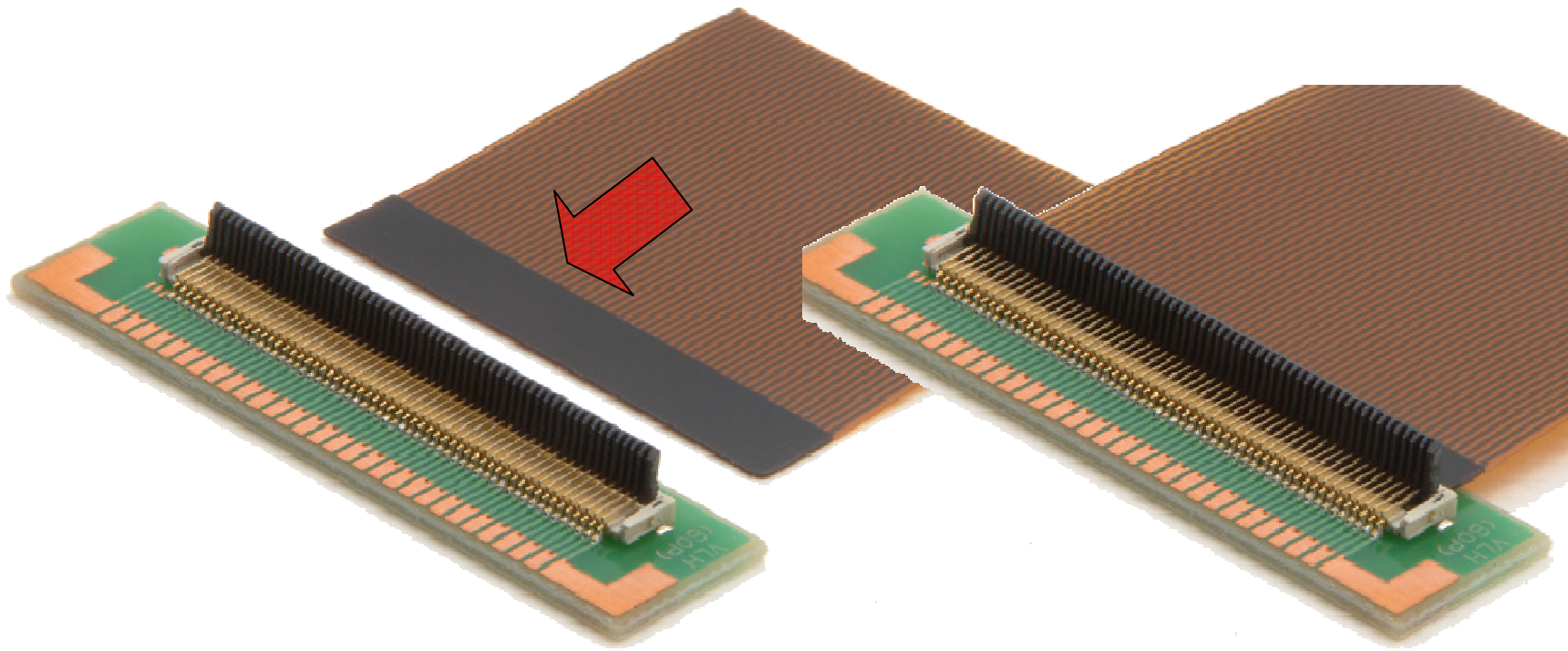
Effective Cable Lock Alignment Systems



- Provides effective strain relief for demanding applications
- FCI's systems have passed the most rigorous customer drop test specifications in the industry

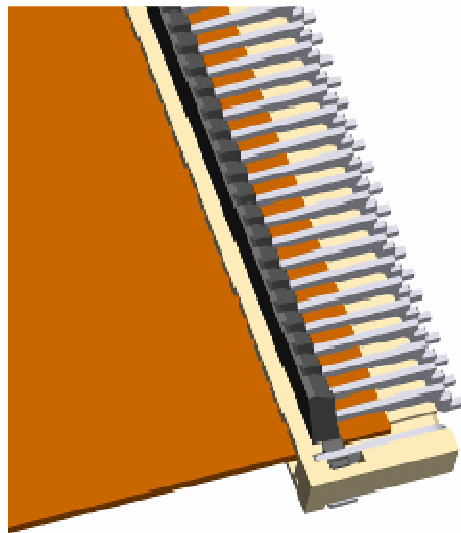


Back Side Flip Actuation



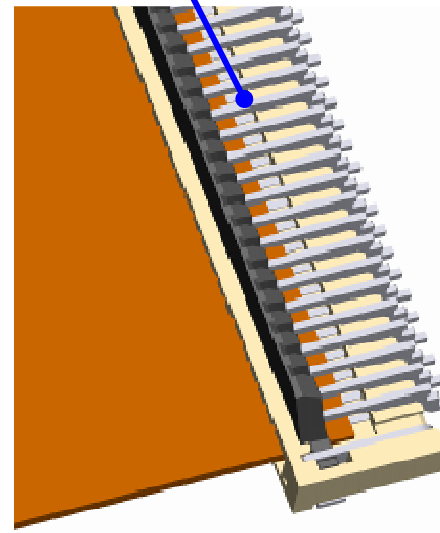
- **Back side flip design makes insertion and actuation a one-handed process.**
- **Design allows visual confirmation of properly inserted flex cable**
- **Results in higher quality of customer's end product because they know the flex is inserted properly**

