

High current plug-in connector

with a wrong insertion prevention mechanism



Features of the high current plug-in connector with a wrong insertion prevention mechanism

- **Equipped with a wrong insertion to other polarity (4 kinds) prevention mechanism.**

[Patent: cooperative application with NTT FACILITIES,INC. settled.] The wrong insertion prevention mechanism with concave-convex shaped key holes is adopted. Thus the prevention mechanism of electric shock and short circuit accident due to installation mistake is provided.

- **Attachable / detachable by small force**

- **Using the band contact made of beryllium copper alloy**

High current removable design is available.

- **Silver plating adopted**

Stable and long-term connection reliability can be obtained.

- **Connected with a commercially available tool (JIS crimping tool)**

Special tool is unnecessary to connect a cable.

- **Long term stability**

Due to the adoption of the plug-in structure, long-term stability is provided, also maintenance and management man-hour reduction is provided.

- **Screw type lock structure**

The tightening indication line and the feeling to ride onto given by the lock structure, facilitate the completion confirmation of the connection.

- **Identification indicator (Option)**

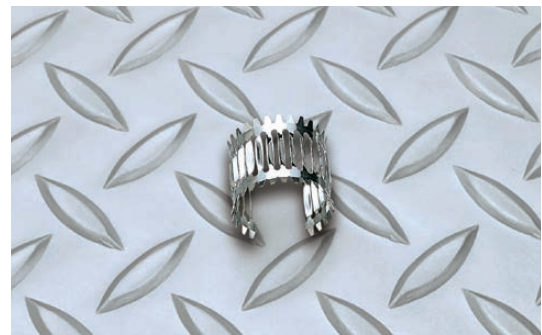
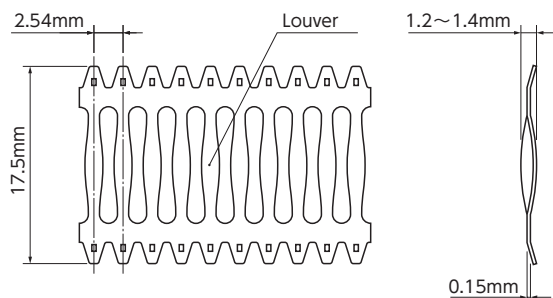
By attaching the identification cover · identification ring, the connection system can be confirmed with the naked eye.

■ Contact structure

Fundamental principle of the band contact

- In order to flow the electricity between the two different metal (pin, socket), it has the roll of the bridge.
- By the excellent spring characteristics, each contact surface is pressed with a constant force and the contact pressure is held in a stable state.
- Multiple louvers form each independent contact.
- The contact resistance is significantly reduced by parallel contact of each louver.

$R = r \div n$ R : Contact resistance of the connector.
 r : Contact resistance per one louver.
 n : The number of louver in a band contact used to the connector.



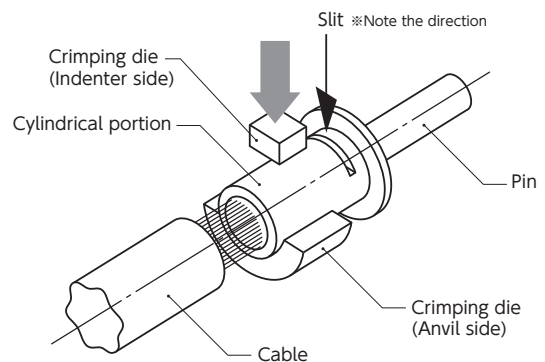
Specification of the high current plug-in connector with a wrong insertion prevention mechanism

Connector specification

- Contact material: Silver plated beryllium copper alloy.
- Metal conductor material: Silver plated electrolytic copper.
- Insulation cover material: PBT (UL94 V-O)
 - ※ Identification cover: Polyvinyl chloride.
- Cable connection method: Same as JIS C 2805 "Crimp-terminal lugs for copper conductor"
- Rated current: 355A (100mm²), 545A (200mm²), 700A (325mm²)
- Rated voltage: 600V/DC · AC
- Maximum operating temperature: 100°C (Includes temperature rise by current)
- Connecting cable kind: CF · CV · EM-LMFC, etc.

