



扭转冠簧设计标准

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1, 设计概念



图 1

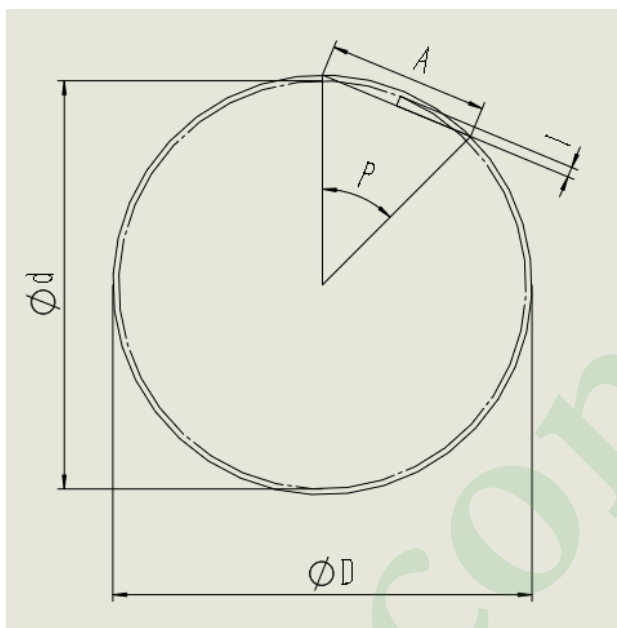
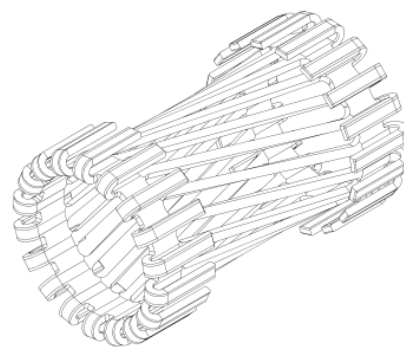
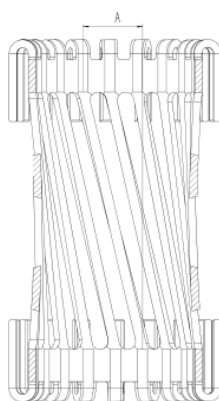
