

F系列微圆形高密度电连接器

产品简介

- * F系列微圆形高密度电连接器结构为直式推入拉出结构，插合后有自锁功能。
- * 该系列连接器具有快速插拔、高密度、小体积、盲插及耐环境等特点，特别适合于高密度安装、相对狭小的空间安装及使用旋转方式插合分离困难的场合。
- * 被广泛应用于军、民领域的电台设备、医疗设备、测试检测设备、音频视频设备、数据采集、工业控制等场合的直流或交流电路的电气连接。
- * 执行企业标准:Q/21EJ671



主要特征

- 插头插座直式推拉锁紧结构
- 插座为螺母紧固安装形式，IP68防护等级
- 插头插座均可以实现装插针、装插孔
- 端接形式:插头—焊接，插座—焊接、直式印制板
- 两种防误插形式:单定位、双定位
- 表面处理形式为黑色镀铬、自然色镀铬两种
- 有102、103、1031、104、105等五种壳体代码

主要技术性能

【机械性能】

- 机械寿命:1000次
- 振 动: 频率10~2000Hz, 加速度 147m/s^2 , $\leq 1\mu$ 瞬断
- 冲 击: 加速度 490m/s^2 , $\leq 1\mu$ s瞬断

【环境性能】

- 工作温度: $-55^\circ\text{C} \sim +200^\circ\text{C}$
- 相对湿度: 40°C 时, 达95%
- 插座符合IP68防护等级
- 盐雾96h

【电气性能】

- 接触件规格、接触电阻、焊线杯直径、最大导线规格、额定电流:

表1

接触件规格 mm	接触电阻 $\text{m}\Omega$	焊线杯直径 mm	最大导线规格		额定电流A
			mm^2	AWG	
$\Phi 0.5$	15	$\Phi 0.5$	0.06	30	按接点排列中的规定 详见接点排列
$\Phi 0.7$	12.5	$\Phi 0.75$	0.15	26	
$\Phi 0.9$	5	$\Phi 0.8$	0.38	22	
$\Phi 1.3$	3	$\Phi 1.2$	0.62	20	
$\Phi 1.6$	2.5	$\Phi 1.8$	2.0	14	
$\Phi 2.0$	2	$\Phi 2.0$	2.0	14	
$\Phi 2.3$	1.5	$\Phi 2.1$	3.0	12	
$\Phi 3.0$	1	$\Phi 3.1$	5.0	10	



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—绝缘电阻：常温5000MΩ
200℃时100MΩ
湿热100MΩ

—介质耐压

表2

工作条件	海平面V, AC	21336m高度V, AC
I	1000	250
II	875	225
III	725	175

型号命名

系列主称	F系列微圆形电连接器	F	102	Z10	J	056	—	149
壳体代码	102—103—1031—104—105							
插头插座形式	插头T103(见109页) 螺母紧固面板前安装插座Z10(见110页) 螺母紧固面板前安装直式印制板插座Z19(见111页) 电缆插座Z14(见112页)							
接触件形式	插针J 插孔K							
接点代码	详见接点排列							
分隔符	—							
特征代码	见表3							

型号命名标记

F102Z10J056—149：F系列连接器，壳体号为102，螺母紧固面板前安装插座，接触件为插针，接点代码为056，特征代码149。

表3

特征代码		端接方式	标识颜色	镀层种类	定位方式
Z10	Z14、Z19、T03				
139	130	焊接	红色	自然色铬	单定位
149	140	焊接	白色	黑色铬	单定位
239	230	焊接	红色	自然色铬	双定位
249	240	焊接	白色	黑色铬	双定位

注：Z19插座仅推荐接触件规格为Φ0.5， Φ0.7， Φ0.9。

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外形尺寸

【T03插头】

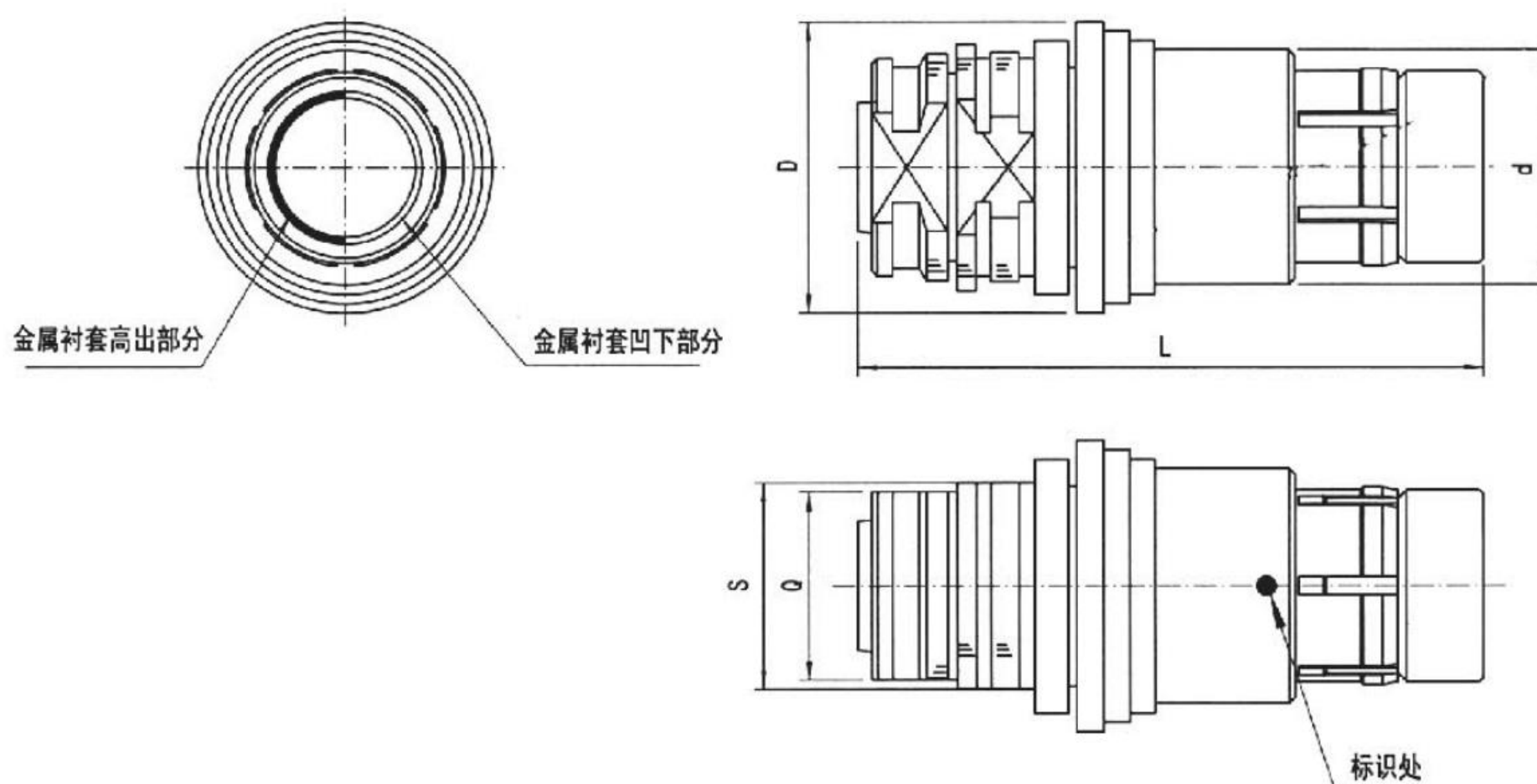


表4

壳体号	D	d	L	S	Q	出口直径
102	Φ11.9	Φ8.9	29.5	8	7	Φ3.8
103	Φ14.9	Φ12	33.45	11	10	Φ6
1031	Φ15.5	Φ12.5	33.3	11	10	Φ6.2
104	Φ18	Φ15	38.6	13	12	Φ8
105	Φ21.3	Φ18	42.9	16	15	Φ10

T03插头装插孔



T03插头装插针





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【Z10插座】

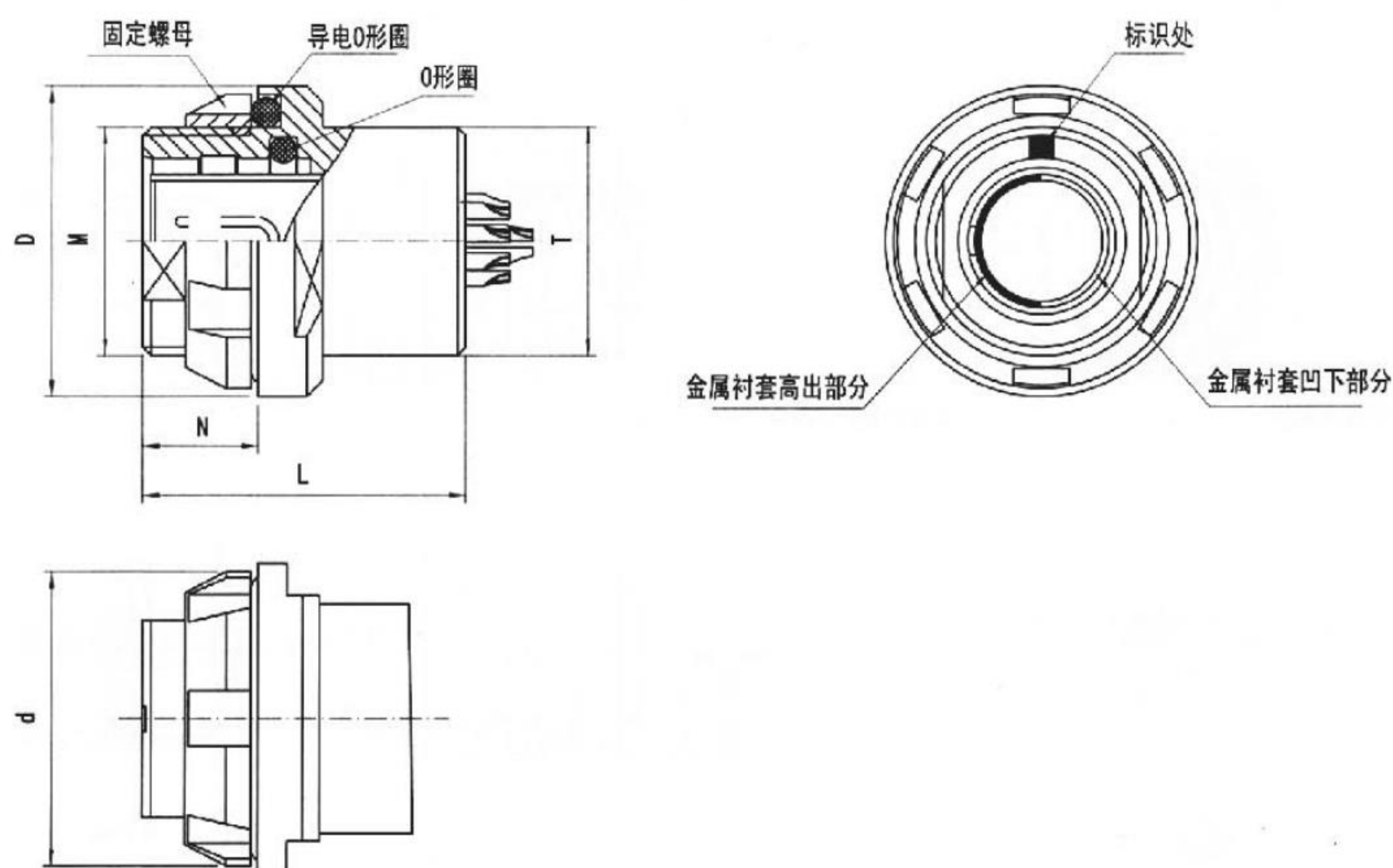


表5

壳体号	D	M	N	L	T	d
102	Φ14	9×0.5	6.5	16.7	Φ9	Φ12
103	Φ18	14×1	7.7	21.1	Φ14	Φ18
1031	Φ19	14×1	7	19.6	Φ14	Φ18
104	Φ22	16×1	8	22.5	Φ15	Φ20
105	Φ27.1	20×1	10	26.6	Φ21.05	Φ25

