

D38999 I and III series special contact

Contact specification & type	MS part number	JY part number	Wire selection	
			JY Wire	MS Wire
16# pin	M39029/76-424	J1216/76-424	SFF-50-1.5-1	M17/113-RG316
16# socket	M39029/77-428	J1216/77-428	SFF-75-1.5-1	
12# pin	M39029/28-211	J1216/28-211	SFF-50-1.5-1	M17/113-RG316
	M39029/28-412	J1216/28-412		M17/173-RG316D
12# socket	M39029/75-416	J1216/75-416	SFF-50-1.5-1	M17/113-RG316
	M39029/75-422	J1216/75-422		M17/173-RG316D
12#Coax pin (3GHz)	M39029/102-558	J1216/102-558	SFF-50-1.5-1	M17/113-RG316
12#Coax socket (3GHz)	M39029/103-559	J1216/103-559	SFF-75-1.5-1	
12#Coax pin (40GHz)	M39029/102-558C	—	—	UT-085C-AL-TP-L
12#Coax socket (40GHz)	M39029/103-559C	—		(MICRO-COAX)
8#Twin coaxial pin	M39029/90-529	J1216/90-529	SEFF-78-1-51	M17/176-00002
8#Twin coaxial socket	M39029/91-530	J1216/91-530		
8#single coaxial pin	M39029/60-367	J1216/60-367		
8#single coaxial socket	M39029/59-366	J1216/59-366		
8#Quadrax pin		CF81/411-01		ET2PC236
8#Quadrax socket		CF82/411-01		
8#Twinax pin		CF81/211-01		HDP700001070
8#Twinax socket		CF82/211-01		

Sealing plug

Size	MS part number	JY part number	Note
4#	MS27488-4 (blue)	J27488-4 (blue)	For I and III series
8#	MS27488-8 (red)	J27488-8 (red)	
12#	MS27488-12 (yellow)	J27488-12 (yellow)	For I、II、III series
16#	MS27488-16 (blue)	J27488-16 (blue)	
20#	MS27488-20 (red)	J27488-20 (red)	
22#	MS27488-22 (black)	J27488-22 (black)	

High frequency contact

- **16#shielding contact** (Pin: M39029/76-424; Socket: M39029/77-428)
- **12#shielding contact** (Pin: M39029/28-211; Socket: M39029/75-416)

Low-level contact resistance (for inner contact only)

—Test current and voltage drop

Contact	Maximum contact resistance (mΩ)	
	Initial	Post-test
16#	170	204
12#	55	66

Contact		Current (A)	Voltage drop (mV)			
			25°C		175°C	
			Initial		Post-test	
16#	Inner contact	1	170	204	290	—
12#					—	290
16#	Outer contact	12	150	180	255	—
12#					—	255

— High pressure resistance (between inner and outer contacts)

Sea level: 750 Vrms; 15240m: 250 Vrms

- **12 # Coaxial contacts** (Pin: M39029/102-558 Socket:M39029/103-559)
 - — Nominal impedance: 50 Ω
 - — Working Frequency: DC0-3GHz
 - — Low level contact resistance (only for inner contacts):
 - initial value: 55m Ω , post-test: 66m Ω
 - — Voltage resistance: sea level: 1000 Vrms, 15240m: 250 Vrms
 - — Test current and pressure drop:

- **12 # Coaxial contact (40GHz)** (Pin: J1216 / 102-558C; Socket: J1216 / 103-559C)
 - — Nominal impedance: 50 Ω
 - — Working Frequency: DC0-40GHz
 - — Voltage wave ratio: 0~18GHz: 1.3; 18~40GHz: 1.7 (in GHz)
 - — Voltage resistance (between central contact and outer contact): 500 Vrms
 - — Vibration: 10~2000Hz, with a power spectral density of $1g^2 / H$ at ambient temperature

- 8 # Twin coaxial contacts (40GHz) (Pin: J1216 / 90-529; Socket J1216 / 91-530)

— — Low level contact resistance (only for central contact and middle contact): initial value 55m Ω , after test: 66m Ω

— — Test current and voltage drop:

Contact type	Test current (A)	Voltage drop (mV)		
		25°C		175°C
		Initial	Pre-test	Post-test
Central contact	1.0	55	66	94
Middle contact	1.0	55	66	94
Outer contact	12	75	90	128

— — Rated working voltage: sea level: 500 Vrms, 21336m: 125 Vrms

— — withstand voltage:

Contact	Height	Test voltage (V) rms
Center to middle	Sea level	1000
Middle to outer		500

Twinax and Quadrax contacts

●8#Twinax (Pin: CF81/211-01; Socket: CF82/211-01)

