

# Half Pitch Interface Connectors

## FI Series



### General Information

FI Series has been developed as a half pitch interface connector for CNC systems manufactured by Fanuc Ltd. 2 types of cable assembly style are available; IDC for 20 pos. and soldering for 15 and 20 pos.

### Features

1. 1.27 mm contact pitch contributes to downsizing of electrical devices.
2. Bellows contact endures wrenching force and also provides soft mating/unmating feeling.
3. Angled cable exit case, robust die-cast case and short case are available, provided only by Hirose.
4. Case consists of two separated parts and is fitted with 4 hooks, for easy assembly.
5. One-touch lock and screw lock are available to accept cable variations.
6. 2 types of cable assembly style: IDC for easy assembly and soldering

### Plug Variety

Cable Size	Case		Connector Unit		
	Features	Part Number	Termination	Pin Counts	Part Number
ϕ 6.2 (ϕ 5.5 to 6.6)	Plastic	FI-20-CV2(50)	IDC	20	FI30-20S(50)
			Soldering	20	FI40B-20S(50)
	Plastic, Right Angle	FI-20-CVS2(50)	IDC	20	FI30-20S(50)
			Soldering	20	FI40B-20S(50)
Plastic, Low Profile, Screw Lock	FI-20-CV7	IDC	20	FI30-20S(50)	
ϕ 8.5 (ϕ 8.0 to 9.0)	Plastic	FI-20-CV(60)	Soldering	15	FI40B-2015S(50)
	Plastic, Right Angle	FI-2015-CVS(50)	Soldering	15	FI40B-2015S(50)
ϕ 9.2 (ϕ 8.9 to 9.5)	Plastic	FI-20-CV5(50)	Soldering	20	FI40B-20S(50)
	Plastic, Right Angle	FI-20-CVS5(50)	Soldering	20	FI40B-20S(50)
ϕ 10.25 (ϕ 9.5 to 11.0)	Die-Casting	FI-20-CV6	Soldering	20	FI40B-20S(50)

## ■ Specifications

Rated Current	1A
Rated Voltage	250V AC
Operation Temperature	- 55 °C to 85 °C
Contact resistance	70 mΩ max. (10 mA DC)
Insulation resistance	1,000 MΩ min. (250 V DC)
Withstanding voltage	500 V AC for 1 minute

## ■ Materials

Part		Material	Finish & Remarks
Plug Unit	Contact	IDC Type	Phosphor Bronze Contact Area: Gold Plated Lead: Gold Plated Under Plating: Nickel Plated
		Soldering Type	Phosphor Bronze Contact Area: Gold Plated Lead: Tin Plated Under Plating: Nickel Plated
	Housing	IDC Type	PBT Resin UL94V-0, Black
		Soldering Type	PPS Resin UL94V-0, Black or Brown
	Holder	IDC Type	PBT Resin UL94V-0, Black
		Soldering Type	PPS Resin UL94V-0, Black or Brown
Shell	Steel	Nickel Plated or Tin Plated*	
Cover Case	Case	Plastic Cover	Polycarbonate Resin UL94V-0, Gray
		Die-Casting Cover	Zinc Alloy Nickel Plated

\*Connector unit with Tin plated metal shell is also available with the specification No.(20), for customers who need to solder drain wire to metal shell for grounding connection. Please contact your Hirose representative for the details.

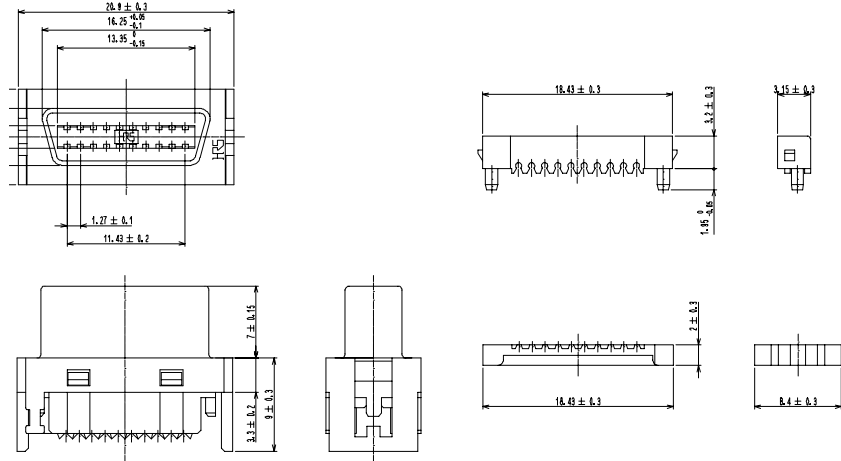
**FI Series ● Half Pitch Interface Connectors**