Z10插座装插针



Z10插座装插孔



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【Z19插座】

该插座是将Z10形式插座的接触件端接方式由焊线杯形式改为直式印制板形式，本插座仅推荐接触件规格为 $\Phi 0.5$ 、 $\Phi 0.7$ 、 $\Phi 0.9$ 三种结构。

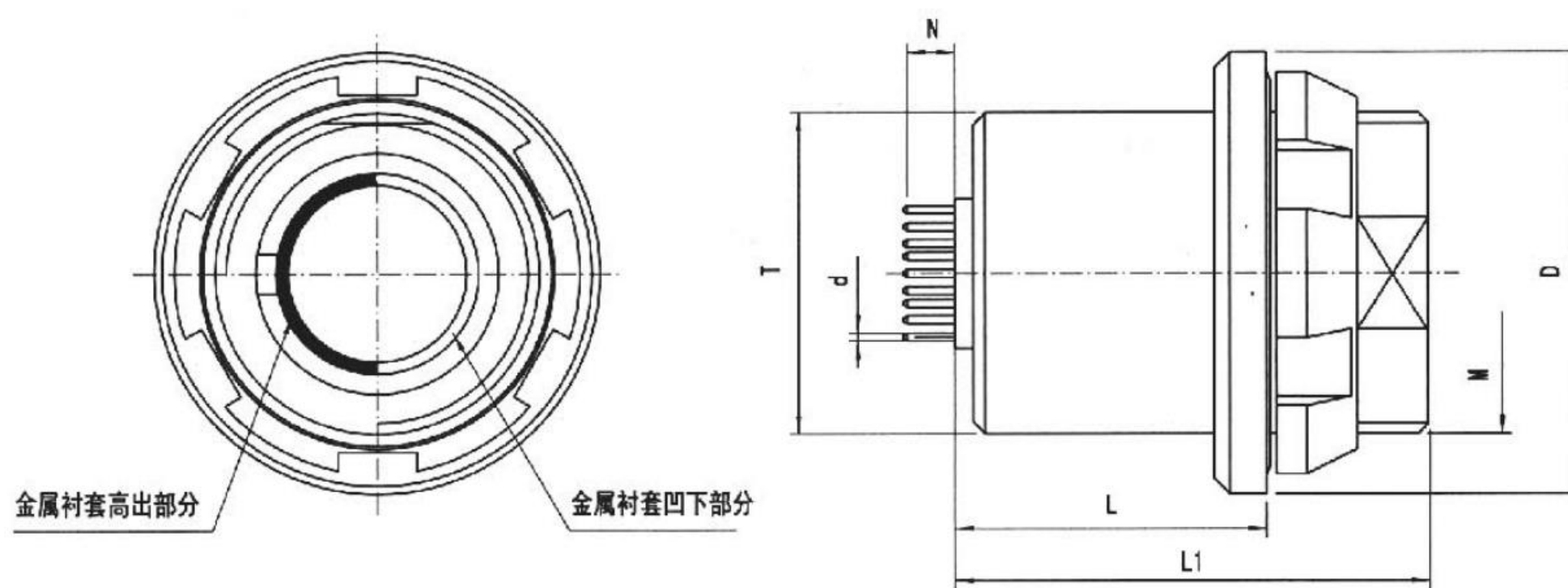


表6

壳体号	接触件规格	d	N	M	T	D	L	L1
102	$\Phi 0.5$	$\Phi 0.5$	2.54	9×0.5	$\Phi 9$	$\Phi 14$	10.5	16.7
	$\Phi 0.7$	$\Phi 0.5$	2.54					
	$\Phi 0.9$	$\Phi 0.5$	2.54					
103	$\Phi 0.5$	$\Phi 0.5$	2.54	14×1	$\Phi 14$	$\Phi 18$	15.5	21.1
	$\Phi 0.7$	$\Phi 0.5$	2.54					
	$\Phi 0.9$	$\Phi 0.5$	2.54					
1031	$\Phi 0.5$	$\Phi 0.5$	2.54	14×1	$\Phi 14$	$\Phi 19$	12.85	19.6
	$\Phi 0.7$	$\Phi 0.5$	2.54					
	$\Phi 0.9$	$\Phi 0.5$	2.54					
104	$\Phi 0.5$	$\Phi 0.5$	2.54	16×1	$\Phi 15$	$\Phi 22$	15	22.5
	$\Phi 0.7$	$\Phi 0.5$	2.54					
	$\Phi 0.9$	$\Phi 0.5$	2.54					
105	$\Phi 0.5$	$\Phi 0.5$	2.54	20×1	$\Phi 21.05$	$\Phi 27.1$	17.25	26.6
	$\Phi 0.7$	$\Phi 0.5$	2.54					
	$\Phi 0.9$	$\Phi 0.5$	2.54					