Crimping direction

When crimping, fix up the Crimping die (Indenter side) on the slit side of the cylindrical portion, as shown in the right figure.



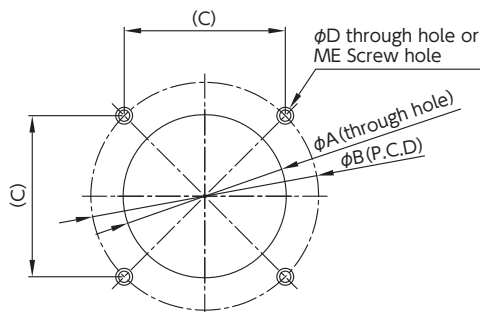
Connector crimping condition

Conductor size (mm ²)	Cable kind	Connector crimping condition *1			
		Crimping tool	Crimping die		Crimping times
100	CF/CV/ EM-LMFC etc.	Hydraulic tool *2	Indenter side	70 - 100	Once one side
			Anvil side	100	
200	CF/CV/ EM-LMFC etc.	Hydraulic tool *2	Indenter side	150 - 200	Once one side
			Anvil side	200	
325	CF/CV/ EM-LMFC etc.	Hydraulic tool *2	Indenter side	325	Once one side
			Anvil side	325	

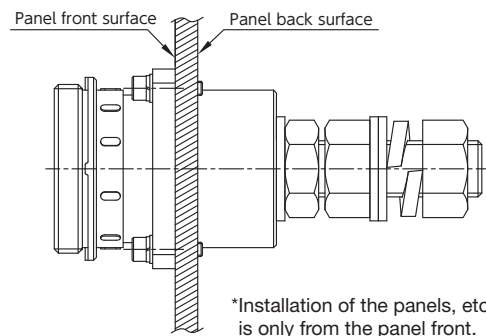
* 1 : According to JIS C 2805 "Crimp-type terminal lugs for copper conductor"

* 2 : According to JIS C 9711 "Compression tools for wire connectors of interior wiring"

Panel mounting hole size



[Receptacle Structural drawing]



Pin diameter (mm)	Dimension (mm)				
	A	B	C	D	E
φ 14	φ 41	φ 58	(41.0)	φ 5	M4
φ 20	φ 58	φ 81	(57.3)	φ 6	M5

*Note: Mounting and removal during energization is unavailable. Don't perform it in any way because it is dangerous.

Plug-in Connector (A Wrong Insertion Prevention Mechanism)

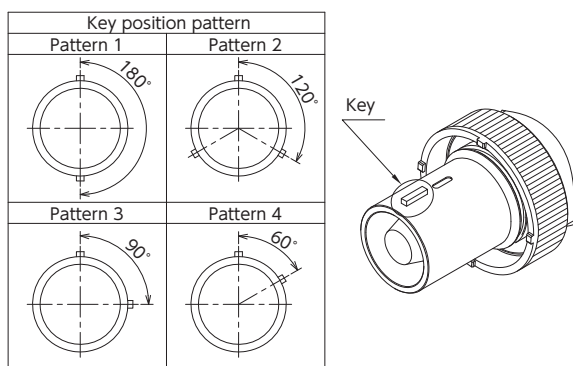
Connector with insulation cover

2 types

- ▶ Panel mount (Pin plug and Receptacle)
- ▶ In-line (Pin plug and Socket plug)