ITS-Z0344

**■ Plug Unit**

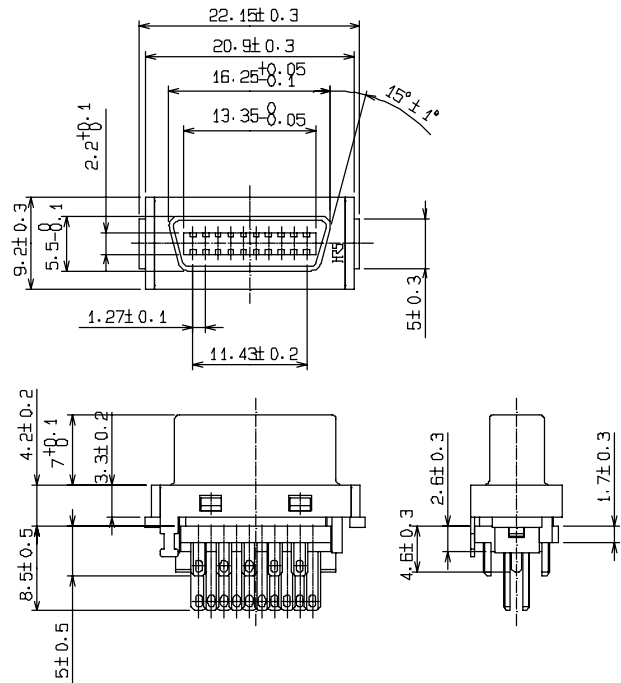
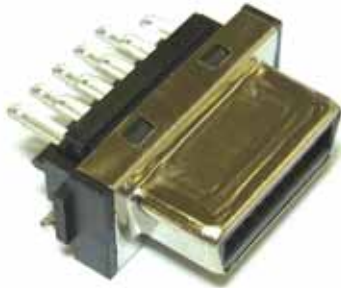
All dimensions: mm

**● IDC Type  
20 pos**



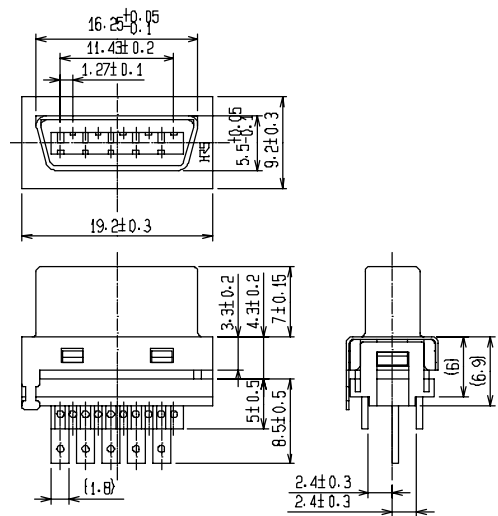
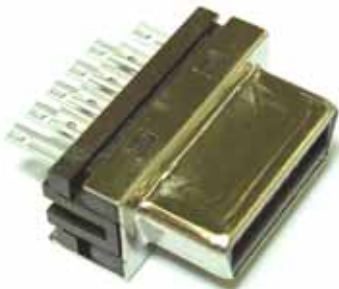
Part Number	CL No.	RoHS
FI30-20S(50)	CL230-0505-5-50	YES