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【Z14电缆插座】

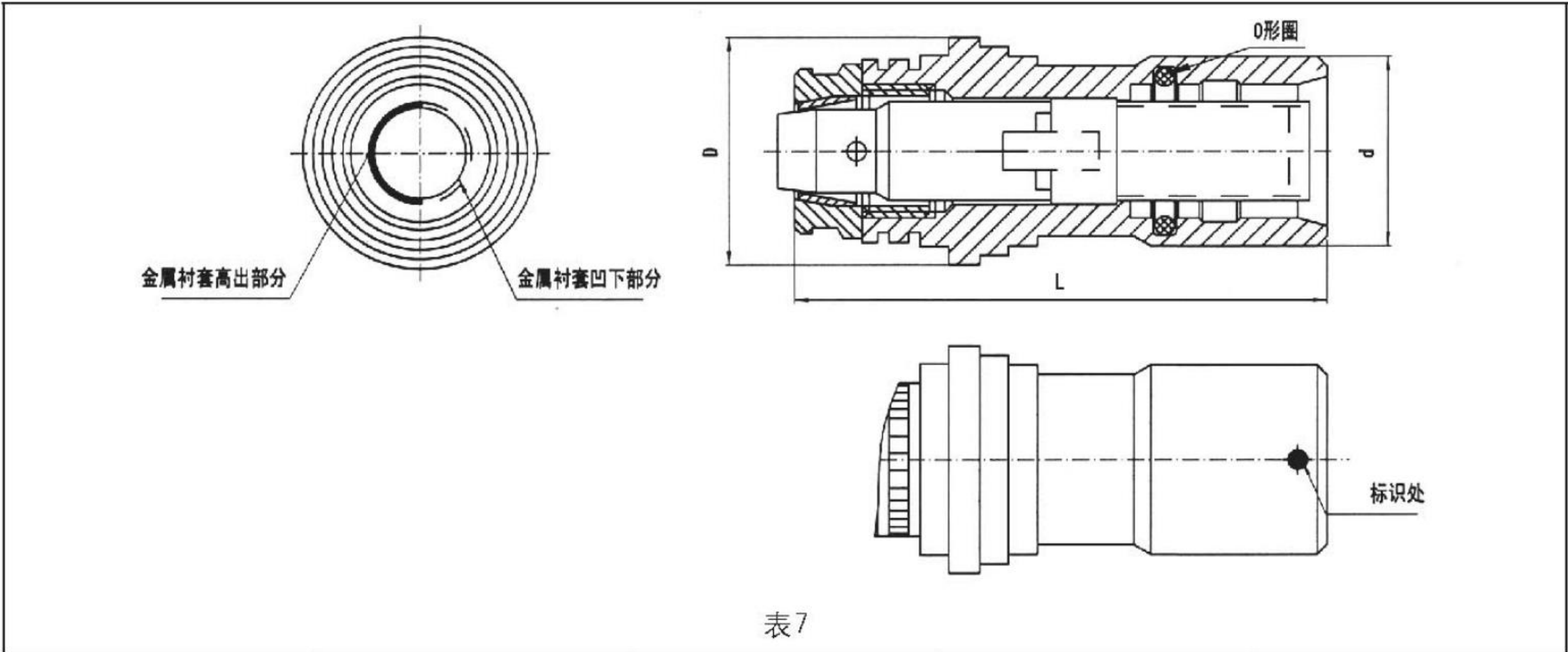


表7

壳体号	D	L	d	出线口直径
102	Φ11.9	28.7	Φ9.9	Φ3.8

F系列插头密封盖

系列主称	F系列微圆形电连接器	F	102	TG	N
壳体代码	102-103-1031-104-105				
插头防尘盖					
镀层	N-铬 B-黑铬				

外形尺寸

	壳体号	ΦA	ΦB	L	L1
	102	Φ10	Φ11	14.5	85
	103	Φ14	Φ15	21	85
	1031	Φ15	Φ16	20	85
	104	Φ15.8	Φ16.6	21	135
	105	Φ20	Φ21	29	135

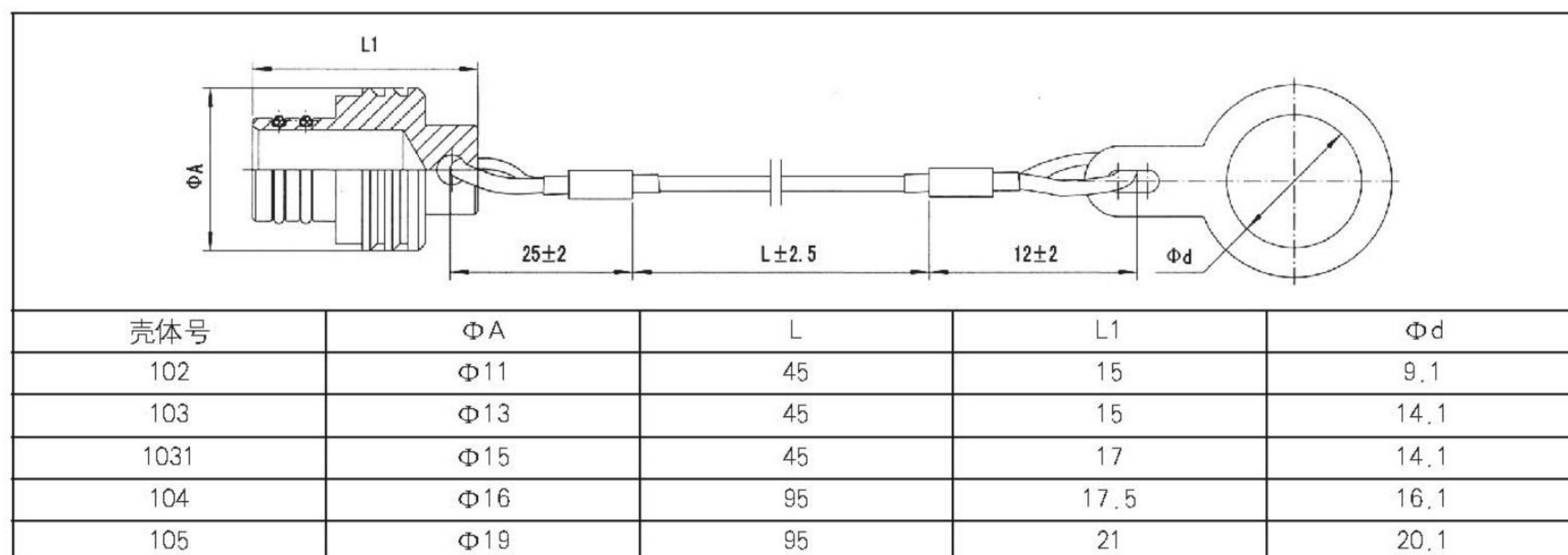
F系列插座密封盖

系列主称	F系列微圆形电连接器	F	102	ZG	N
壳体代码	102-103-1031-104-105				
插座防尘盖					
镀层	N-铬 B-黑铬				



F系列微圆形高密度电连接器

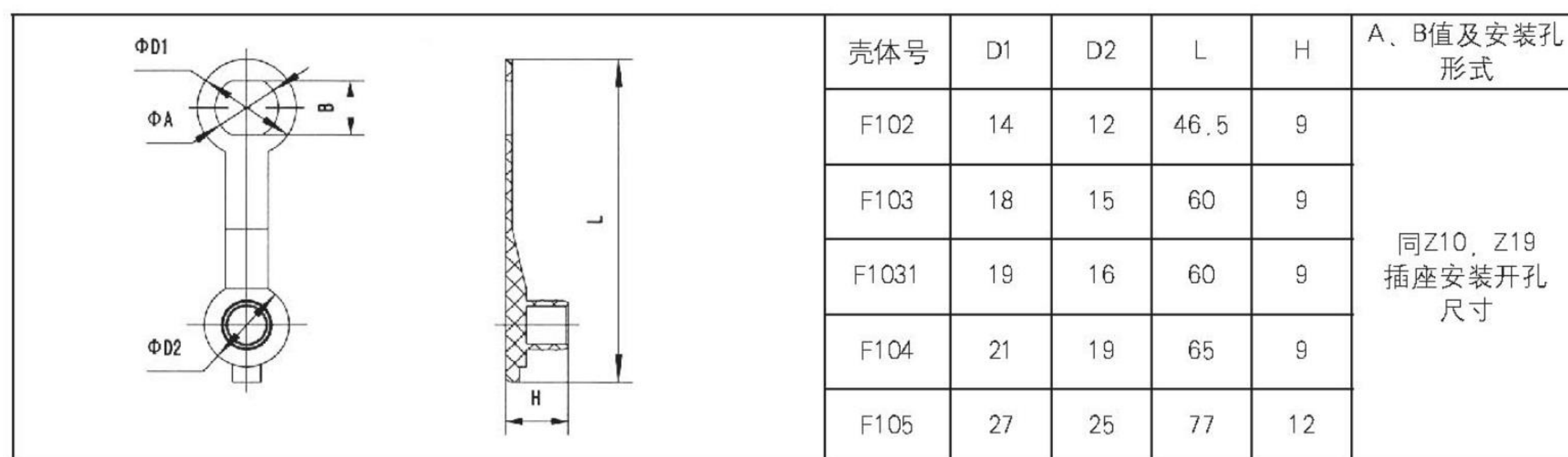
外形尺寸



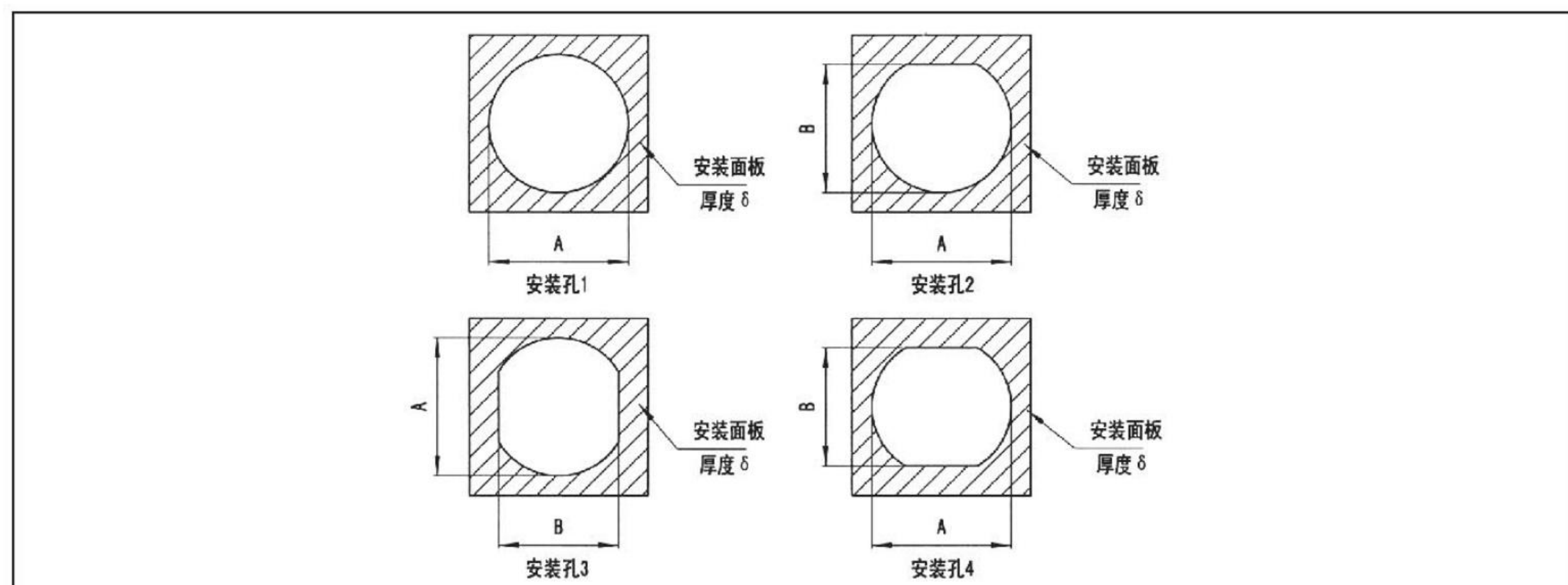
F系列橡胶插座密封盖

系列主称	F系列微圆形电连接器	F	102	ZGF
壳体代码	102-103-1031-104-105			
插座防尘盖				

外形尺寸



【Z10, Z19插座安装开孔尺寸】





F系列微圆形高密度电连接器

表8

壳体号	A	B	δ	安装孔形式
102	Φ9.1	7.9	3.5	安装孔4
103	Φ14.1	12.5	3	安装孔4
1031	Φ14.1	12.1	3	安装孔3
104	Φ16.1	15.2	4	安装孔2
105	Φ20.1	19	5	安装孔2

PCB板开孔图 (装孔插座印制板开孔尺寸, 未注公差±0.05)

F102	051		052	
	053		054	
	056		059	
F103	053		054	

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F103	056		057	
	058		062	
F1031	010		012	
	019			

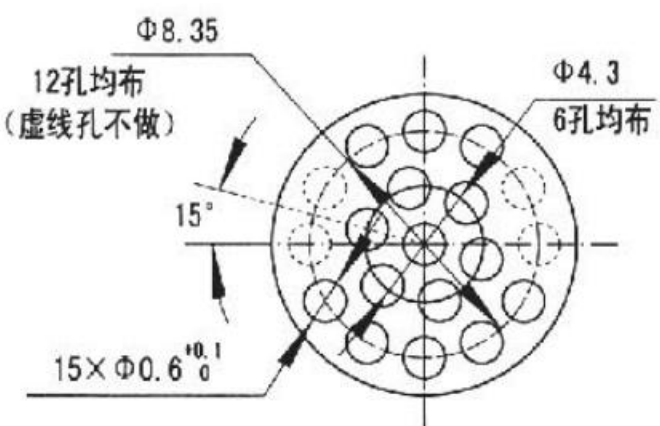
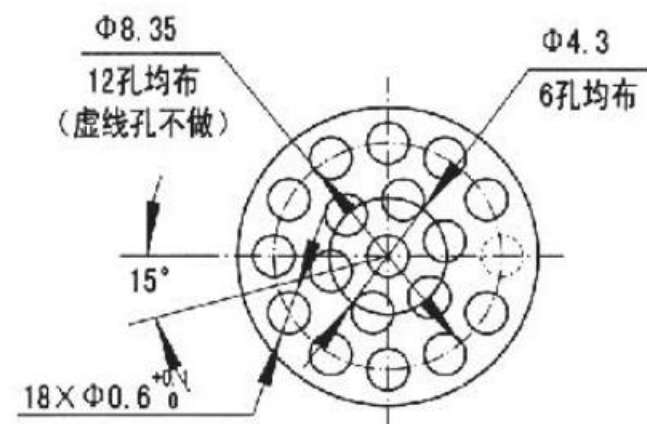
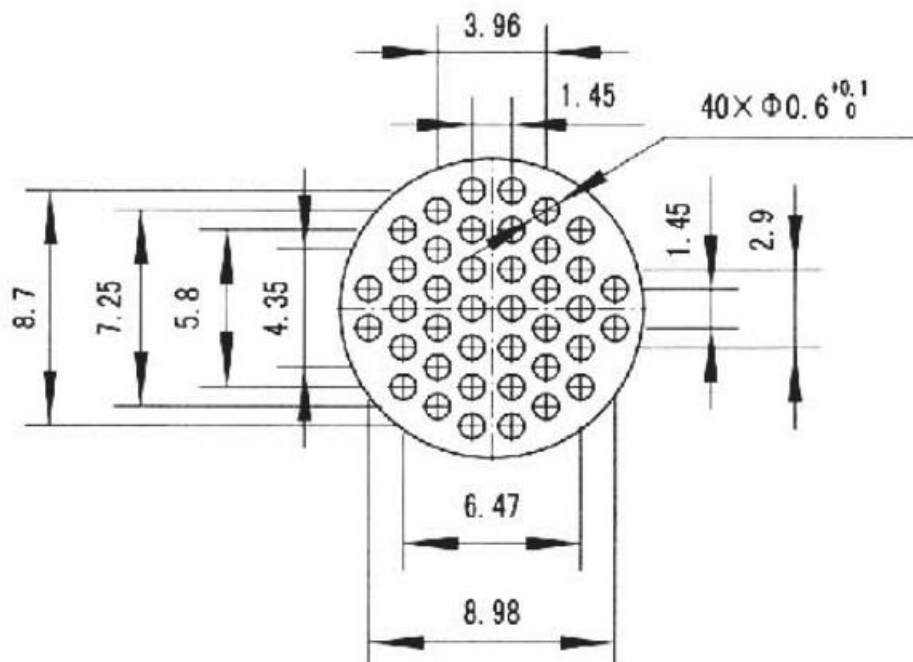
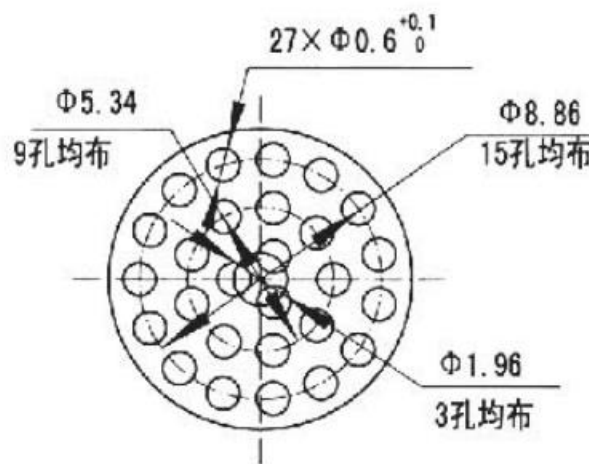
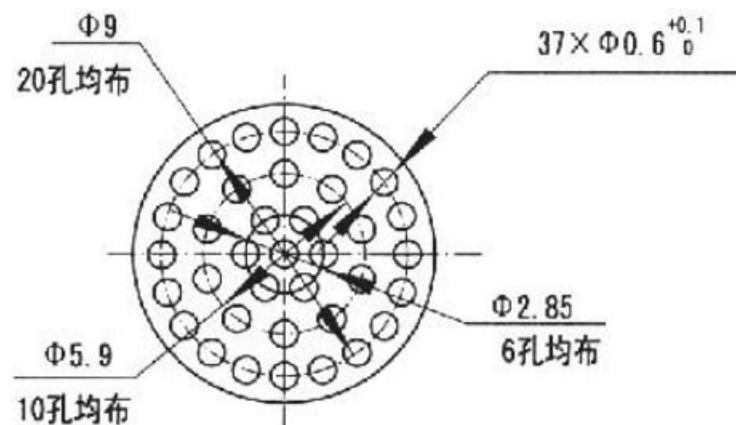
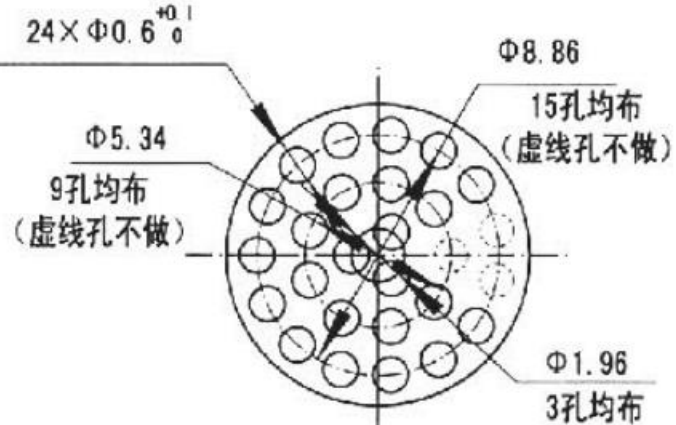