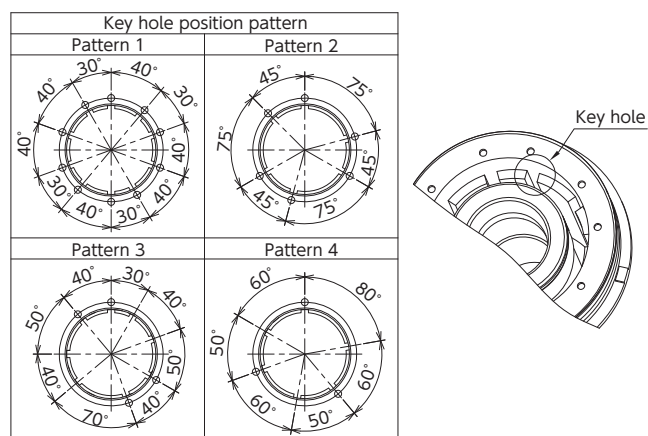


Key pattern of Pin plug



* For both Panel mount type and In-line type

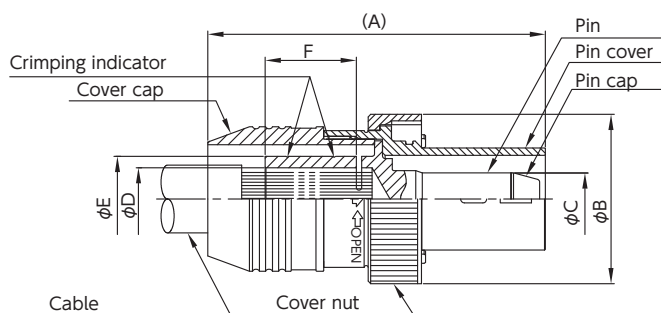
Key pattern of Receptacle and Socket plug



* Patent has been obtained in Japan, US and China.

Pin plug

- Pin plug connects with Receptacle or Socket plug.
- Cable is connected to Pin plug by crimping.



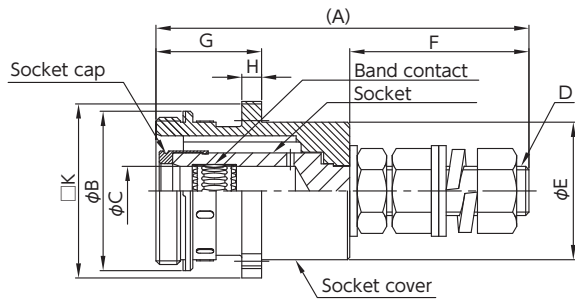
※Cable is not included



Key pattern	Item No. of Pin plug	Current	Conductor size			Dimension (mm)					
			JIS (mm ²)	AWG	DIN/IEC (mm ²)	A	B	C	D	E	F
1	PLS14PA100-K180-S	355A	100	4/0	—	(108)	ϕ 49	ϕ 14	ϕ 16.4	ϕ 22.3	23
2	PLS14PA100-K120-S										
3	PLS14PA100-K090-S										
4	PLS14PA100-K060-S										
1	PLS20PA200-K180-S	545A	200	400MCM	240	(130)	ϕ 65	ϕ 20	ϕ 24	ϕ 32.7	35
2	PLS20PA200-K120-S										
3	PLS20PA200-K090-S										
4	PLS20PA200-K060-S										
1	PLS20PA325-K180-S	700A	325	600MCM	300	(130)	ϕ 65	ϕ 20	ϕ 28	ϕ 37.6	35
2	PLS20PA325-K120-S										
3	PLS20PA325-K090-S										
4	PLS20PA325-K060-S										

Receptacle

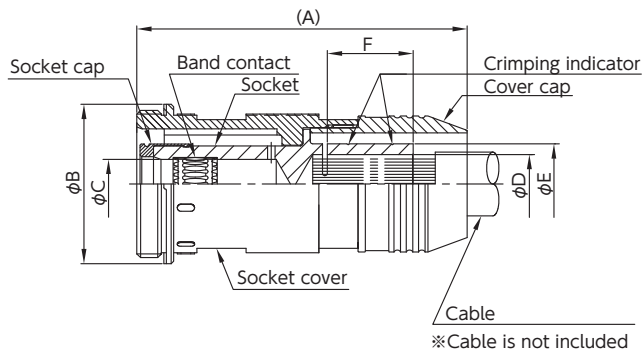
- Receptacle connects with Pin plug.
Busbar is connected to Receptacle with screw nut.