**● Soldering Type  
20 pos.**



Part Number	CL No.	RoHS
FI40B-20S(50)	CL230-0518-7 50	YES

**15 pos.**

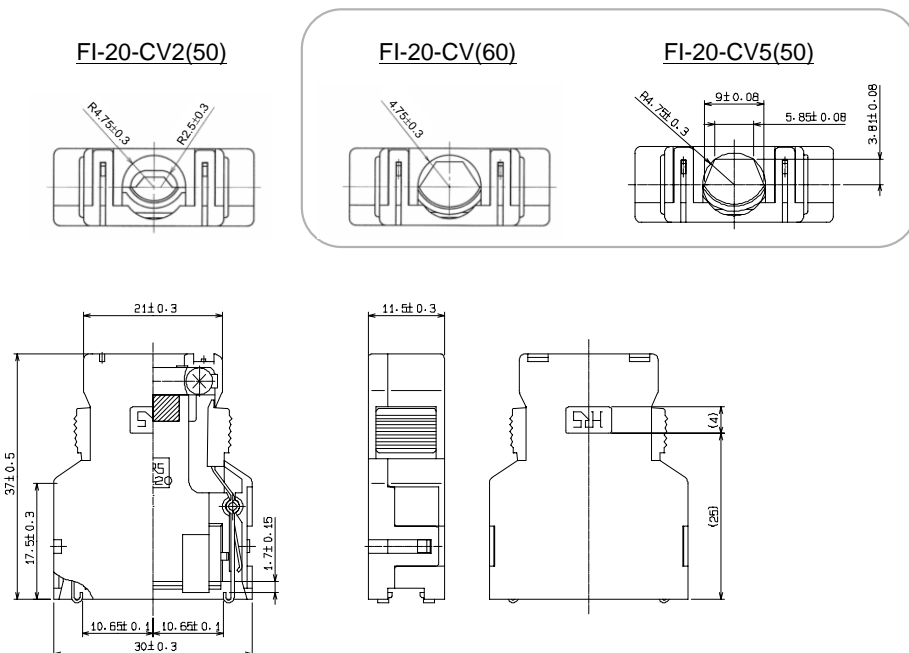


Part Number	CL No.	RoHS
FI40B-2015S(50)	CL230-0524-0 50	YES

**■ Cover Case**

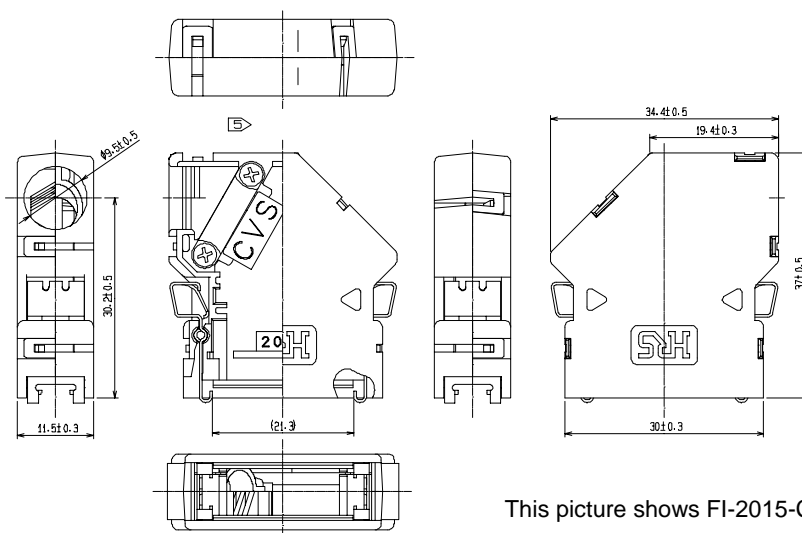
All dimensions: mm

**● Straight Type Plastic Cover (One Touch Lock)**



Applicable Cable Dia.	Part Number	CL No.	RoHS
$\phi 6.2$	FI-20-CV2(50)	CL230-0504-2 50	YES
$\phi 8.5$	FI-20-CV(60)	CL230-0501-4 60	YES
$\phi 9.2$	FI-20-CV5(50)	CL230-0515-9 50	YES