F系列微圆形高密度电连接器

F104	065		054	
	066		056	
	086		092	

F系列微圆形高密度电连接器

F105

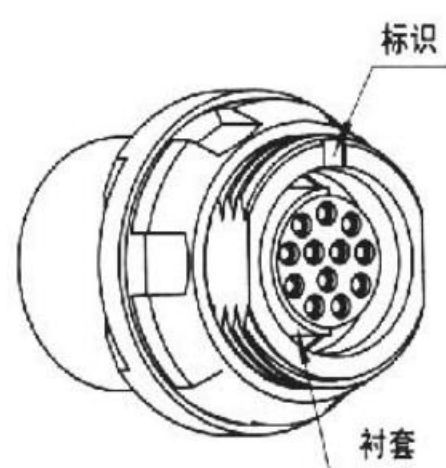
058  Φ8.35 12孔均布 (虚线孔不做) 15° Φ4.3 6孔均布 15×Φ0.6^{+0.1}₀	038  Φ8.35 12孔均布 (虚线孔不做) 15° Φ4.3 6孔均布 18×Φ0.6^{+0.1}₀
122  3.96 1.45 40×Φ0.6^{+0.1}₀ 8.7 7.25 5.8 4.35 6.47 8.98 1.45 2.9	102  27×Φ0.6^{+0.1}₀ Φ5.34 9孔均布 Φ8.86 15孔均布 Φ1.96 3孔均布
137  Φ9 20孔均布 37×Φ0.6^{+0.1}₀ Φ5.9 10孔均布 Φ2.85 6孔均布	093  24×Φ0.6^{+0.1}₀ Φ5.34 9孔均布 (虚线孔不做) Φ8.86 15孔均布 (虚线孔不做) Φ1.96 3孔均布