Key pattern	Item No. of Receptacle	Current	Conductor size			Dimension(mm)								
			JIS (mm ²)	AWG	DIN/IEC(mm ²)	A	B	C	D	E	F	G	H	K
1	PLS14RBM14-K180-S	355A	100	4/0	—	(123)	φ 49	φ 14	M14	φ 39	56	36	6	□50
2	PLS14RBM14-K120-S													
3	PLS14RBM14-K090-S													
4	PLS14RBM14-K060-S													
1	PLS20RBM20-K180-S	545A 700A	200 325	400MCM 600MCM	240 300	(152)	φ 65	φ 20	M20	φ 56	73	43	8	□71
2	PLS20RBM20-K120-S													
3	PLS20RBM20-K090-S													
4	PLS20RBM20-K060-S													

Socket plug

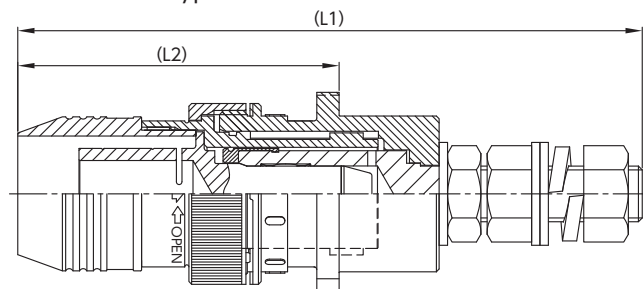
- Socket plug connects with Pin plug.
Cable is connected to Socket plug by crimping.



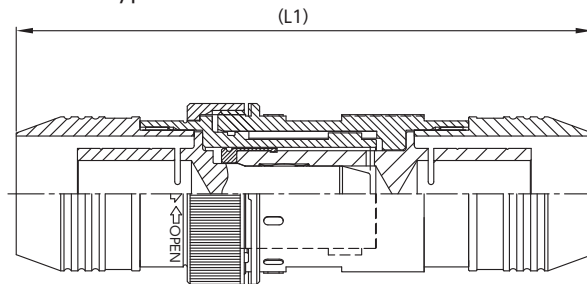
Key pattern	Item No. of Socket plug	Current	Conductor size			Dimension (mm)					
			JIS (mm ²)	AWG	DIN/IEC(mm ²)	A	B	C	D	E	F
1	PLS20PB200-K180-S	545A	200	400MCM	240	(135)	φ 65	φ 20	φ 24	φ 32.7	35
2	PLS20PB200-K120-S										
3	PLS20PB200-K090-S										
4	PLS20PB200-K060-S										
1	PLS20PB325-K180-S	700A	325	600MCM	300	(135)	φ 65	φ 20	φ 28	φ 37.6	35
2	PLS20PB325-K120-S										
3	PLS20PB325-K090-S										
4	PLS20PB325-K060-S										

Structural drawing after insertion

[Panel mount type]