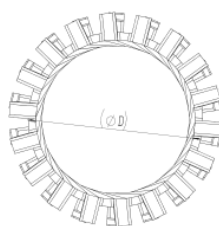
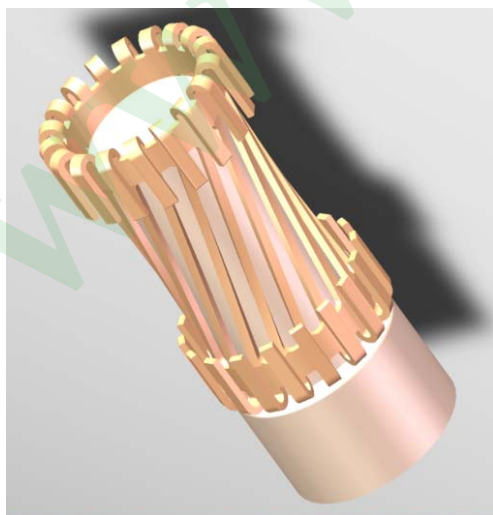
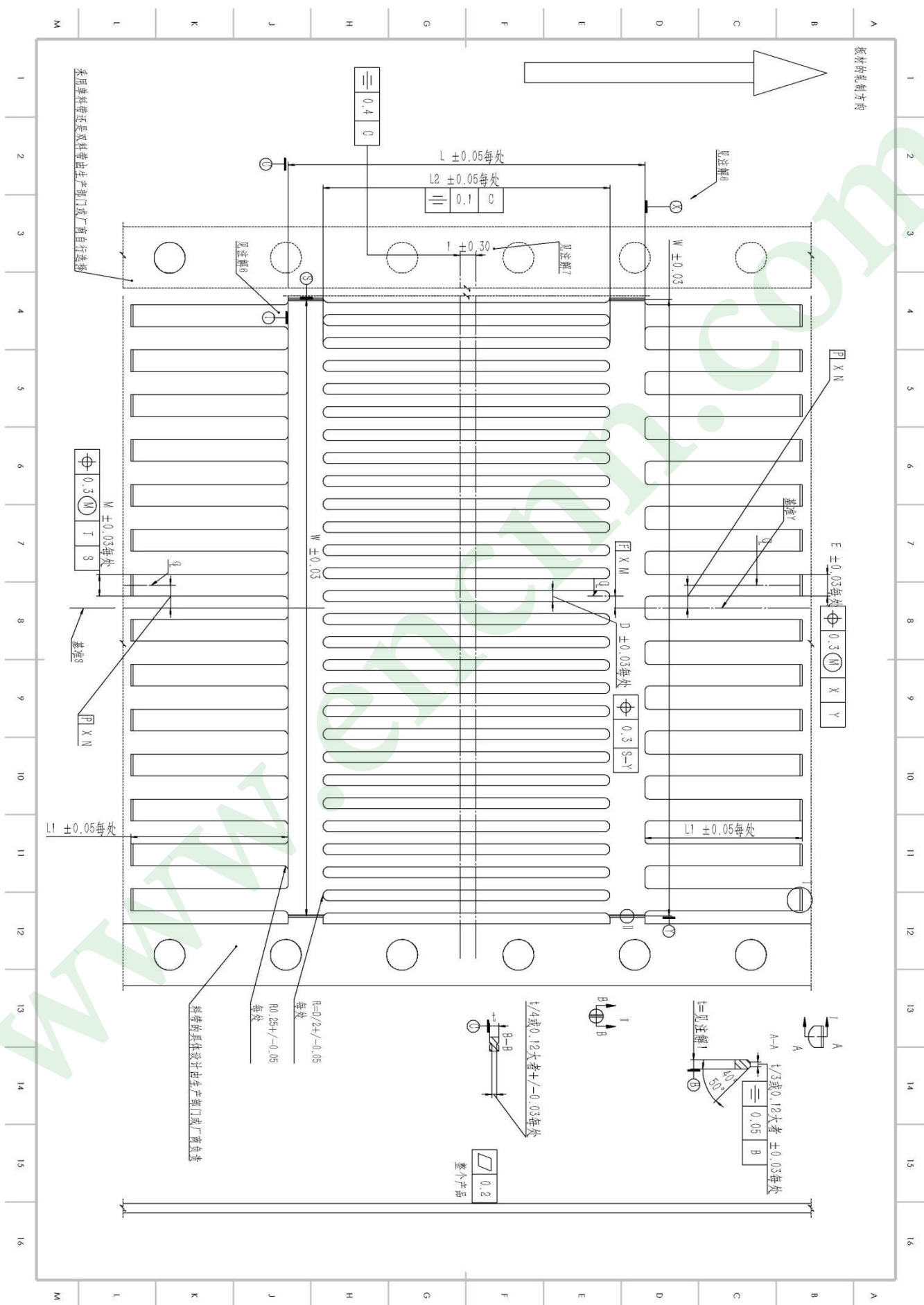
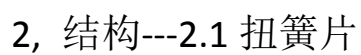
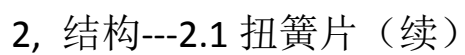