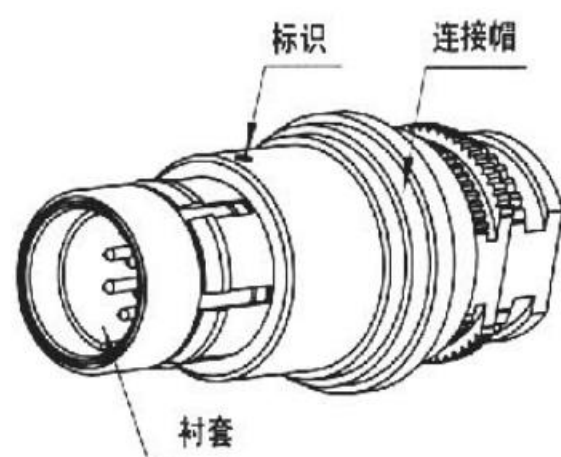
F系列微圆形高密度电连接器

T03插头、Z10插座(Z14插座、Z19插座)使用方法

Z10插座

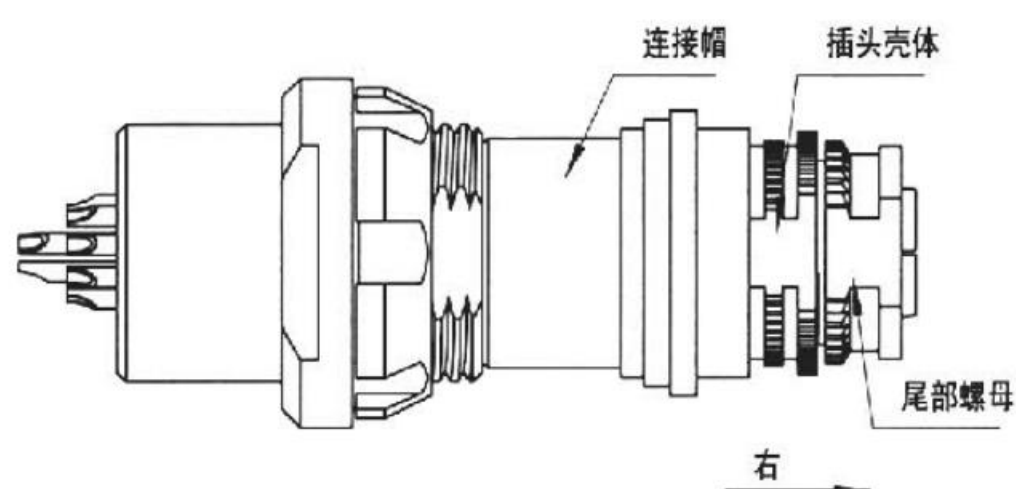


Z10插头



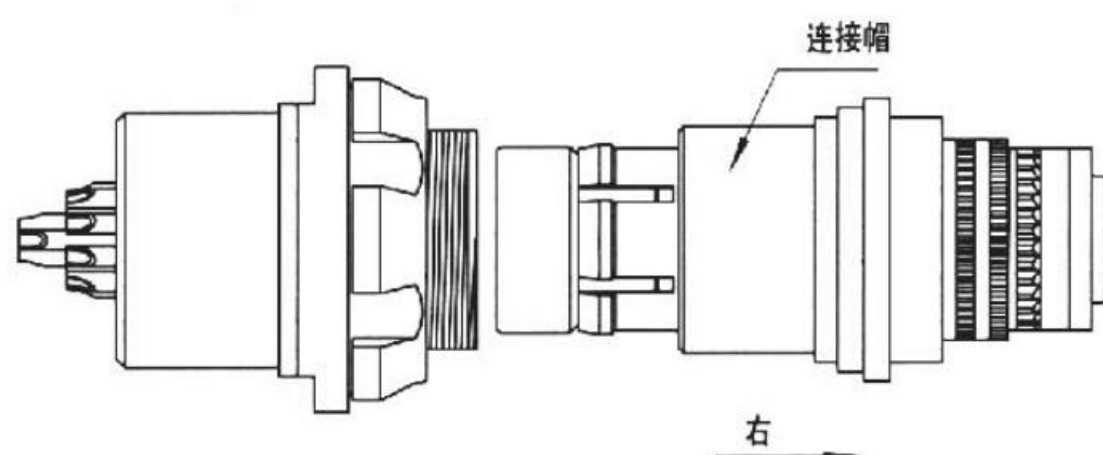
插合

插头、插座的标识对正后(即插头的半圆导向衬套与插座的半圆导向衬套对正),将插头推入插座。



插合到位

听到“咔哒”声,表明插头插座已插合到位,并已经锁紧。



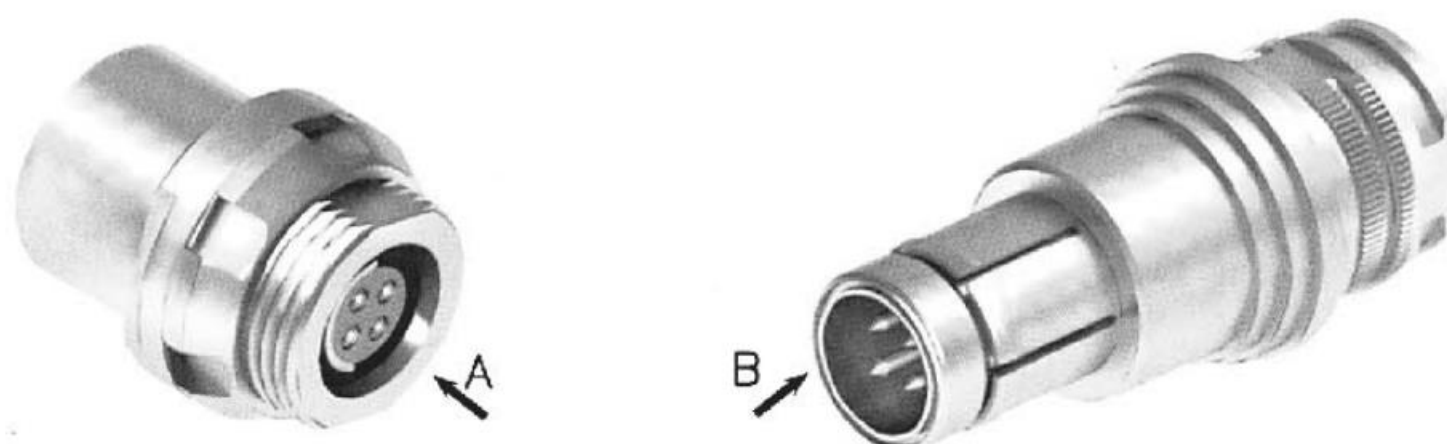
头座分离

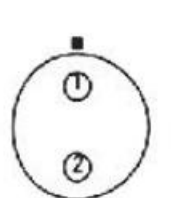
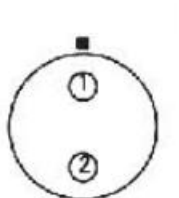
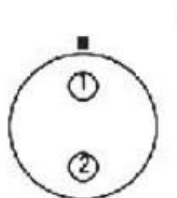
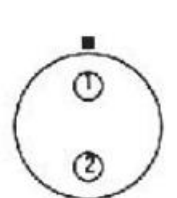
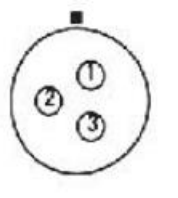
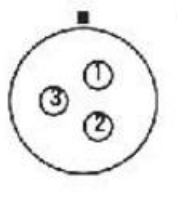
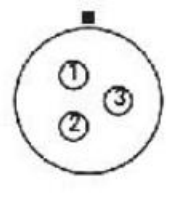
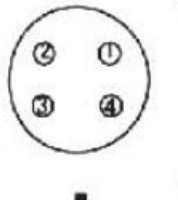
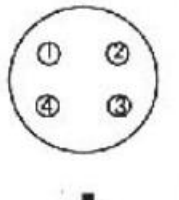
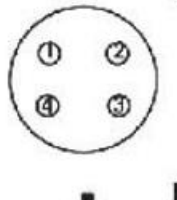
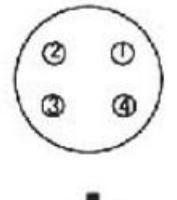
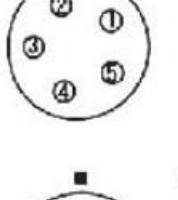
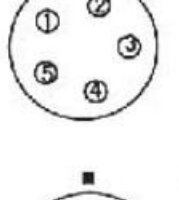
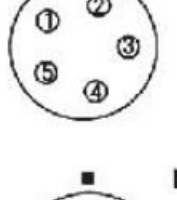
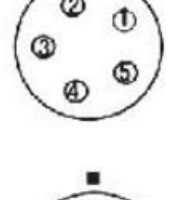
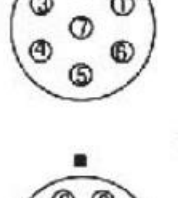
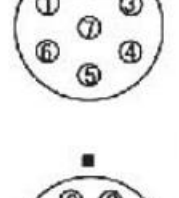
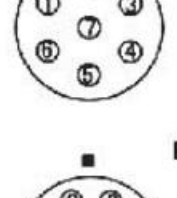
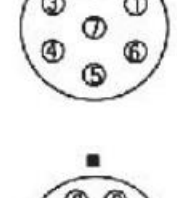
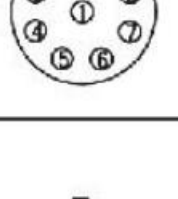
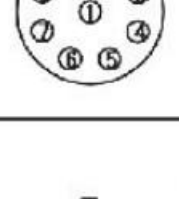
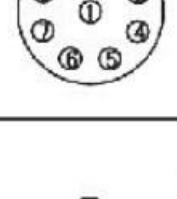
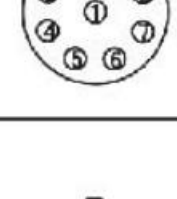
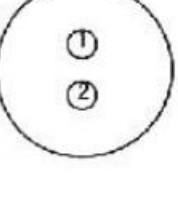
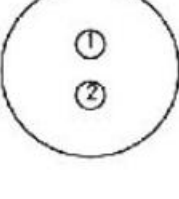
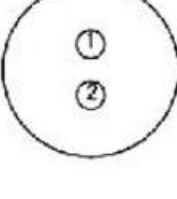
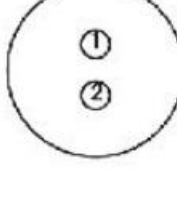
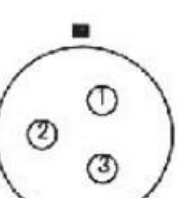
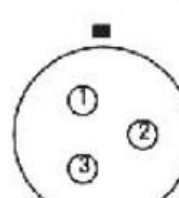
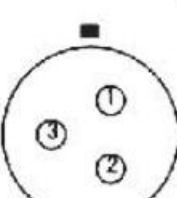
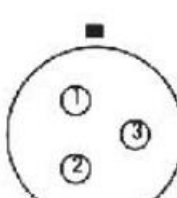
向右拉连接帽,插头、插座将实现分离。

注:插合到位后,如向右拉动尾部螺母或插头尾部电缆,会使锁紧更加牢固,不能实现头座分离。

F系列微圆形高密度电连接器

接点排列

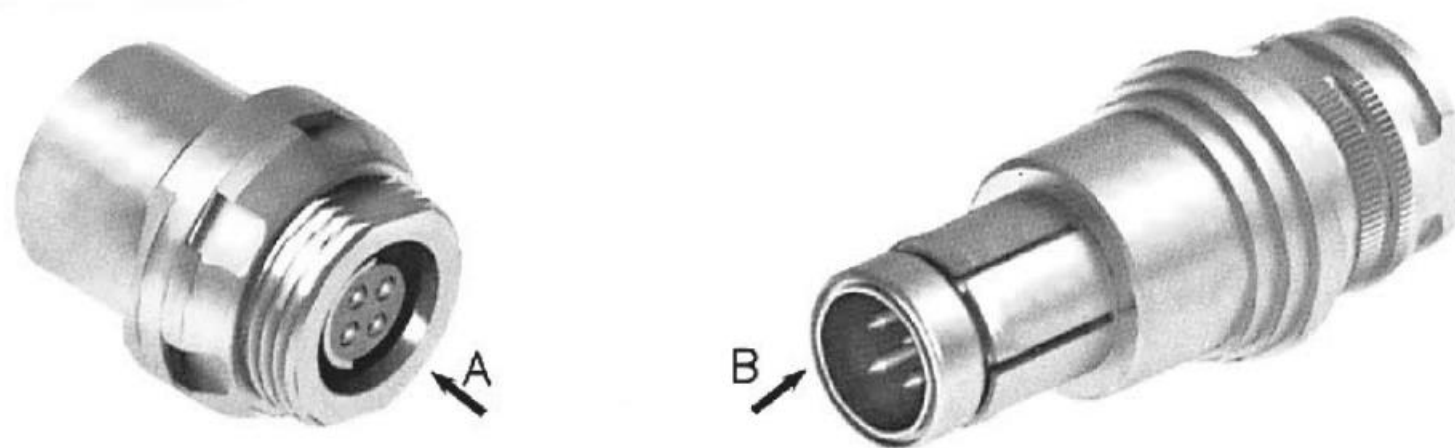


接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔	插头装针	插座装针	插头装孔					
A向	B向	A向	B向					
				102	051	2	0.9	6.3
					052	3	0.9	5.5
					053	4	0.7	3.8
					054	5	0.7	3.6
					056	7	0.5	1.5
					059	9	0.5	1.0
				103	051	2	1.3	9
					052	3	1.3	8.5
					053	4	0.9	5.0

注：I、II、III表示耐压等级，详见108页表2。



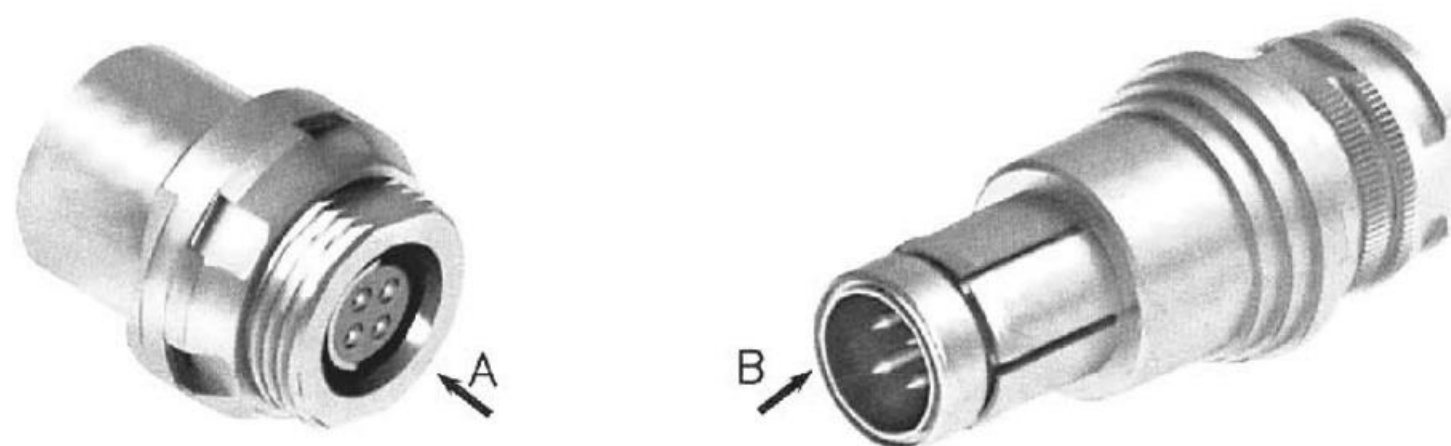
F系列微圆形高密度电连接器

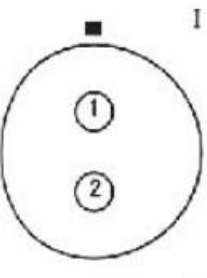
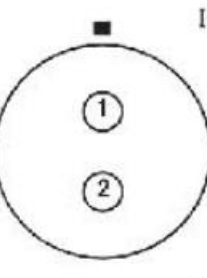
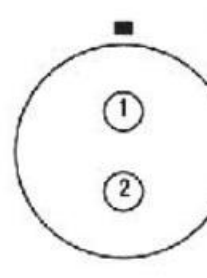
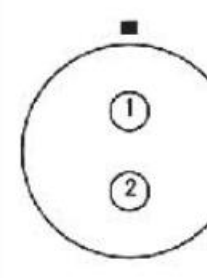
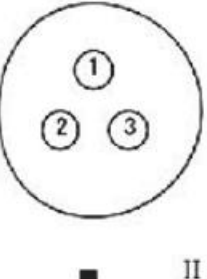
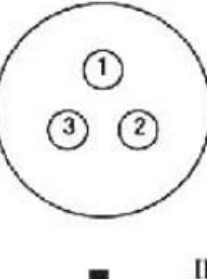
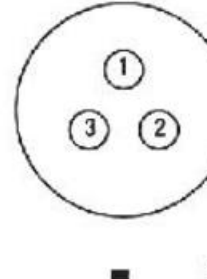
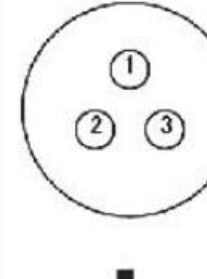
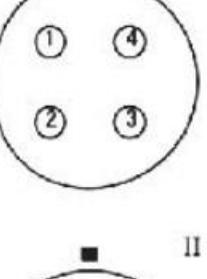
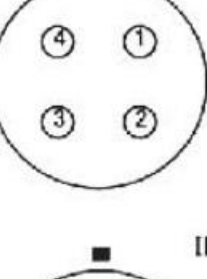
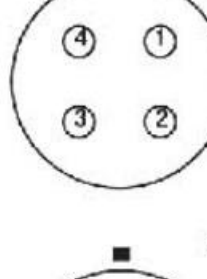
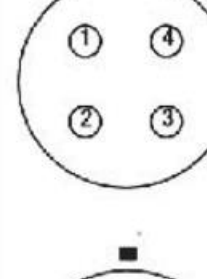
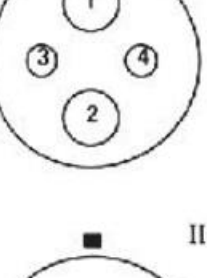
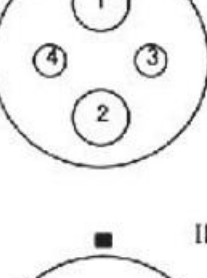
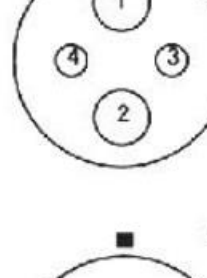
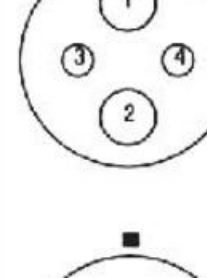
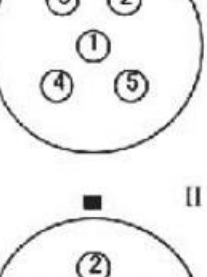
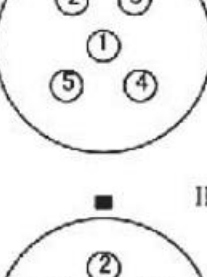
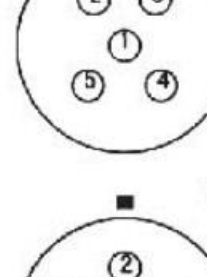
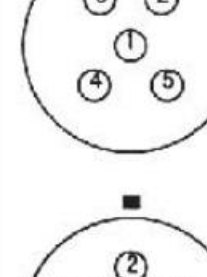
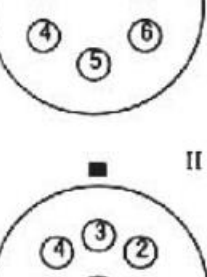
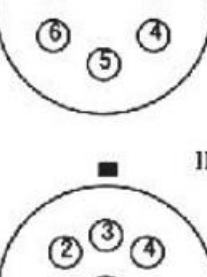
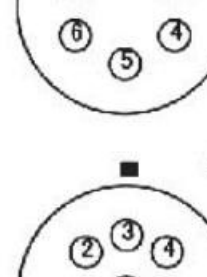
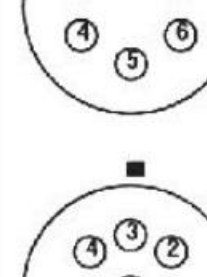
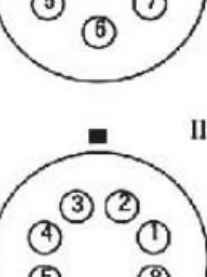
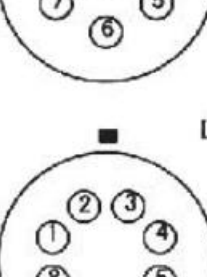
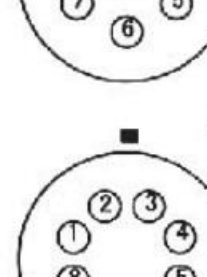
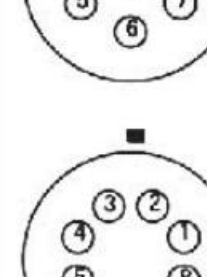
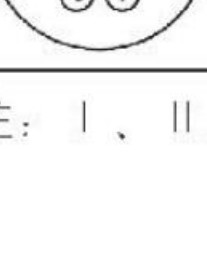
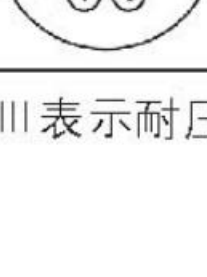
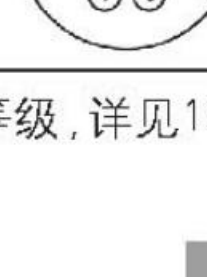
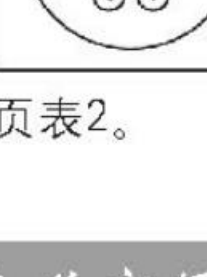