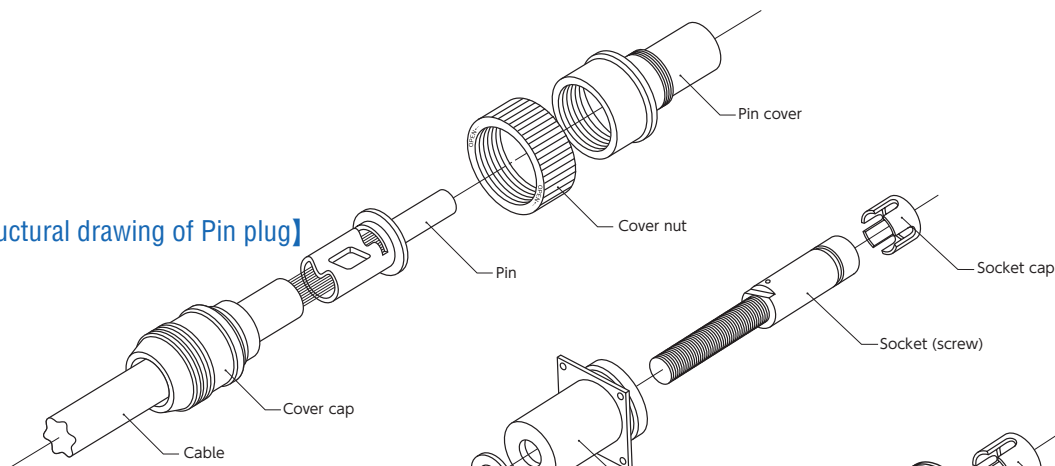


[In-line type]