●8#Quadrax (Pin: CF81/411-01; Socket: CF82/411-01)

—— Voltage resistance (Vrms):

Normal: central conductor to outer conductor: 500V AC

central conductor: 1000V AC

—— Contact resistance: 15m Ω (central conductor only)

—— Insulation resistance (central contacts): (at 500 Vdc) 1000M Ω

—— Rated current of the contact parts: central conductor 1A

—— The transmission rate: 1.65 Gbps

Fiber optic contact

——Insertion loss: 1.1dB (4 core) 1.2dB (6 core) 1.4dB (8 core) 1.6dB (16 core)
2dB (61 core)

——Operating temperature: -40°C ~ + 80°C

——Vibration: 10Hz~500Hz, acceleration: 98 m/s²

——Impact: 980 m/s²

——Mechanical life: 500 times

——Tension force: 800N (main cable)

Tooling

Contact size	Insertion & extraction tools	Crimp tools	
16#Shielding coaxial	M81969/14-03	Inner contact	M22520/2 -01
		Outer contact	M22520/4 -01
12#Shielding	M81969/14-04	Inner contact	M22520/2 -01
		Outer contact	M22520/31-01
12#Shielding	M81969/14-04	Inner contact	MH992
		Outer contact	M22520/5 -01
8#Twin coaxial shielding	M81969/14-12	Inner contact	M22520/2 -01
		middle contact	M22520/5 -01
		Outer contact	M22520/5 -01
8#Twinax pin	M81969/14-12	Inner contact	M22520/2 -01
8#Twinax socket	M81969/14-12	Outer contact	M22520/5 -01
8#Quadrax pin	M81969/14-12	Inner contact	M22520/2 -01
8#Quadrax socket	M81969/14-12	Outer contact	M22520/5 -01

Assembly instructions for high-frequency contacts

- 16 # shielding coaxial pin and socket

1.Assembly and crimp of 16 # shielding coaxial pin

① Peel off the cable as shown in Figure 1.1. The end surface must be cut and at right angles to the axis of the cable. When cutting, the cable must not deform. Hot stripping line is recommended

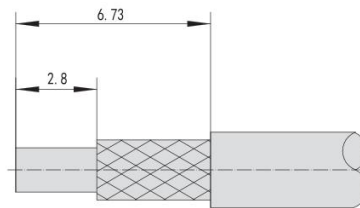


Figure1.1

② Slide the sheath back onto the cable sleeve as shown in Figure 1.9, open the shielding layer and strip off the cable medium

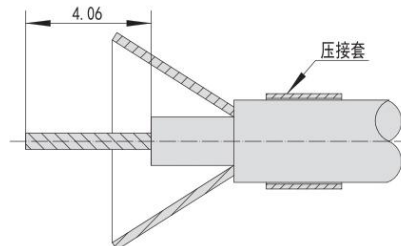


Figure 1.2

③ Assemble the rear end insulator on the cable center conductor, and the rear end insulator tail is close to the cable insulation medium (as shown in Figure 1.3).

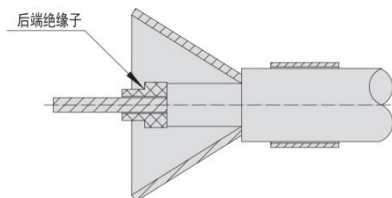


Figure 1.3

④ Assemble the center socket to the cable center conductor according to figure 1.4. The cable center conductor can be seen through the observation hole at the tail of the center socket. Use the 5 gears of crimping tools M22520 / 2-01 to crimp

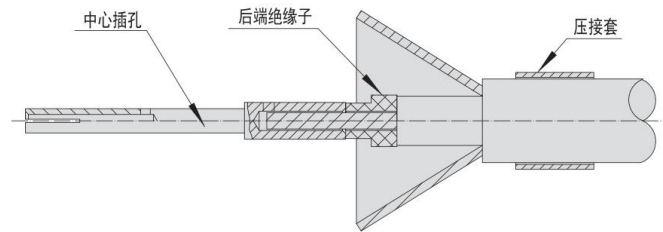


Figure 1.4

⑤ According to Figure 1.5, then install the front insulator on the center socket, and the front insulator tail is close to the steps of the rear insulator.

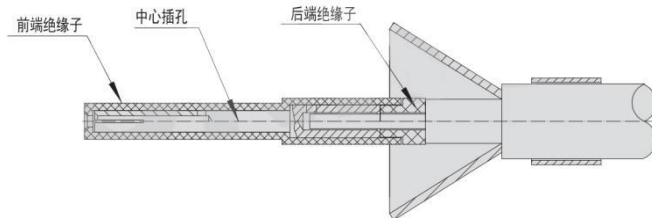


Figure 1.5

⑥ Assemble the outer pin on the center hole of the crimp and set the insulator according to Figure 1.6 until the inner contact and insulator are completely close.