接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔	插头装针	插座装针	插头装孔					
A向	B向	A向	B向					
				103	054	5	0.9	4.8
					056	6	0.7	3.5
					057	7	0.7	3.2
					058	8	0.7	2.5
					062	12	0.5	1.5
				1031	010	10	0.7	3.2
					012	12	0.7	3.0
					019	19	0.5	1.8

注：Ⅰ、Ⅱ、Ⅲ表示耐压等级，详见108页表2。

F系列微圆形高密度电连接器

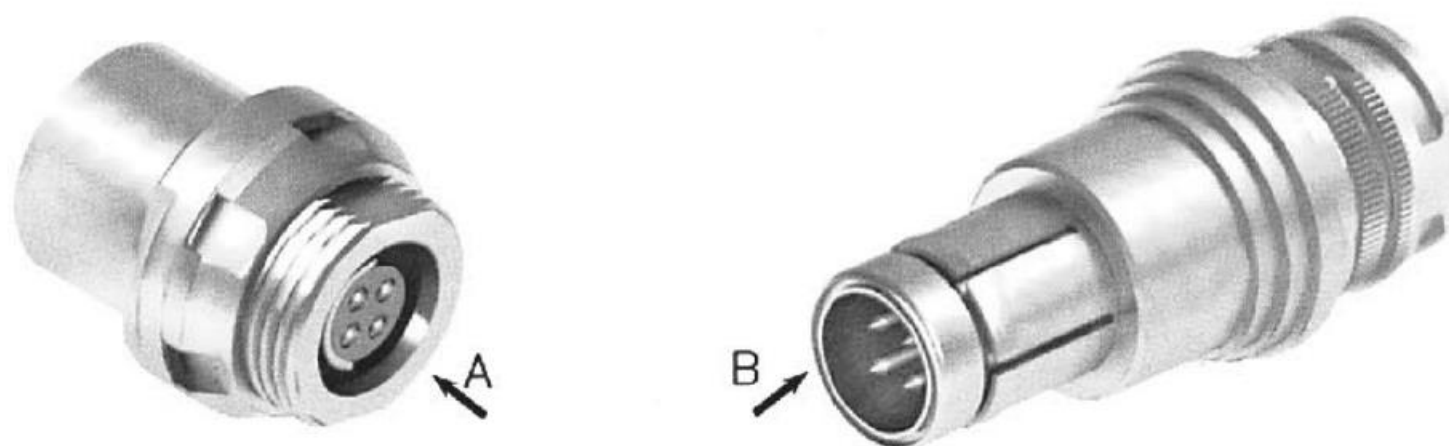


接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔	插头装针	插座装针	插头装孔					
A向	B向	A向	B向					
				104	051	2	1.6	15
					040	3	1.6	13
					037	4	1.3	8.0
					087	4 $\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	2.3 0.9	20 2.0
					053	5	1.3	7.5
					065	6	0.9	4.5
					054	7	0.9	4.5
					066	8	0.9	4.5