图 2

一根矩形截面的端子,一端固定另一端以一定的半径 ($D/2$) 转动一定角度 (P°) ---见图 1,转动后,该端子在垂直于端子初始形状轴线的平面的投影是一根弦,见图 2,弦长为 A .若有一个外径是 d 的圆针/圆柱体,它的轴线垂直于投影面并且穿过端子的转动圆心,则该圆柱体与转动后的端子会产生干涉,干涉量是 l .干涉量的大小取决于端子转动的半径和角度以及圆柱的外径,不受端子长度影响.干涉发生时端子主要受拉变形 (区别于常见的折弯变形)。







	针外径	板材厚度t	W	L	L1	L2	P	N	F	M	E	D
C	3.6											
D	5.7											
	6.0											
E	8.0											
	10.0											
F	12.0											
G	14.0											

注解:

1, 材料: C17410-1/2HT, 详见ASTM B 768, 或技术部门认证的其他材料厚度见相关表格

2, 镀层: 装配后镀银, ASTM B 700, Type 3, Class S, 厚度5um最小。

3, 涂覆: chromate (Cr+6) treatment----ASTM B 700

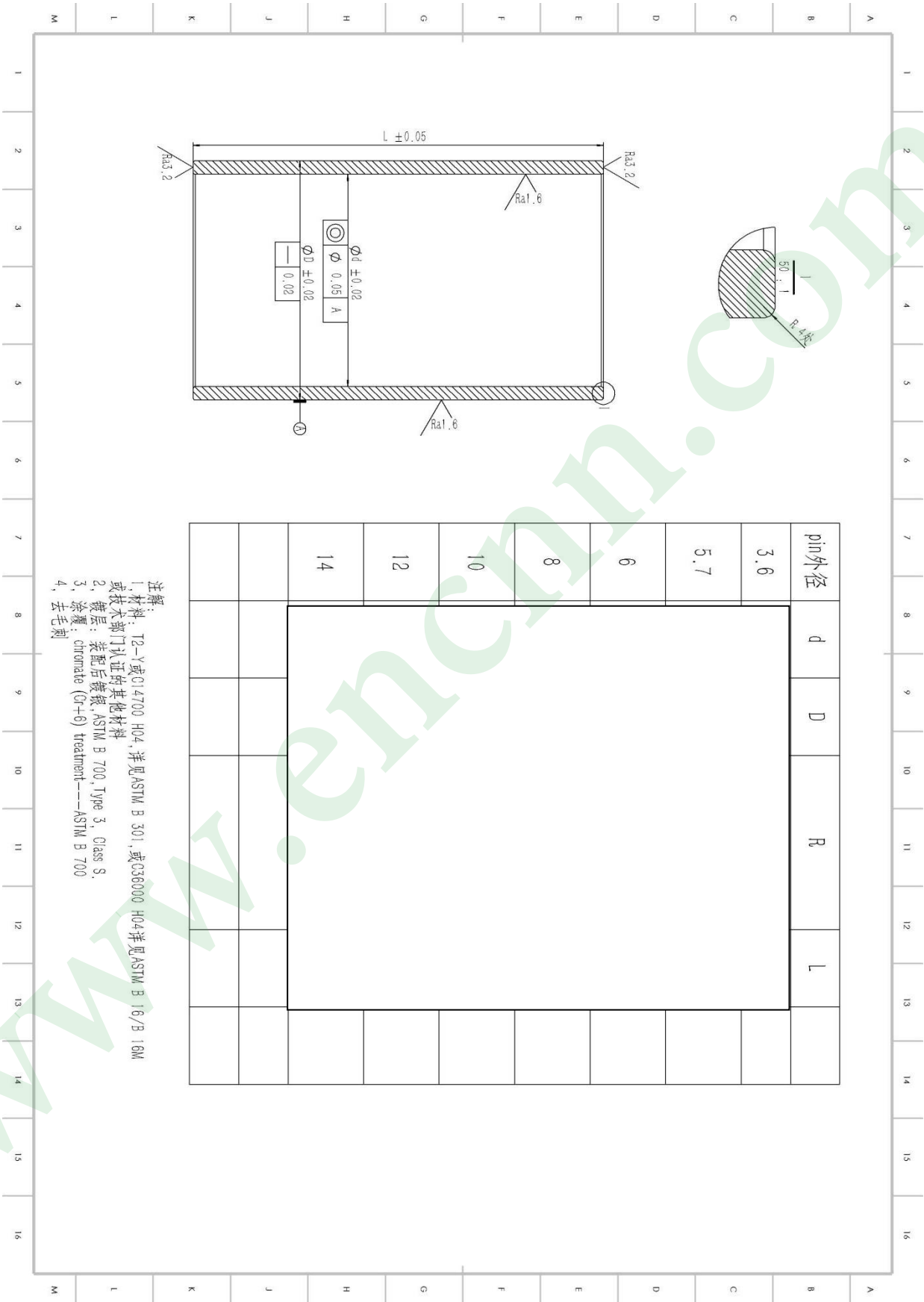
4, 去毛刺

5, 基准从所有平面建立

6, 电镀测点区域----光亮带侧/非毛刺侧, 参考装配图相应部位标识.