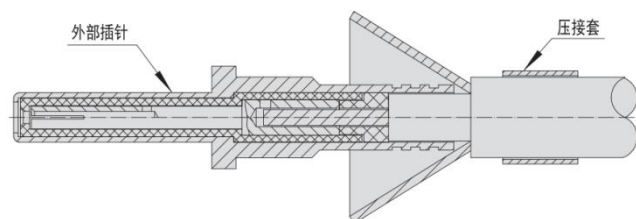


Figure 1.6

⑦ Place the crimp sleeve forward on the cable shielding layer according to Figure 1.7, the position size of 6.1~6.8, cut the excess shielding layer beyond the shield, and use the M22520 / 4-01 tool and M22520 / 4-02 positioner: crimp it once, rotate the contact parts 45 degrees again. After the second crimp. the diameter of the shield crimp sleeve must not be greater than 2.74.

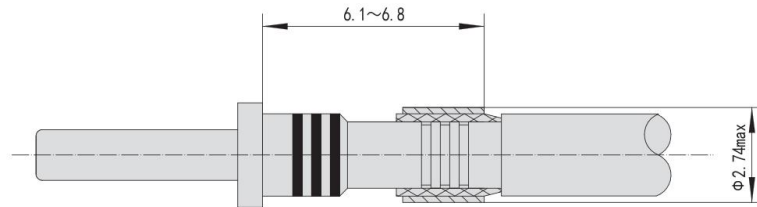


Figure 1.7

● **Assembly and crimp of the 16 # shielding coaxial socket**

① Peel the cable as shown in Figure 1.8, and the end surface must be cut clean and perpendicular to the axial surface of the cable, and the cable cannot be deformed when cutting. Hot stripping line is recommended.

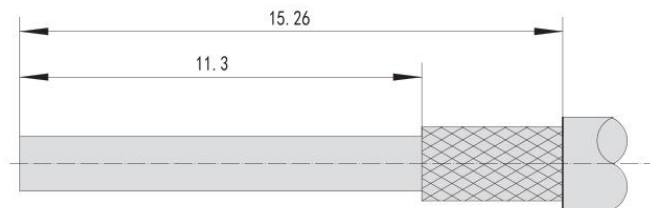


Figure 1.8

② Slide the sheath back onto the cable sleeve as shown in Figure 1.9, open the shielding layer and strip off the cable medium

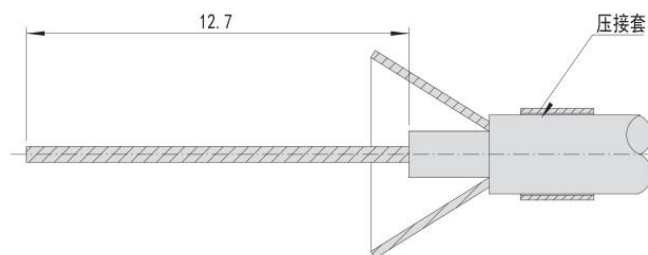


Figure 1.9

③ Slide the rear end insulator onto the cable center conductor as shown in Figure 1.10, and tighten the backshell end to the cable insulation medium.

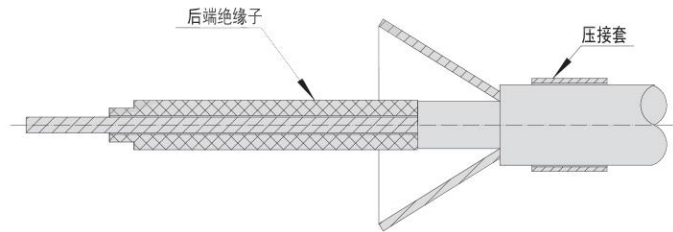


Figure 1.10

④ Assemble the center pin to the cable center conductor as shown in Figure 1.11, and the cable center conductor can be seen through the observation hole on the tail of the center socket. Use the crimp tool--M22520 / 2-01 of 5 gear, and locator, M22520 / 2-35 to crimp.