注：I、II、III表示耐压等级，详见108页表2。



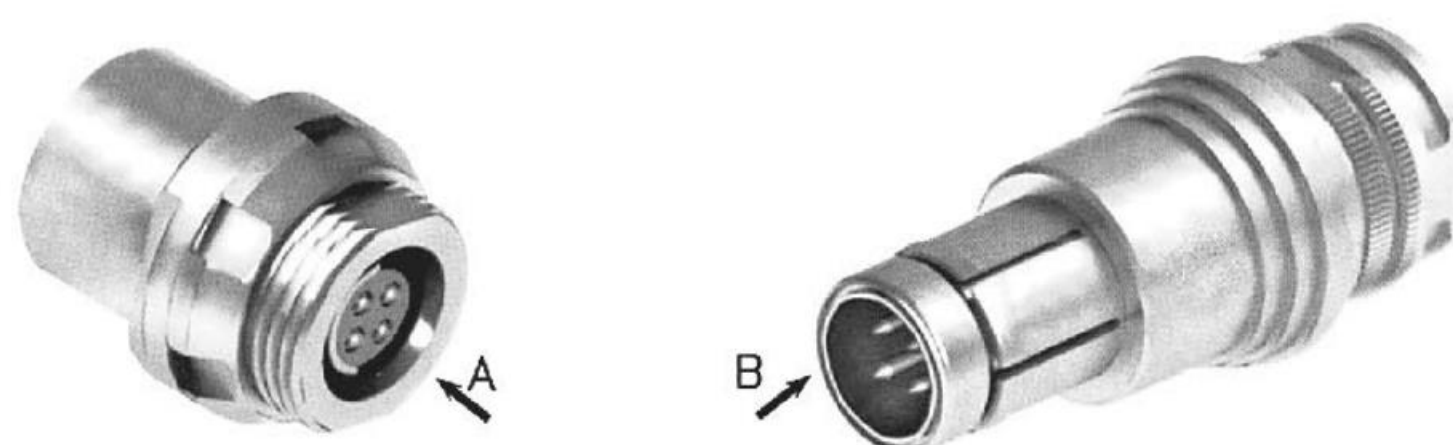
F系列微圆形高密度电连接器

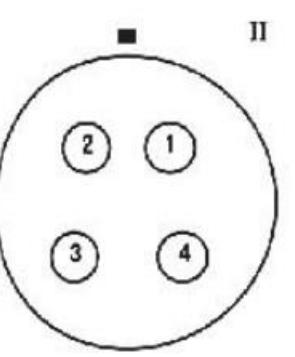
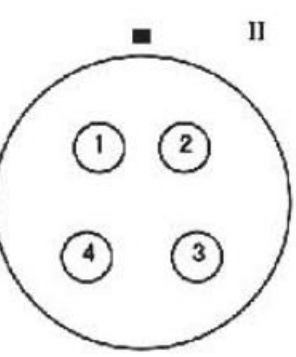
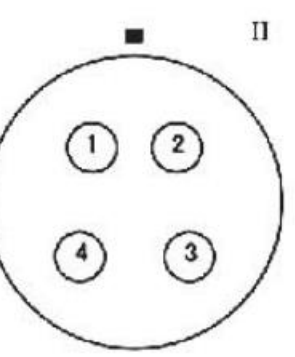
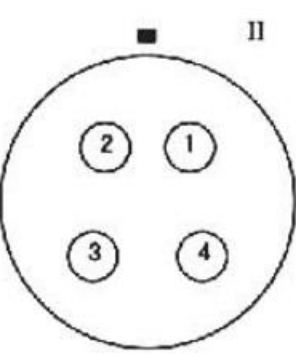
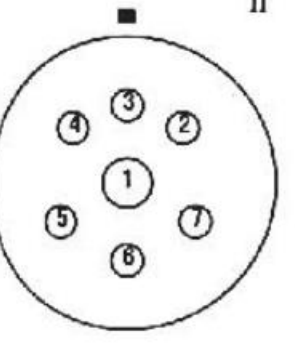
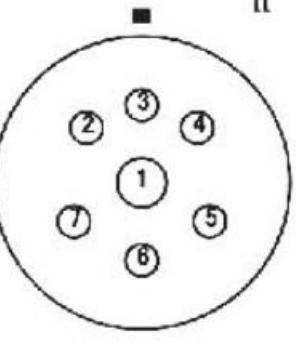
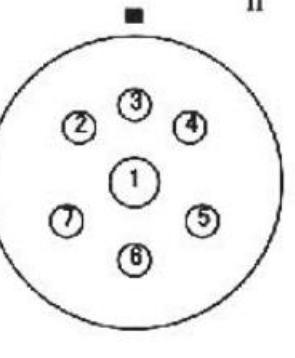
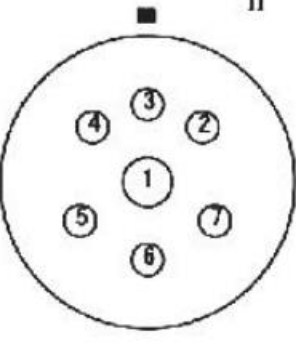
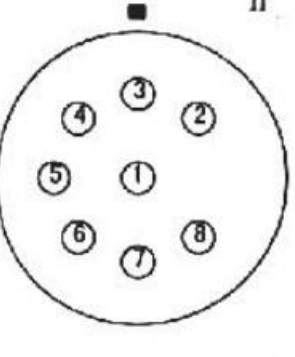
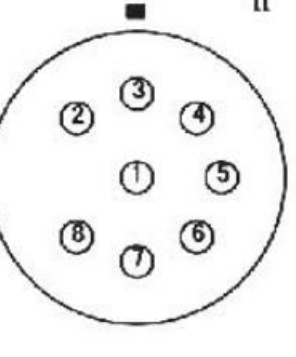
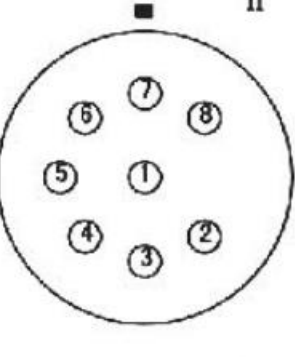
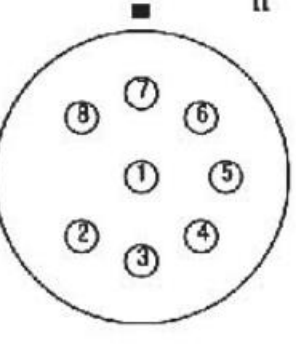
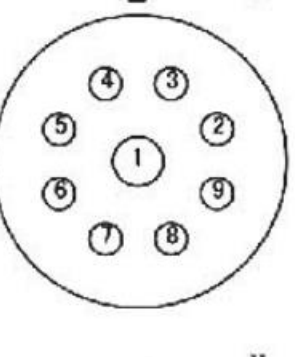
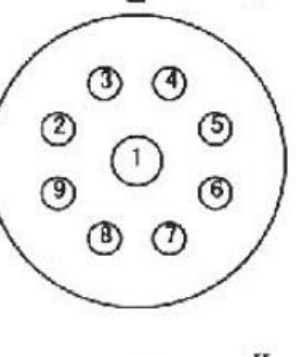
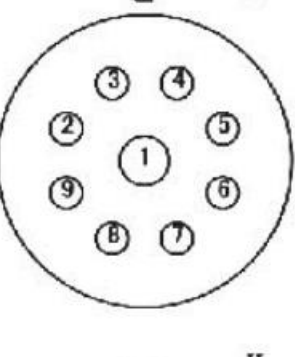
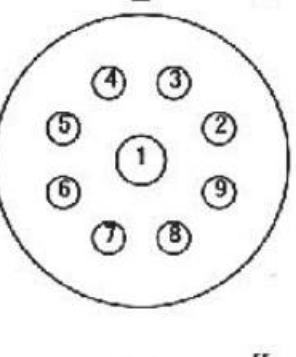
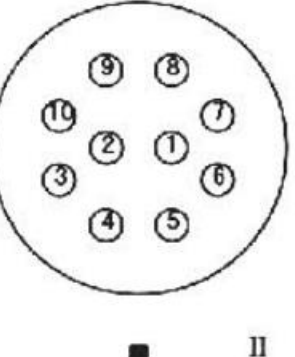
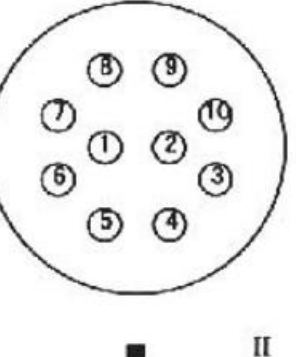
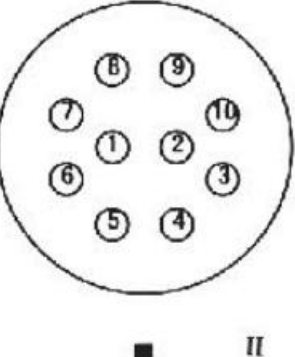
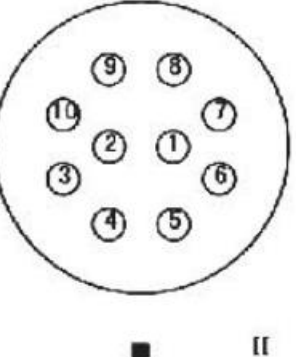
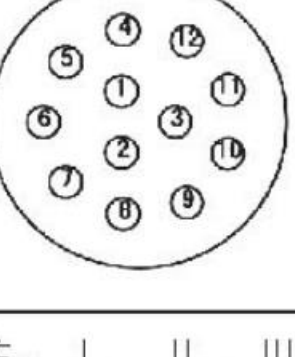
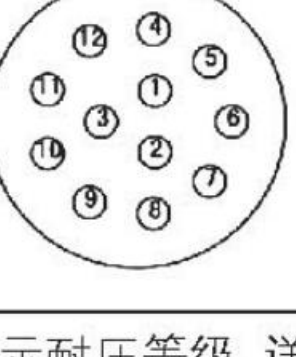
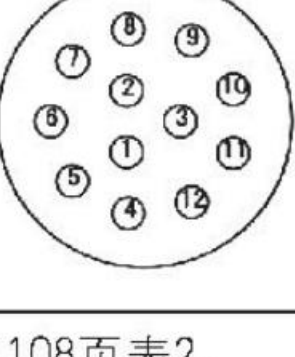
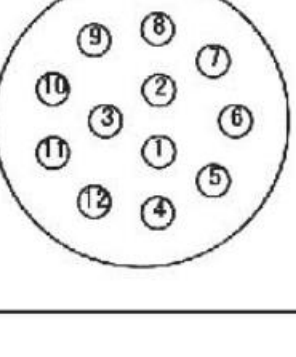


接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔	插头装针	插座装针	插头装孔					
A向	B向	A向	B向					
				104	055	9 $\begin{bmatrix} 1 \\ 8 \end{bmatrix}$	1.3 0.9	8.0 4.0
					056	11	0.9	4.0
					086	16	0.7	2.8
					092	19	0.7	2.5
				105	051	2	2.0	18
					087	2	3.0	20
					052	3	2.0	16

注：Ⅰ、Ⅱ、Ⅲ表示耐压等级，详见108页表2。

F系列微圆形高密度电连接器

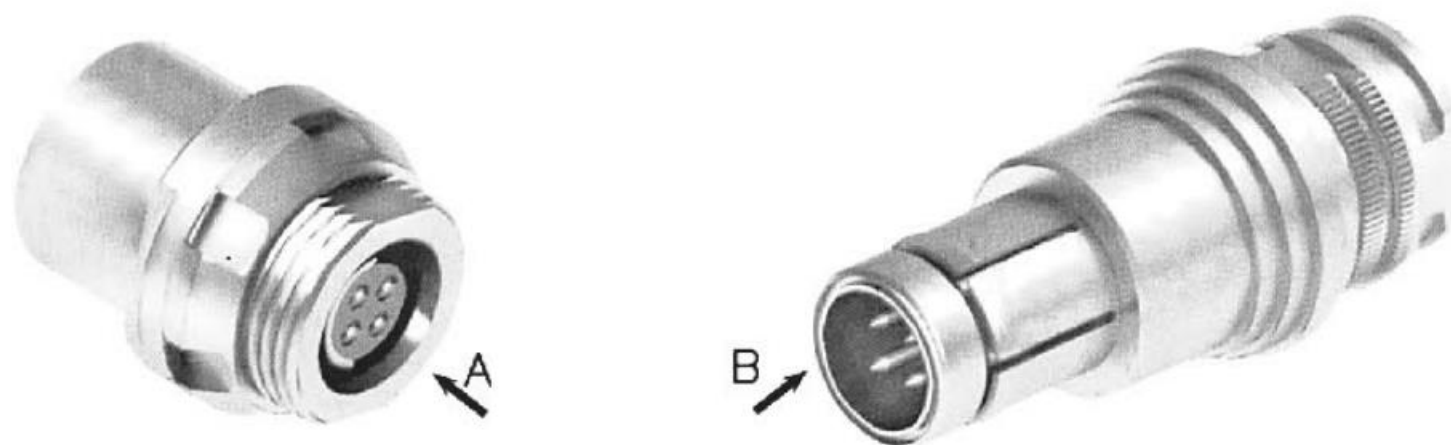


接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔 A向	插头装针 B向	插座装针 A向	插头装孔 B向					
				105	053	4	2.0	14
					054	7 $\begin{bmatrix} 1 \\ 6 \end{bmatrix}$	2.0 1.3	19 5.0
					067	8	1.3	7.2
					101	9 $\begin{bmatrix} 1 \\ 8 \end{bmatrix}$	2.0 1.3	19 4.0
					062	10	1.3	6.3
					069	12	1.3	5.5

注：Ⅰ、Ⅱ、Ⅲ表示耐压等级，详见108页表2。



F系列微圆形高密度电连接器

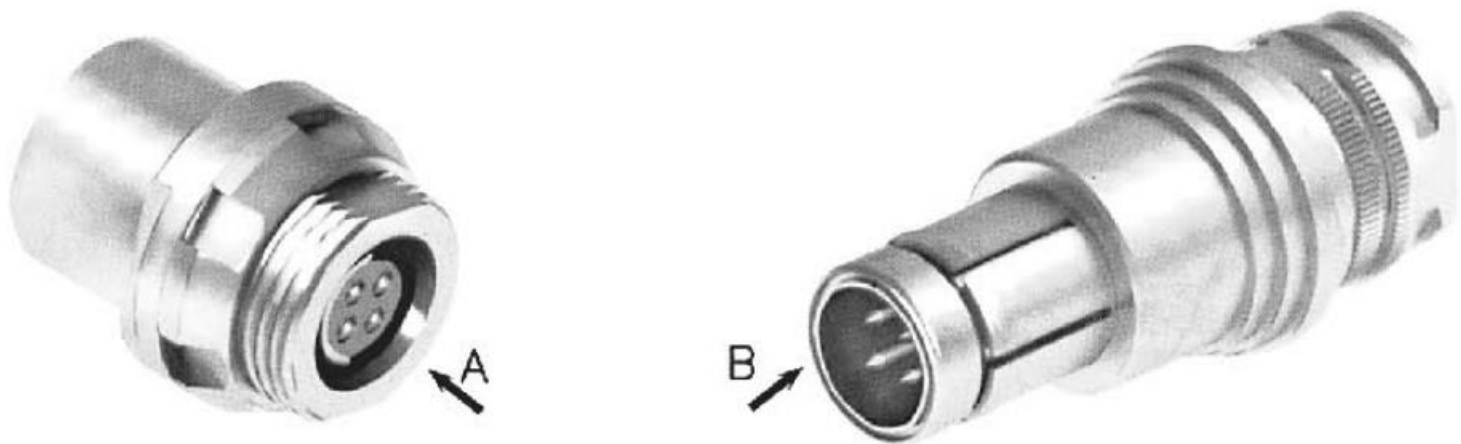


接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔	插头装针	插座装针	插头装孔					
A向	B向	A向	B向					
				105	104	13 ³ ₁₀	1.3 0.7	10 1
					058	15	0.9	3.7
					110	16 ⁴ ₁₂	1.6 0.7	10 0.5
					038	18	0.9	3.2
					102	27	0.7	2.2
					093	24	0.7	2.5