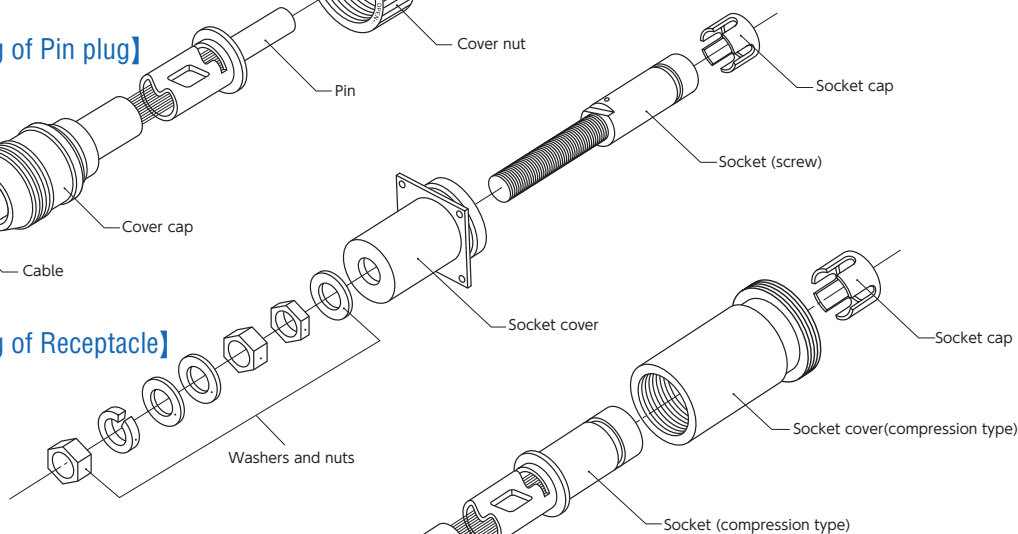


Connection type	Key pattern	Item No. of Pin plug	Item No. of Receptacle	Item No. of Socket plug	Dimension(mm)		Conductor size		
					L1	L2	JIS (mm ²)	AWG	DIN/IEC(mm ²)
Panel mount	1	PLS14PA100-K180-S	PLS14RBM14-K180-S		(178)	(91)	100	4/0	—
	2	PLS14PA100-K120-S	PLS14RBM14-K120-S						
	3	PLS14PA100-K090-S	PLS14RBM14-K090-S						
	4	PLS14PA100-K060-S	PLS14RBM14-K060-S						
	1	PLS20PA200-K180-S	PLS20RBM20-K180-S		(225)	(116)	200	400MCM	240
	2	PLS20PA200-K120-S	PLS20RBM20-K120-S						
	3	PLS20PA200-K090-S	PLS20RBM20-K090-S						
	4	PLS20PA200-K060-S	PLS20RBM20-K060-S						
	1	PLS20PA325-K180-S	PLS20RBM20-K180-S		(225)	(116)	325	600MCM	300
	2	PLS20PA325-K120-S	PLS20RBM20-K120-S						
	3	PLS20PA325-K090-S	PLS20RBM20-K090-S						
	4	PLS20PA325-K060-S	PLS20RBM20-K060-S						
In-line	1	PLS20PA200-K180-S		PLS20PB200-K180-S	(208)		200	400MCM	240
	2	PLS20PA200-K120-S		PLS20PB200-K120-S					
	3	PLS20PA200-K090-S		PLS20PB200-K090-S					
	4	PLS20PA200-K060-S		PLS20PB200-K060-S					
	1	PLS20PA325-K180-S		PLS20PB325-K180-S	(208)		325	600MCM	300
	2	PLS20PA325-K120-S		PLS20PB325-K120-S					
	3	PLS20PA325-K090-S		PLS20PB325-K090-S					
	4	PLS20PA325-K060-S		PLS20PB325-K060-S					

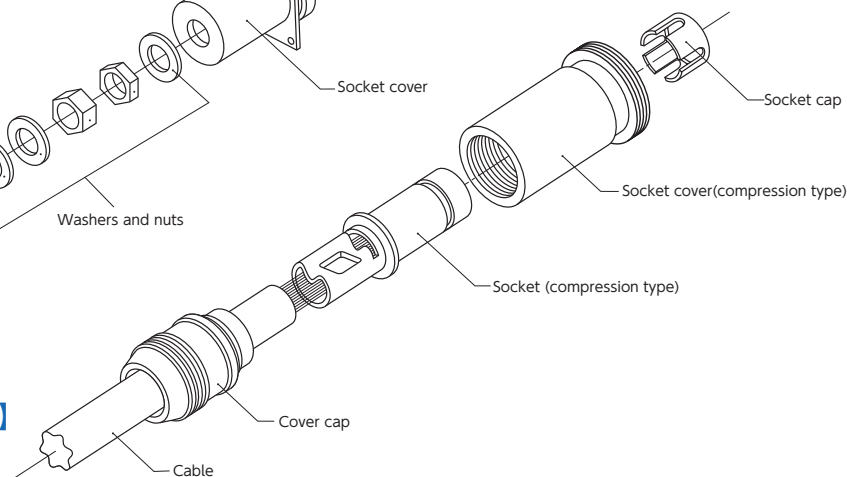
[Structural drawing of Pin plug]



[Structural drawing of Receptacle]



[Structural drawing of Socket plug]

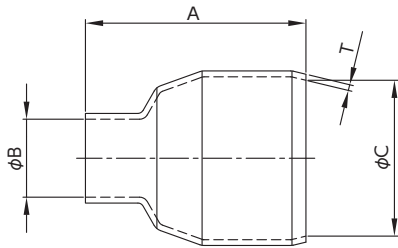


Option

► When option is necessary; please specify the model number in the table below.

■ Identification cover

- Possible to be attached to the Pin plug and the Socket plug.

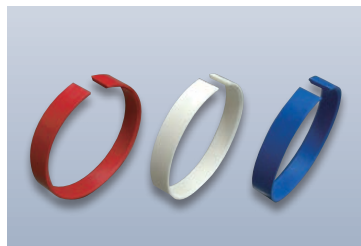
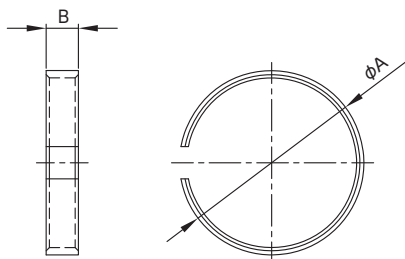