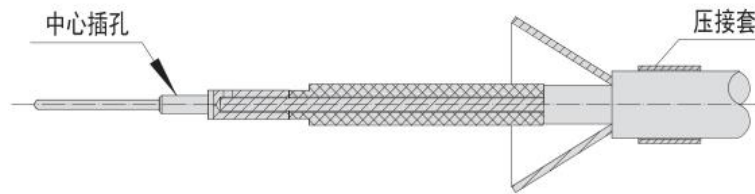


Figure 1.11

⑤ Assemble the front-end insulator on the center pin as shown in Figure 1.12, and the contact parts of the two insulators shall be tight

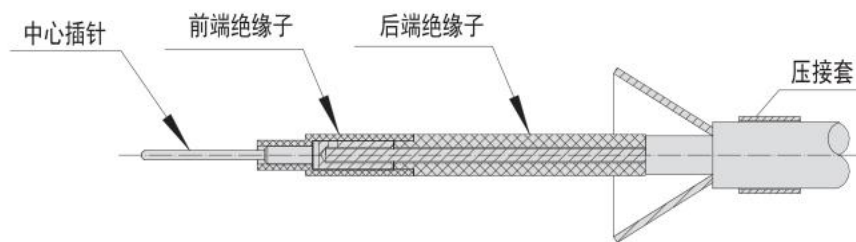


Figure 1.12

⑥ Assemble the outer contact parts on the central contact parts and under the cable shielding layer as Figure 1.13 until the central contact and insulator are completely tight.

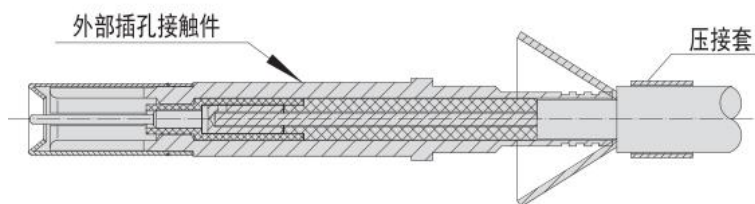


Figure 1.13

⑦ Place the shielded crimp sleeve forward on the cable shielding layer according to Figure 1.14, the position size is 6.1~6.8, cut off the excess shielding layer beyond the shielded compression sheath, and use the crimp tool-- M22520 / 4-01 and M22520 / 4-02 positioner to crimp: crimp once, and rotate the contact parts 45 degrees to crimp again. After the second crimp, the diameter of the shield sleeve must not be greater than 2.74.

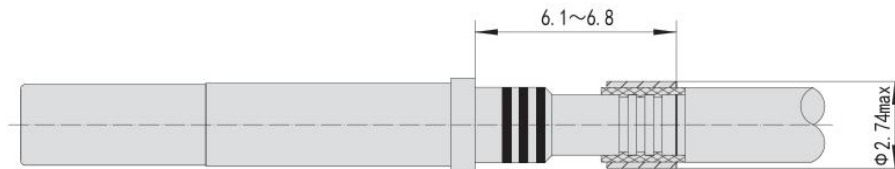


Figure 1.14

● Assembly and crimp of 12 # coaxial pin and socket

1. Assembly and crimp of the 12 # coaxial pin

① Peel off the cable as shown in Figure 2.1. The ends must be cut clean and set at right angles to the axial surface of the cable. When cutting, the cable must not deform.

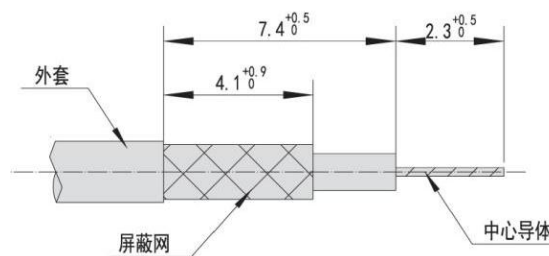


Figure 2.1

② Put the screen net compression sheath on the cable sleeve as shown in Figure 2.2.

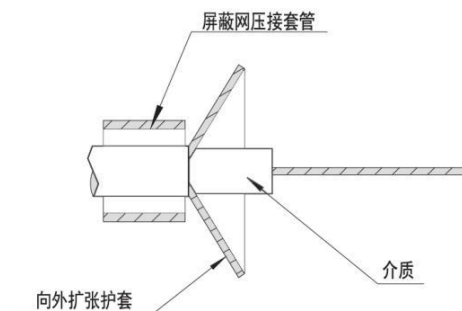


Figure 2.2

- ③ Open the shield layer outward and peel off the medium part of the cable
- ④ As shown in Figure 2.3, by passing the central conductor through the socket, the cable central conductor must be seen through the observation hole on the socket, and the socket must reach the back end Insulator