**● Right Angle Type Plastic Cover (One Touch Lock)**

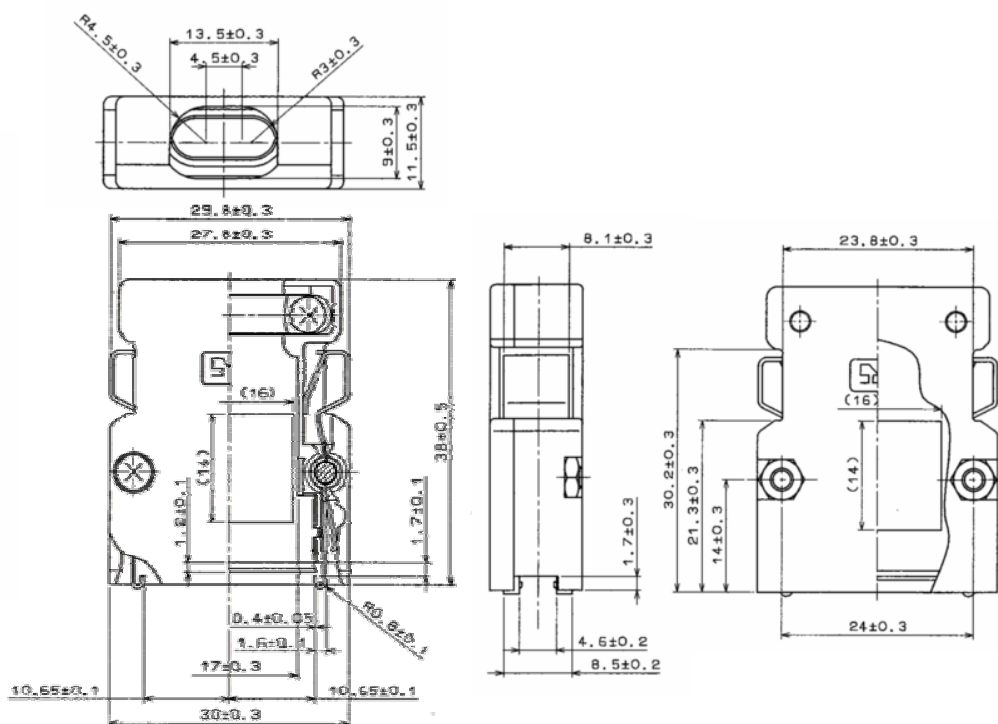


This picture shows FI-2015-CVS(50)

Applicable Cable Dia.	Part Number	CL No.	RoHS
$\phi 6.2$	FI-20-CVS2(50)	CL230-0531-5 50	YES
$\phi 8.5$	FI-2015-CVS(50)	CL230-0530-2 50	YES
$\phi 9.2$	FI-20-CVS5(50)	CL230-0532-8 50	YES

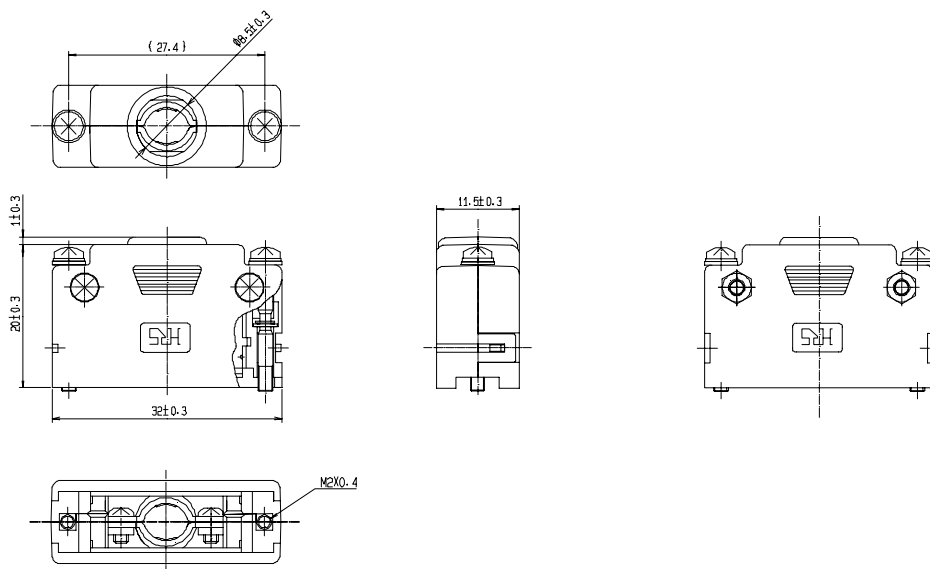
● **Straight Type Die-Casting Cover (One Touch Lock)**