注：I、II、III表示耐压等级，详见108页表2。



F系列微圆形高密度电连接器



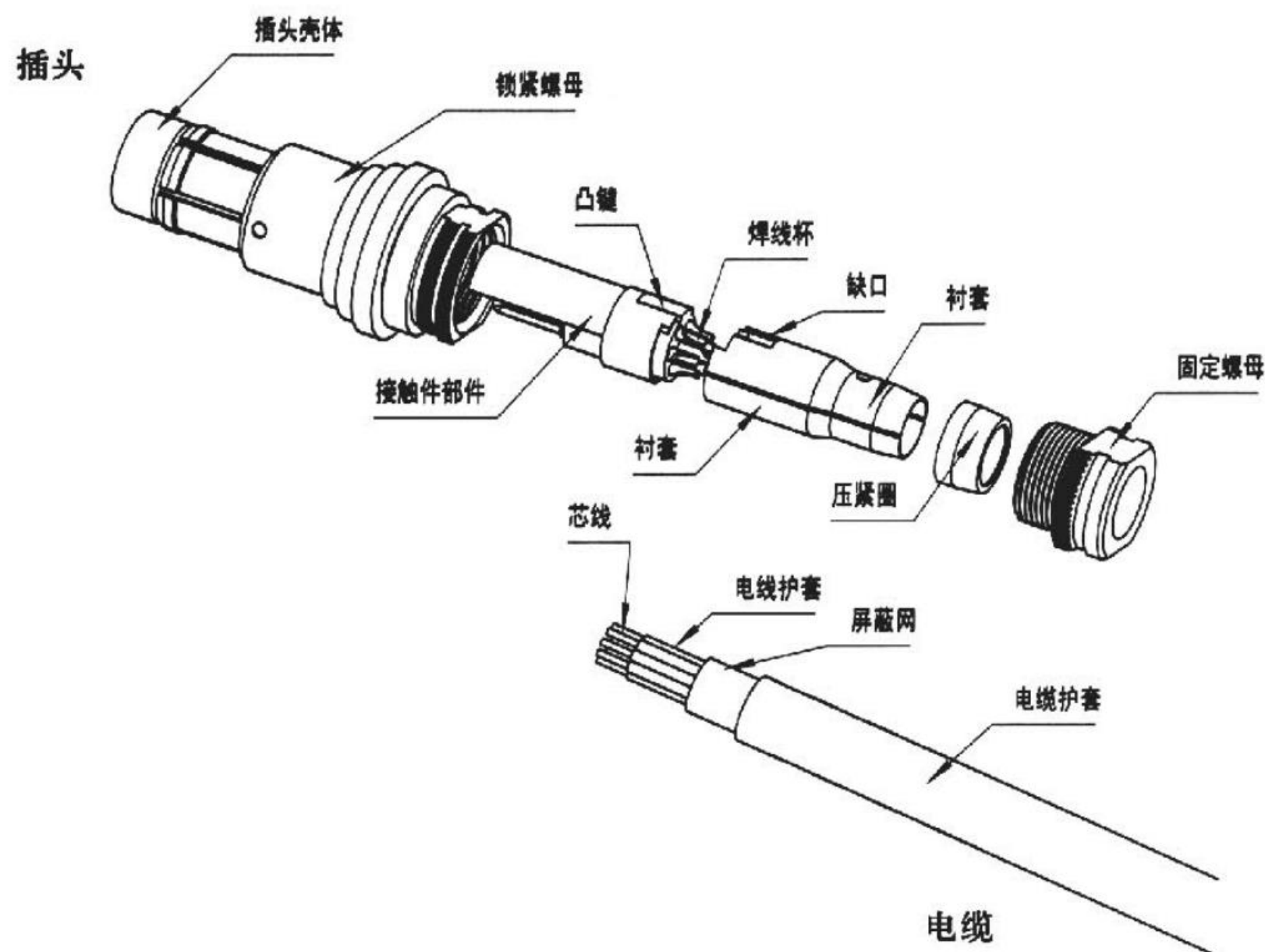
接点排列				壳体代码	接点代码	接点数量	接点直径 mm	额定电流 A
插座装孔	插头装针	插座装针	插头装孔					
A向	B向	A向	B向					
				105	122	40	0.5	1
					137	37 ¹⁰ ₂₇	0.7 0.5	2.2 1

注：Ⅰ、Ⅱ、Ⅲ表示耐压等级,详见108页表2。



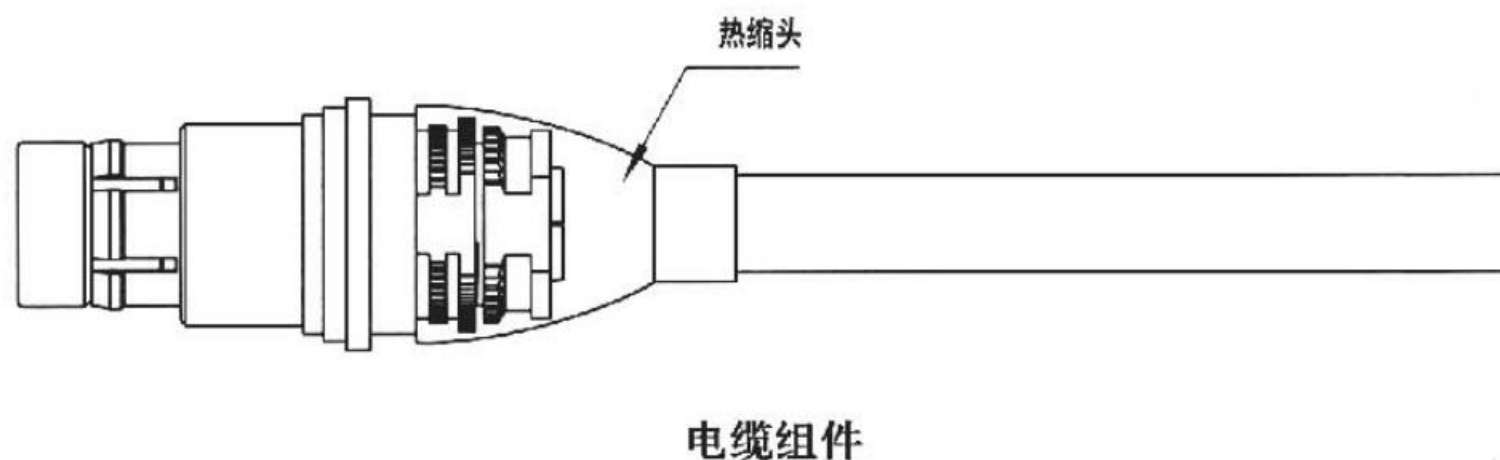
F系列微圆形高密度电连接器

T03插头、Z14插座接线方法



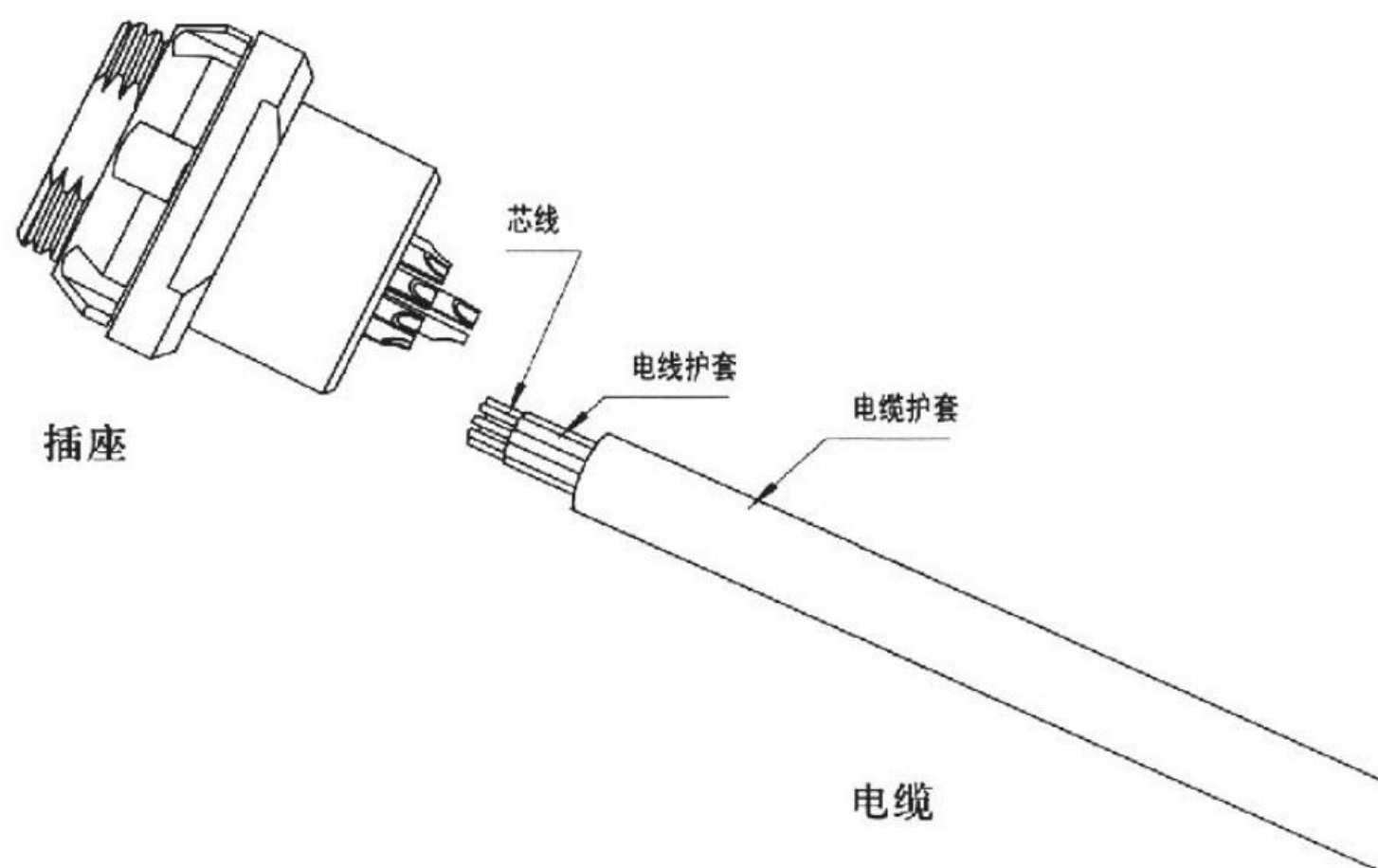
插头接线方法及处理方式：

1. 剥线，芯线的剥线长度按实际所需长度进行，
2. 拧下插头的紧固螺母，从插头内依次取出压紧圈、衬套、接触件部件，
3. 从电缆剥线一端依次套上热缩头、固定螺母、压紧圈，并且在每根芯线上套上合适规格的热缩管；
4. 焊线完成后，将热缩管推至焊点处，加热收缩热缩管保护焊点；
5. 使用衬套的缺口充当工具，卡着接触件部件的凸键在插头壳体内旋转，将接触件部件的金属套管凸起部分与插头壳体的内孔缺口部分对正后，把接触件部件推入插头壳体；
6. 再将另一个衬套放入插头壳体内，与第5项放入的衬套形成一个套筒；
7. 将压紧圈套在衬套的斜面上；
8. 使用工具拧紧固定螺母。固定螺母拧紧后接触件部件沿插头中心轴线不允许移动；
9. 将热缩头推至插头壳体的台阶处加热收缩。



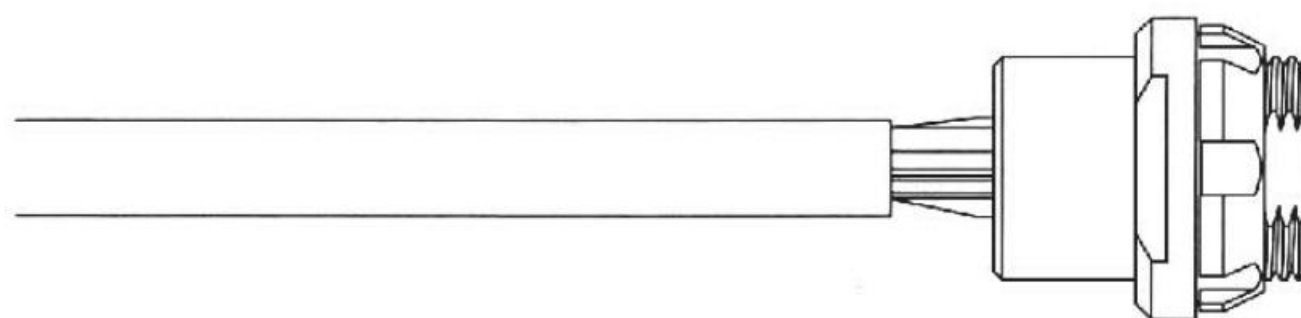
F系列微圆形高密度电连接器

Z10插座接线方法



插座接线方法及处理方式：

1. 剥线，芯线的剥线长度按实际所需长度进行；
2. 在每根芯线上套上合适规格的热缩管；
3. 焊线完成后，将热缩管推至焊点处，加热收缩热缩管保护焊点；



电缆组件