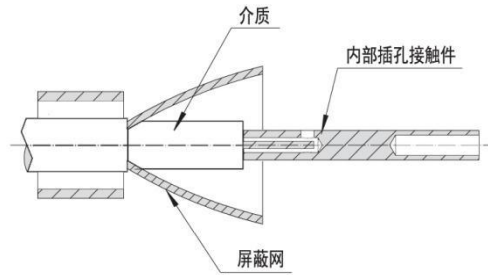


Figure 2.3

- ⑤ Crimp the inner socket contacts with the crimp tool MH992 and the locator K1303
- ⑥ As shown in Figure 2.4, put the inner components into the outer pin contacts under the cable shielding net until the inner socket contacts are fully installed

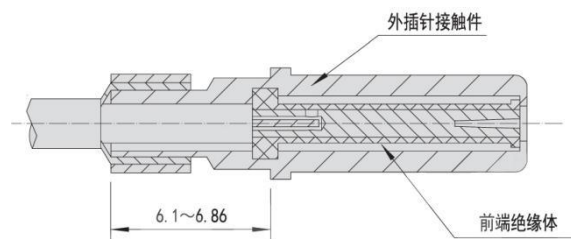


Figure 2.4

- ⑦ Put the braid crimp sleeve forward to ensure the size of 6.1-6.86mm. Cut out the excess shielding net at the front end of the braid crimp sleeve. Use the crimp tool M22520 / 05-01 and positioner M22520 / 05-03: once, the outer diameter of the sleeve must be less than 3.96mm.

⑧ Figure 2.5 shows the crimp 12 # coaxial pin

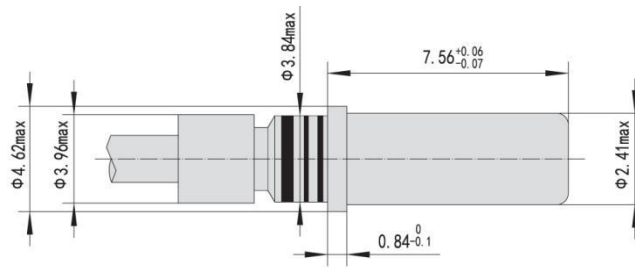


Figure 2.5

2. Assembly and crimp of the 12 # coaxial socket

① As shown in Figure 2.6, peel the cable and the end must be cut clean and at a right angle to the axial surface of the cable. When cutting, the cable must not deform.

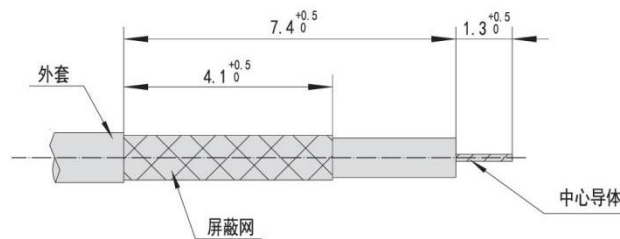


Figure 2.6

② As shown in Figure 2.7, proceed as follows:

- Apply the braid crimp sleeve to the cable jacket
- Gradually open the shield layer outward as shown, and peel off the dielectric layer of the cable.
- Place the cable center conductor into the inner pin contact. The inner conductor must be able to see through the viewing hole on the insertion pin contact. The contacts must cover the front end of the insulator.
- Use the crimp tool MH992 and the positioner K1304 to crimp the inner pin.

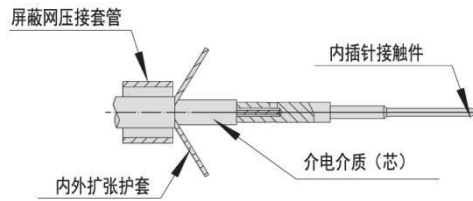


Figure 2.7

② As shown in Figure 2.8, proceed as follows:

- a. assemble the inner components into the outer socket contact component until the inner pin contacts are fully assembled
- b. put the braid crimp sleeve forward to ensure the size of 6.1 -6.8mm. Cut off the excess braid at the front of the braid crimp sleeve. Use the crimp tool M22520 / 05-01 and the positionner
- c. Use M22520 / 05-03 to crimp the braid crimp sleeve. the outer diameter of the sleeve must be less than 3.96mm.

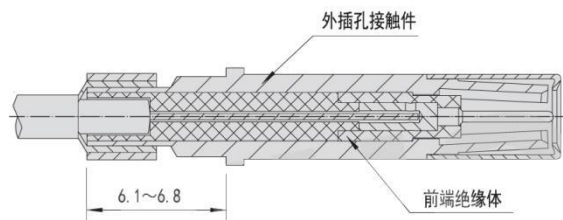


Figure 2.8

Figure 2.9 shows the crimp 12 # coaxial socket.