Visual Assurance of Proper Cable Insertion

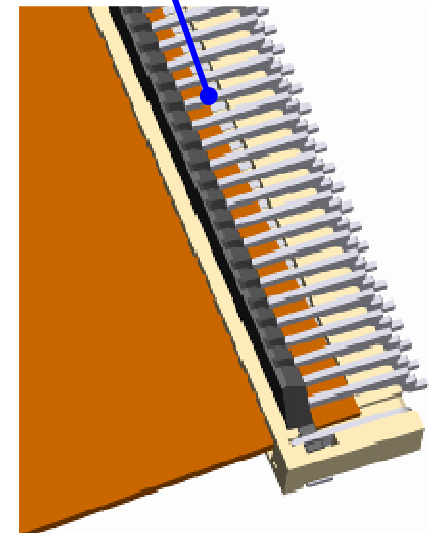


Proper Insertion of FPC

Space is left between
FPC and Housing

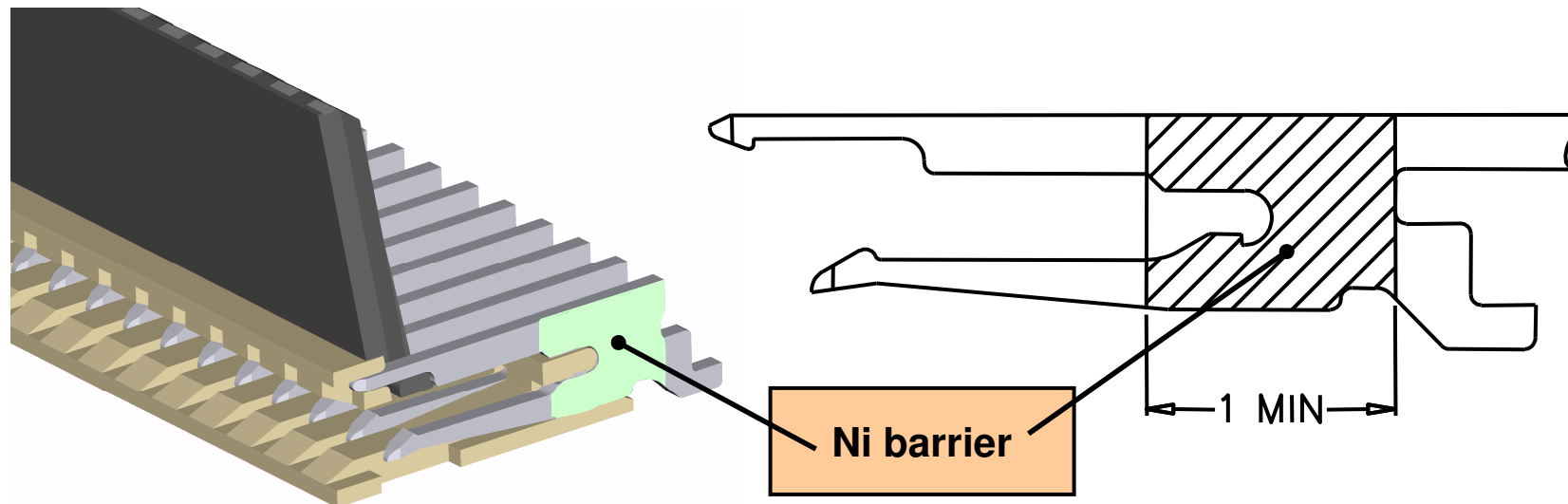


Slanting condition of FPC



Improperly Inserted FPC

Solder Wicking Prevention



- In lower profile applications, solder wicking into the contact area has become a concern
 - This results in shorts as well as connectors that fail mechanically
- FCI utilizes a proprietary Ni barrier to prevent solder wicking in the contact and actuator locations