All dimensions: mm



Applicable Cable Dia.	Part Number	CL No.	RoHS
φ 10.25	FI-20-CV6	CL230-0519-0 00	YES

● **Straight Type Short Plastic Cover (Screw Lock)**



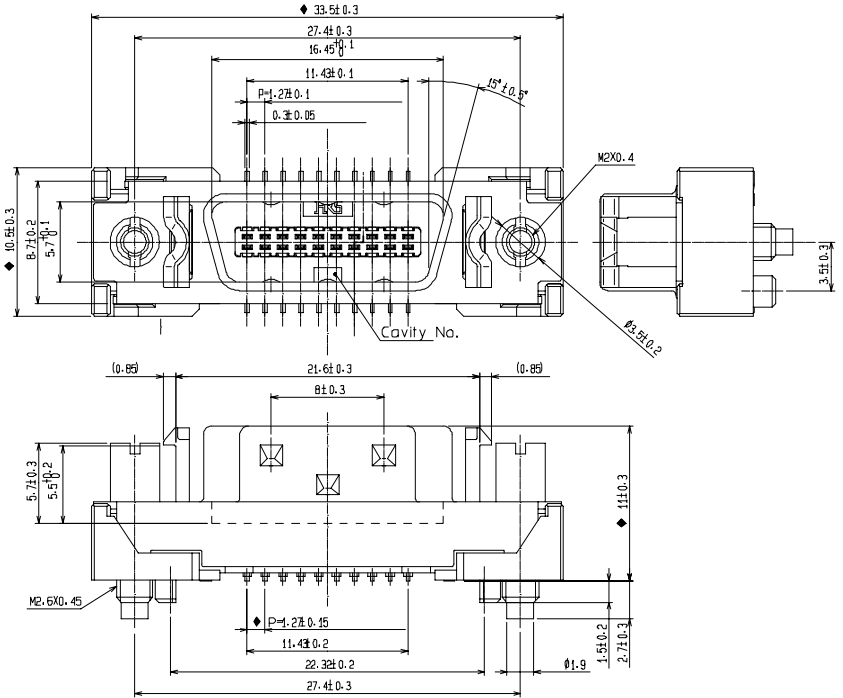
Applicable Cable Dia.	Part Number	CL No.	RoHS
φ 6.2	FI-20-CV7	CL230-0525-2 00	YES

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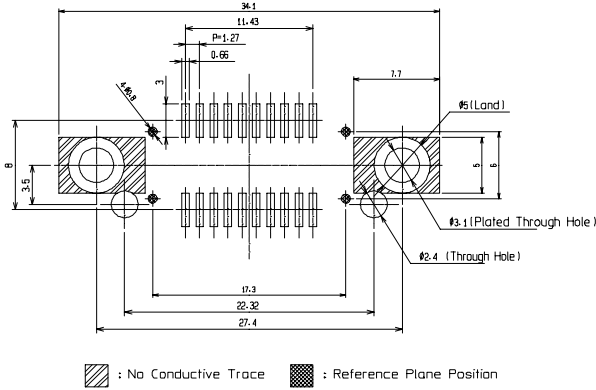
ITS-Z0344

**■ Receptacle**

● For Electrical Continuity Check  
 20 pos.