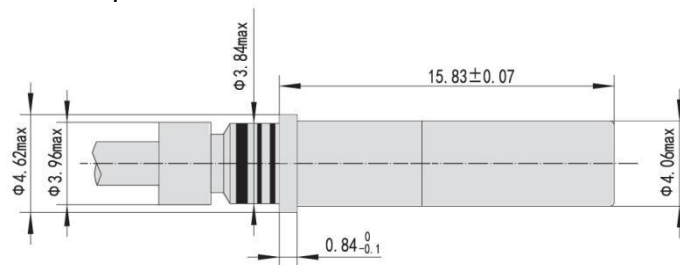


Figure 2.9

● Assembly instructions of 8 # twin coaxial shielding pin and socket

1. Assembly and crimp of twin coaxial shielding pin

① As shown in Figure 3.1, proceed as follows:

- a. Put the sleeve onto the cable as shown
- b. Peel the cable sheath to the position as shown, and the end must be cut clean and at a right angle to the axial surface of the cable. During cutting, the cable must not be deformed and damaged.

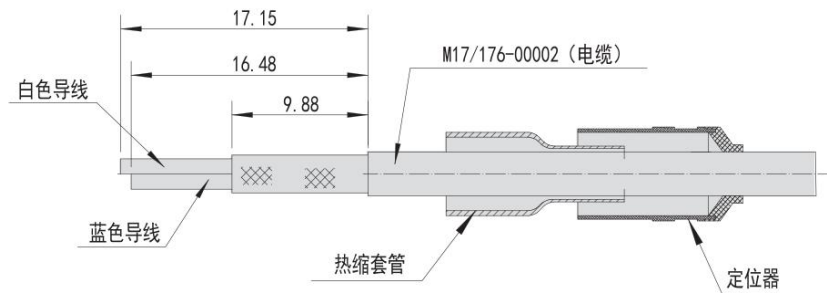


Figure 3.1

② As shown in Figure 3.2, Cover the cable jacket on the shielding crimp sleeve. Cover the shielding layer on the shielding crimp sleeve. Peel the inner wires as shown. (The fill can be cut off close to the shield)

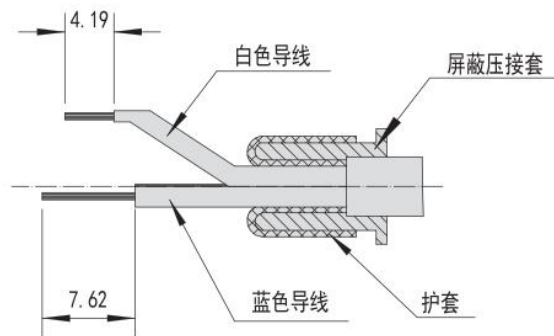


Figure 3.2

③ As shown in Figure 3.3, bend the white wire outward and put it into the slot of the insulator. The blue wire passes through the insulator, and the end of the insulator must cover the shield layer.

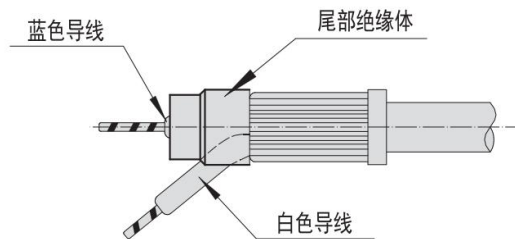


Figure 3.3

④ As shown in Figure 3.4, proceed as follows:

- a. Assemble the inner conductor of the blue wire into the center pin contact, and the conductor must be seen through the observation hole. The contact shall cover the end of the insulator, and the end of the insulator shall cover the metal sleeve loop.
- b. Crimp the center pin to the blue wire using the crimp tool M22520 / 2-01 and the positioner K709

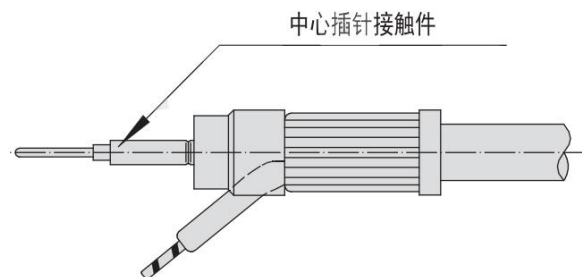


Figure 3.4

⑤ As shown in Figure 3.5, proceed as follows:

- a. Cover the middle pin and its inner insulator on the center pin
- b. Insert the inner conductor of the white wire into the hole on the tail surface of the contact in the middle. The conductor shall be visible through the wire observation hole. The middle contacts must cover the insulator
- c. Crimp the middle contacts to the white wire using the crimp tool M22520 / 5-01.