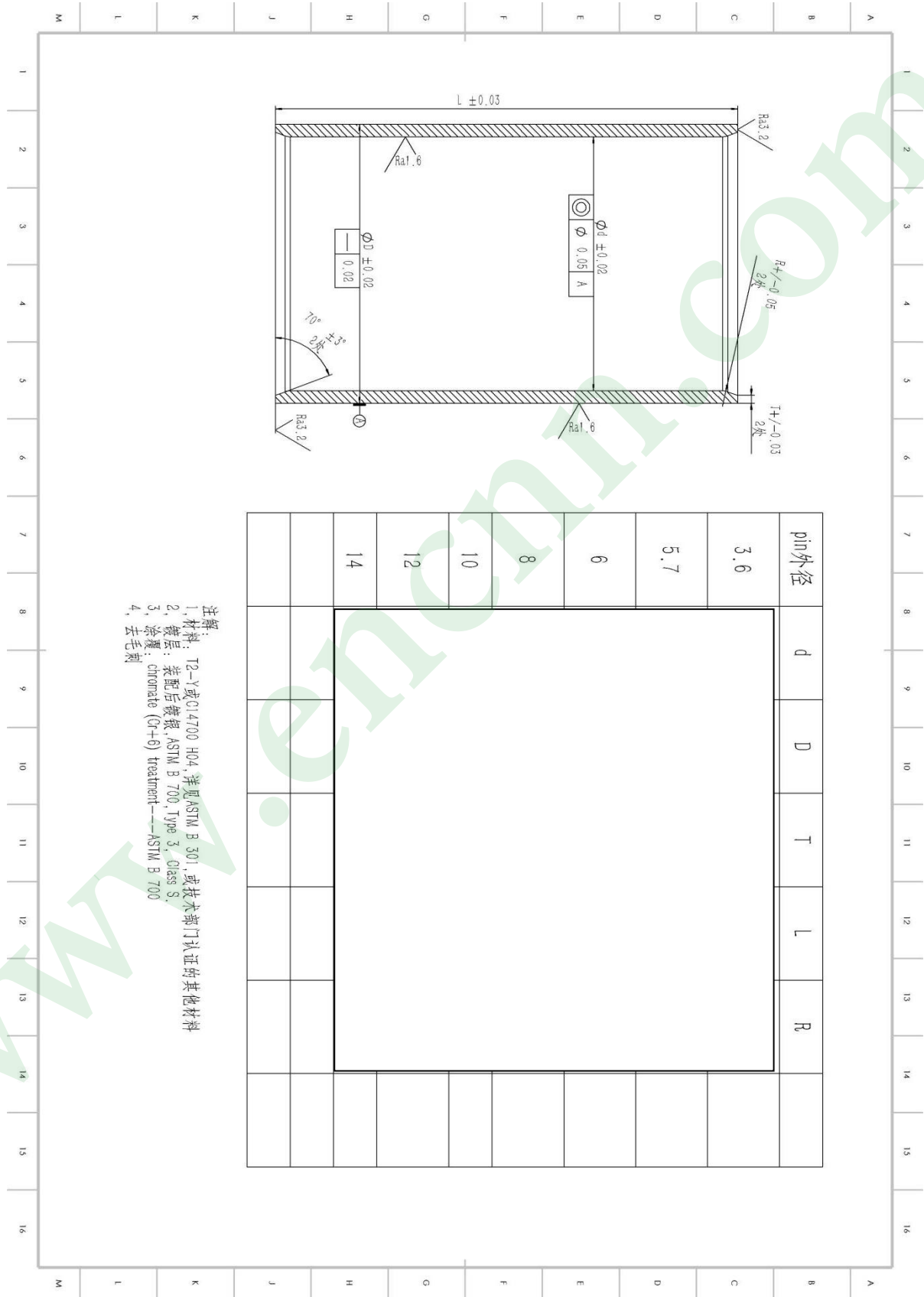


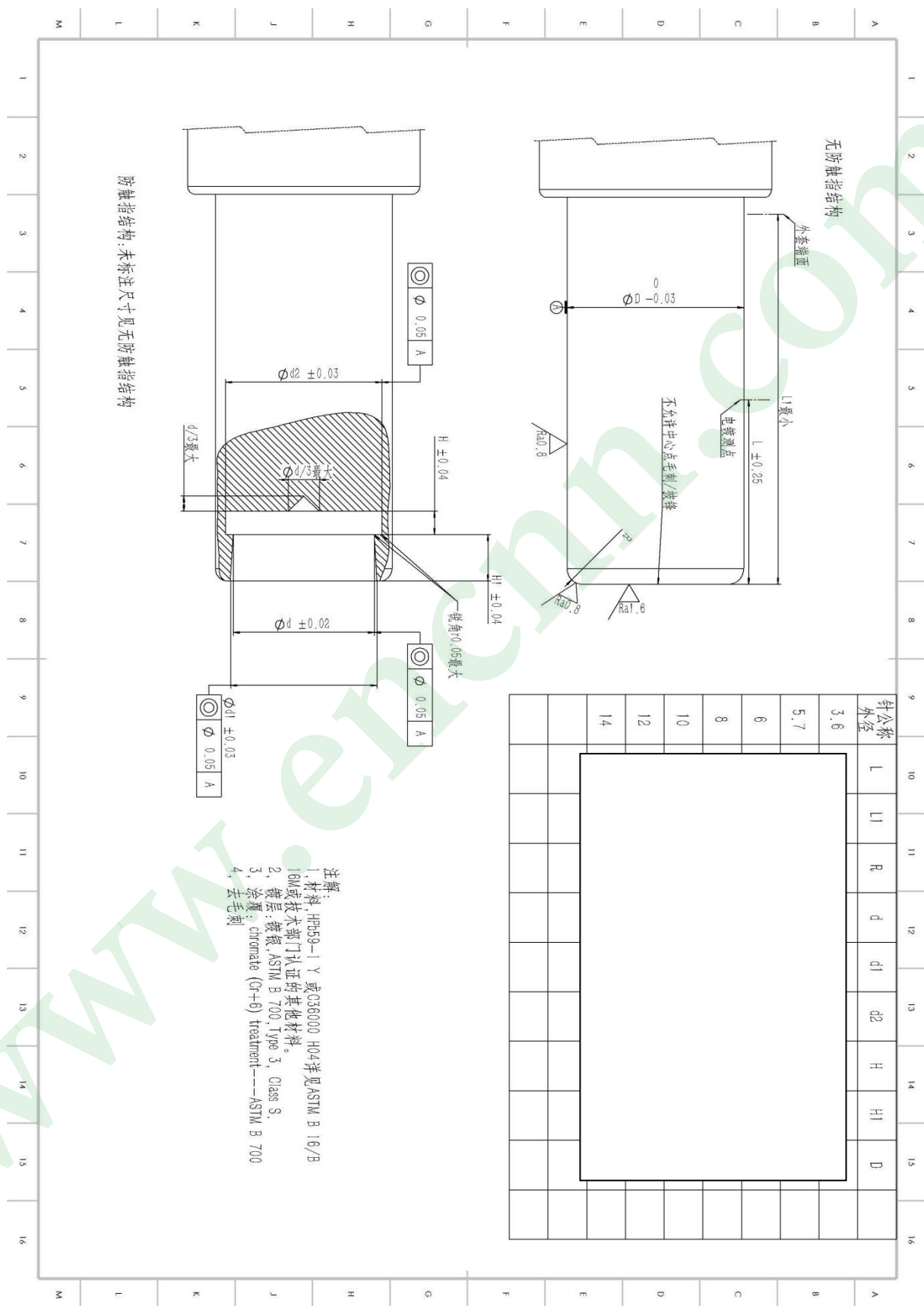
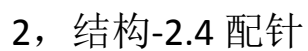
2, 结构-2.2 内套