Recommended PCB Layout



▨ : No Conductive Trace    ▩ : Reference Plane Position

Part Number	CL No.	Mounting	RoHS
FI80-20P	CL230-0537-1 00	SMT	YES

**■ Materials**

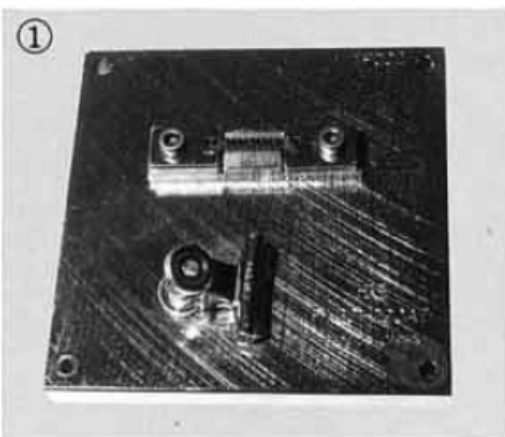
Part	Material	Finish & Remarks
Contact	Copper Alloy	Contact Area: Gold Plated Lead: Gold Plated
Housing	Polyamide or LCP	UL94V-0, Black
Shell	Steel	Nickel Plated
Lock Metal	Steel	Nickel Plated
Lock Screw	Steel	Tin Plated
Hex Nut	JIS B 11B1	Nickel Plated



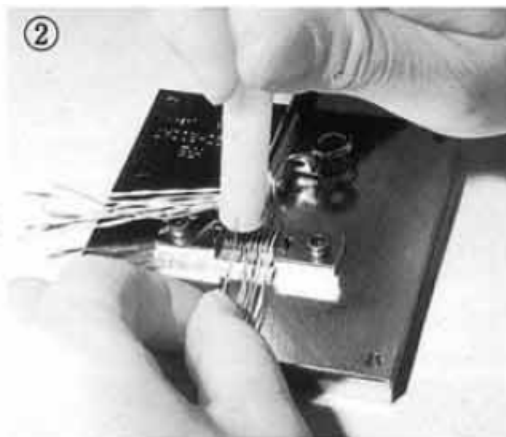
**■ Applicable tools for IDC Assembly**

Cable		I/O Cable (Discrete Cable)
Connector Name		FI30-20S(50)
Cable Alignment	Manual Cable Alignment Tool	FI30-20CAT (CL250-0143-0)
Cutting Extra Cable Length	Hi-Flex Termination Press	HHP-502 (CL550-0082-2)
	Guide Plate	FI30-20CU (CL250-0147-1)
IDC	Hi-Flex Termination Press	HHP-502 (CL550-0082-2)
	Guide Plate	FI30-20GP (CL250-0144-3)

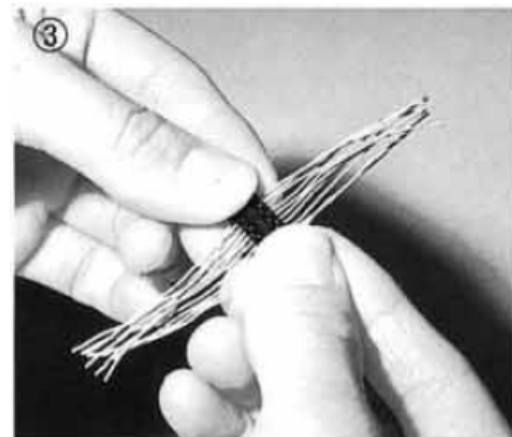
**■ Cable Assembly Procedure**



1. Place a protector on FI30-20CAT.



2. Clamp the cables and align signal cables to the protector one by one.



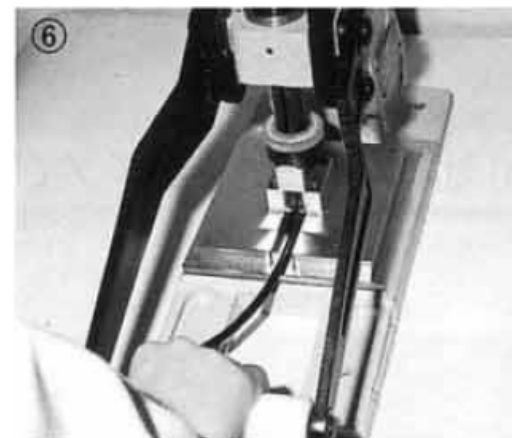
3. Assemble two protectors and temporarily attach to the holder.



4. Cut the extra cable length extended from the holder with nipper or cutter.



5. Cover the holder with a connector body, and then set them to FI30-20GP.



6. Pull the handle toward. (Termination completed.)

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