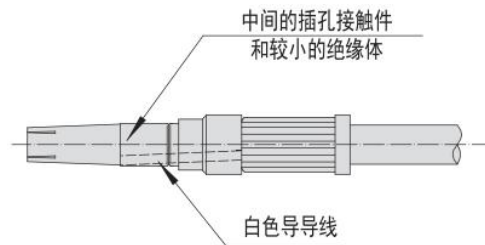


Figure 3.5

⑤ As shown in Figure 3.6, proceed as follows:

- a. Cover the outer pin and insulator on the middle socket until fully to the bottom.
- b. When the component is completely at the bottom, the terminal portion of the outer shell is crimped hexagonal by using the crimp tools M22520 / 5-01 and Y631A.
- c. Slide the sleeve to the crimp part of the contacts and heat the shrink sleeve on the contacts and cables.

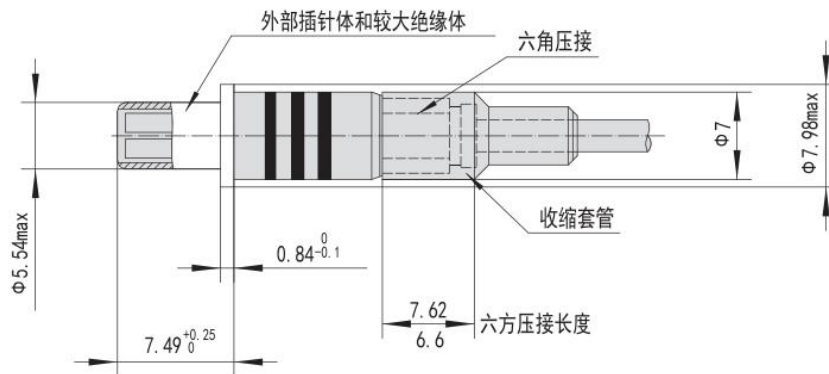


Figure 3.6

2. Assembly and crimp of twin coaxial shielding socket

- ① As shown in Figure 3.7, the heat shrink sleeve and positioner slide onto the cable sleeve (starting from the small diameter end)
- ② Peel the cable sheath to the shown position, the end must be cut clean and at right angles to the axial surface of the cable. During cutting, the cable must not be deformed and damaged.

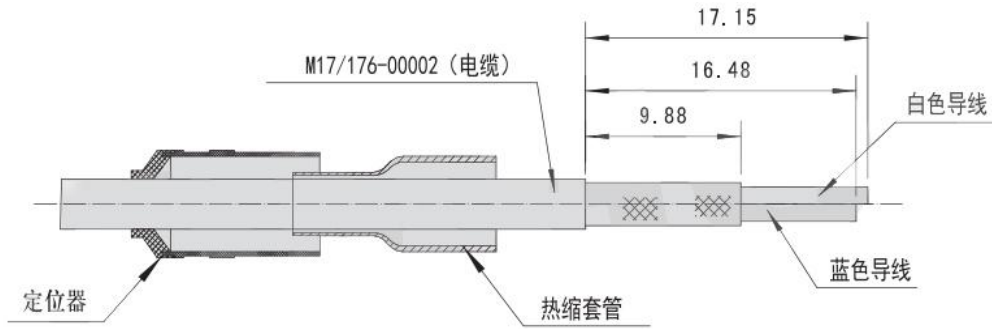


Figure 3.7

- ③ As shown in Figure 3.8, Cover the cable jacket on the shielding crimp sleeve. Cover the shielding layer on the shielding crimp sleeve. Peel the inner wires as shown. (The fill can be cut off close to the shield)

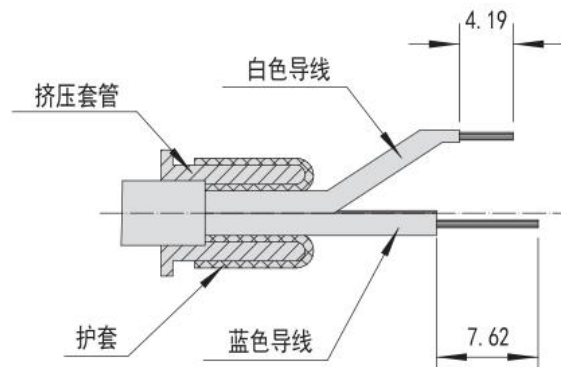


Figure 3.8

④ As shown in Figure 3.9, bend the white wire outward and put it into the slot of the insulator. The blue wire passes through the insulator, and the end of the insulator must cover the shield layer.