FFC&FPC Connector Range

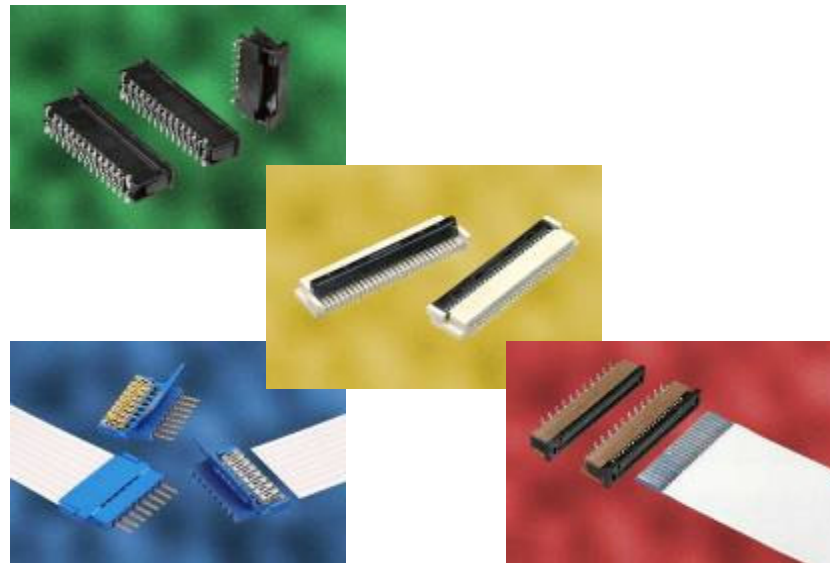


Wide Product Range



FCI offers a wide range of pitch sizes:

- 0.2mm pitch
- 0.3mm pitch
- 0.4mm pitch
- 0.5mm pitch
- 0.8mm pitch
- 1.0mm pitch
- 1.25mm pitch
- 2.54mm pitch
- Heights down to .7mm



Flex Product Range



Pitch	Family Name	Part Number	Height (mm)	Contact Location	ZIF / non-ZIF	Positions Available
0.3mm	SFY	62789	2.0	Bottom	Non-ZIF	45,51,57,67
	SFYL-D	10013057	1.2	Bottom	Non-ZIF	17,21,25,29,31,35,45
	SFYL-U	10017251	1.2	Top	Non-ZIF	11,15,19,23,25,27,31,39,41,45
	YLL-D	10061122	0.9	Bottom	ZIF	13,15,17,21,25,33,35,39,41
	YLL-U	10064555	0.9	Top	Non-ZIF	15,21,23,25,27,31,33,35,37,39,41
0.4mm	GLH	10051806	1.2	Bottom	ZIF	57,60
0.5mm	OPU-D	62684-xx1	2.0	Bottom	ZIF	40,45,50,55,57
	OPU-U	62684-xx2	2.0	Top	ZIF	32,34,36,40,45,50,55,57
	SFVA	10014265	2.0	Top and Bottom	Non-ZIF	60
	SFVE	10054365	1.2	Top	ZIF	18,20,24,28,30,35
	SFVL-D	59453-xx1	0.9	Bottom	ZIF	4,5,6,7,8,9,12,13
	SFVL-U	59453-xx2	0.9	Top	ZIF	4,5,6,8
	SFV-R	SFVxxR	1.8	Top, Bottom	ZIF	4-35
	SFV-S	62674	4.1	N/A	ZIF	8,12,16,20,21,24,25,26,30,32,33
	VHC	10085901	2.0	Bottom	ZIF	60
	VLH	10042867	1.3	Bottom	ZIF	40,45,50
	VLL	10051922	1.2	Bottom	ZIF	8,10,11,12,14,15,16,18,20,22,24,26,28,30
VLP	10062827	0.7	Bottom	ZIF	4,8	
0.8mm	SFR	SFRxxR	2.5	Bottom	ZIF	4,6,8,10,12,14,16,18,20,22,24,26,28,30
1.0mm	HFV-R	HFVxxR	1.9	Top, Bottom	Non-ZIF	4-30
	HFV-S	HFVxxS	5.3	N/A	Non-ZIF	4-30,32
	HLW-R	HLWxxR	3.9	Top	Non-ZIF	4-32
	HLW-S	HLWxxS	5.9	N/A	Non-ZIF	4-32
	SFW-R	SFWxxR	2.7	Top, Bottom	ZIF	4-30
	SFW-S	SFWxxS	5.3	N/A	ZIF	4,5,6,8,10,11,12,14,15,16,17,18,20,22,23,24,26,28,30
	SLW-R	SLWxxR	4.0	Bottom	ZIF	4-30
	SLW-S	SLWxxS	5.5	N/A	ZIF	4-30
1.25mm	SLD-R	SLDxxR	7.0	Bottom	ZIF	4-20,22,24,25,26-40
	SLD-S	SLDxxS	8.0	N/A	ZIF	4-20,22-37,39,40
	SLP-R	SLPxxR	5.0	Top	ZIF	4-10,12-16,20
	SLP-S	SLPxxS	5.5	N/A	ZIF	4-16,20
2.54mm	Clincher	65801	Standard receptacle			2-32
	Clincher	67516	Receptacle with keying latch			2-16
	Clincher	10027313	Receptacle with keying feature			6-34
	Clincher	10022753	Receptacle with keying & active latch			6-34
	Clincher	66226	Standard plug			3-14
	Duflex	76785/67013/66987				Contact and housing