Implementation example

Color	Item No. of Identification cover	Conductor size			Dimension (mm)			
		JIS (mm ²)	AWG	DIN/IEC (mm ²)	A	B	C	T
Red	PLS14P100-IC-RED-P	100	4/0	—	57	φ 20	φ 36.5	2
White	PLS14P100-IC-WHT-P							
Blue	PLS14P100-IC-BLE-P							
Red	PLS20P200-IC-RED-P	200	400MCM	240	75	φ 26.5	φ 53	2
White	PLS20P200-IC-WHT-P							
Blue	PLS20P200-IC-BLE-P							
Red	PLS20P325-IC-RED-P	325	600MCM	300	80	φ 32.5	φ 53	2.5
White	PLS20P325-IC-WHT-P							
Blue	PLS20P325-IC-BLE-P							

■ Identification ring

- Possible to be attached to the Receptacle.

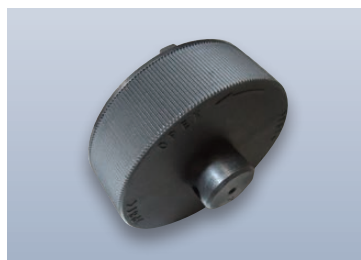
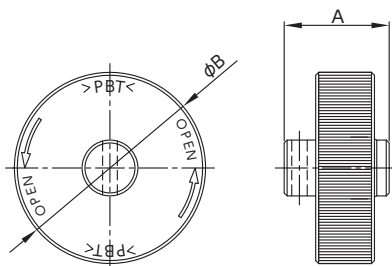


Implementation example

Color	Item No. of Identification ring	Pin diameter (mm)	Dimension (mm)	
			A	B
Red	PLS14P100-IR-RED	φ 14	φ 40	6.5
White	PLS14P100-IR-WHT			
Blue	PLS14P100-IR-BLE			
Red	PLS20P200-IR-RED	φ 20	φ 57	10
White	PLS20P200-IR-WHT			
Blue	PLS20P200-IR-BLE			

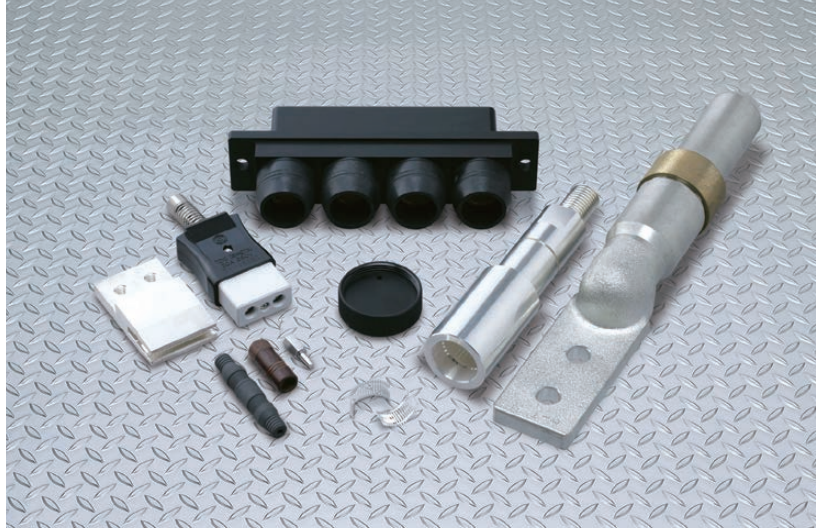
■ Socket end cap

- Possible to be attached to the Receptacle and the Socket plug.



Implementation example

Color	Item No. of Socket end cap	Pin diameter (mm)	Dimension (mm)	
			A	B
Black	PLS14SBK-NTF	φ 14	34	φ 49
	PLS20SBK-NTF	φ 20	36	φ 65



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Head office

2-11-16, Azamino Minami, Aoba-ku, Yokohama-shi, Kanagawa 225-0012, Japan

Overseas Sales Department

TEL.+81-45-910-2814 FAX.+81-45-910-2839

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