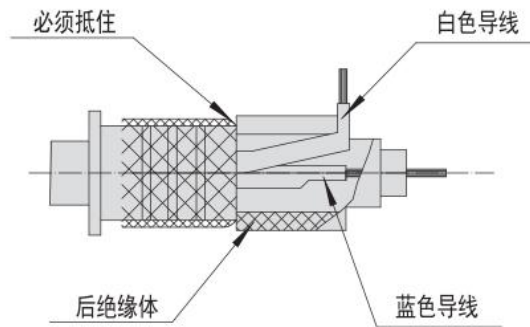


Figure 3.9

⑤ As shown in Figure 3.10, proceed as follows

- a. Slide the socket onto the blue wire. The conductor must be visible to the viewing holes on the inner socket contacts.
- b. Press the contacts with the M22520 / 2-01 tool and the positioner K709.

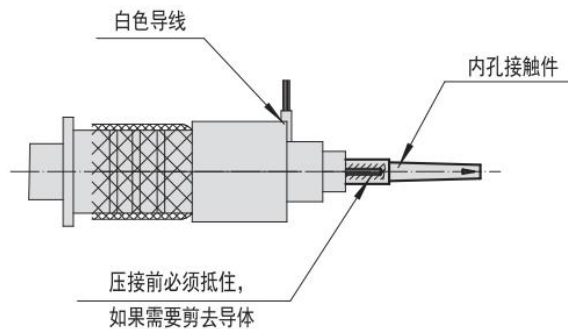


Figure 3.10

⑥ As shown in Figure 3.11. Cover the middle pin contacts and the insulator component on the inner hole contacts. The conductor shall be visible through the wire observation hole. The middle contacts must cover the insulator

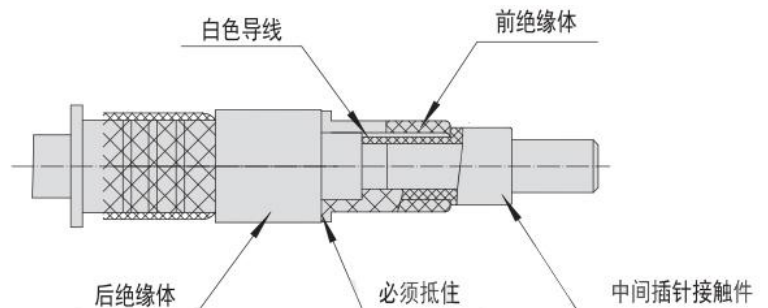


Figure 3.11

⑦ As shown in Figure 3.12, use the M22520 / 5-01 tool to crimp the middle pin contact, and use the stamping die Y631B (crimp the middle contact to the white wire.)

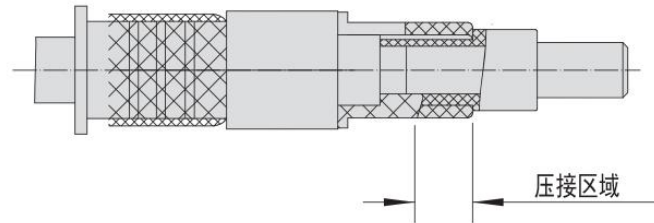


Figure 3.12

⑧ As shown in Figure 3.13, the outer jack contact and front insulator secondary components slide onto the inner assembly until offset. A small gap will appear in the casing.

a. Crimp the outer components (casing and outer contacts) using M22520 / 5-01, tool and Y631A die.

b. Slide the pre-formed heat sleeve onto the contacts and shrink the sleeve with a hot air device.

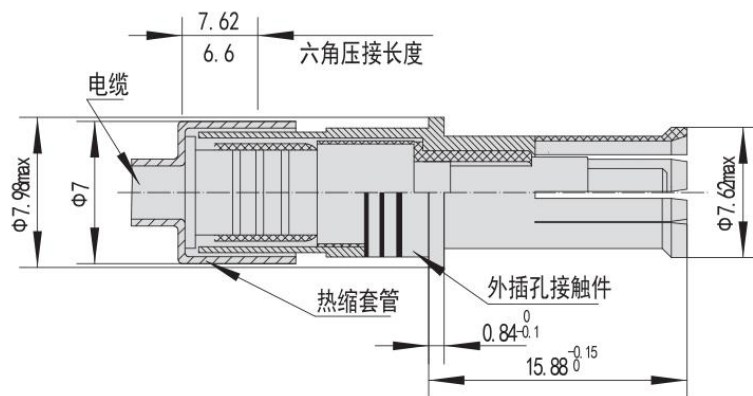


Figure 3.13