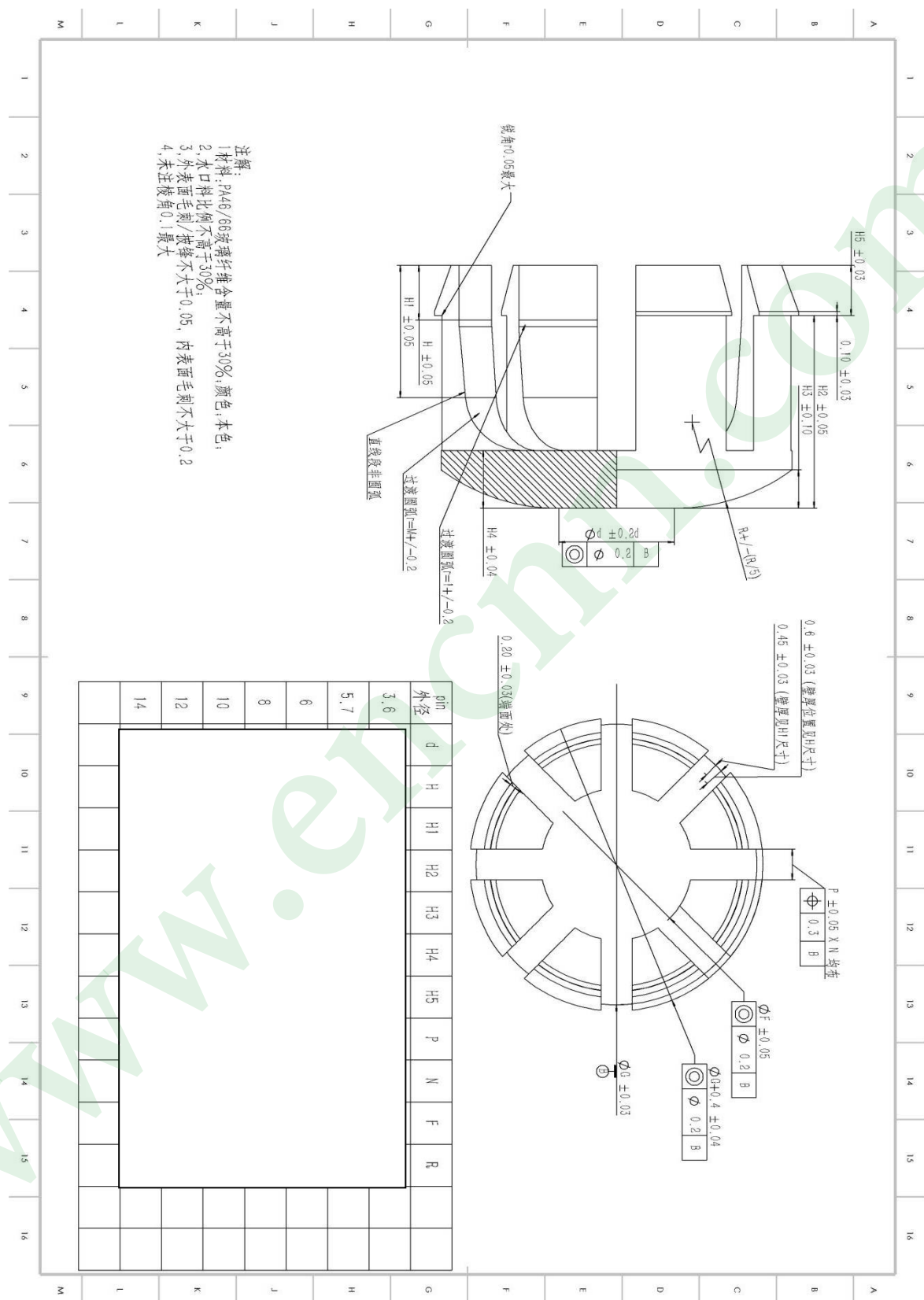
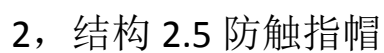




2, 结构-2.3 外套

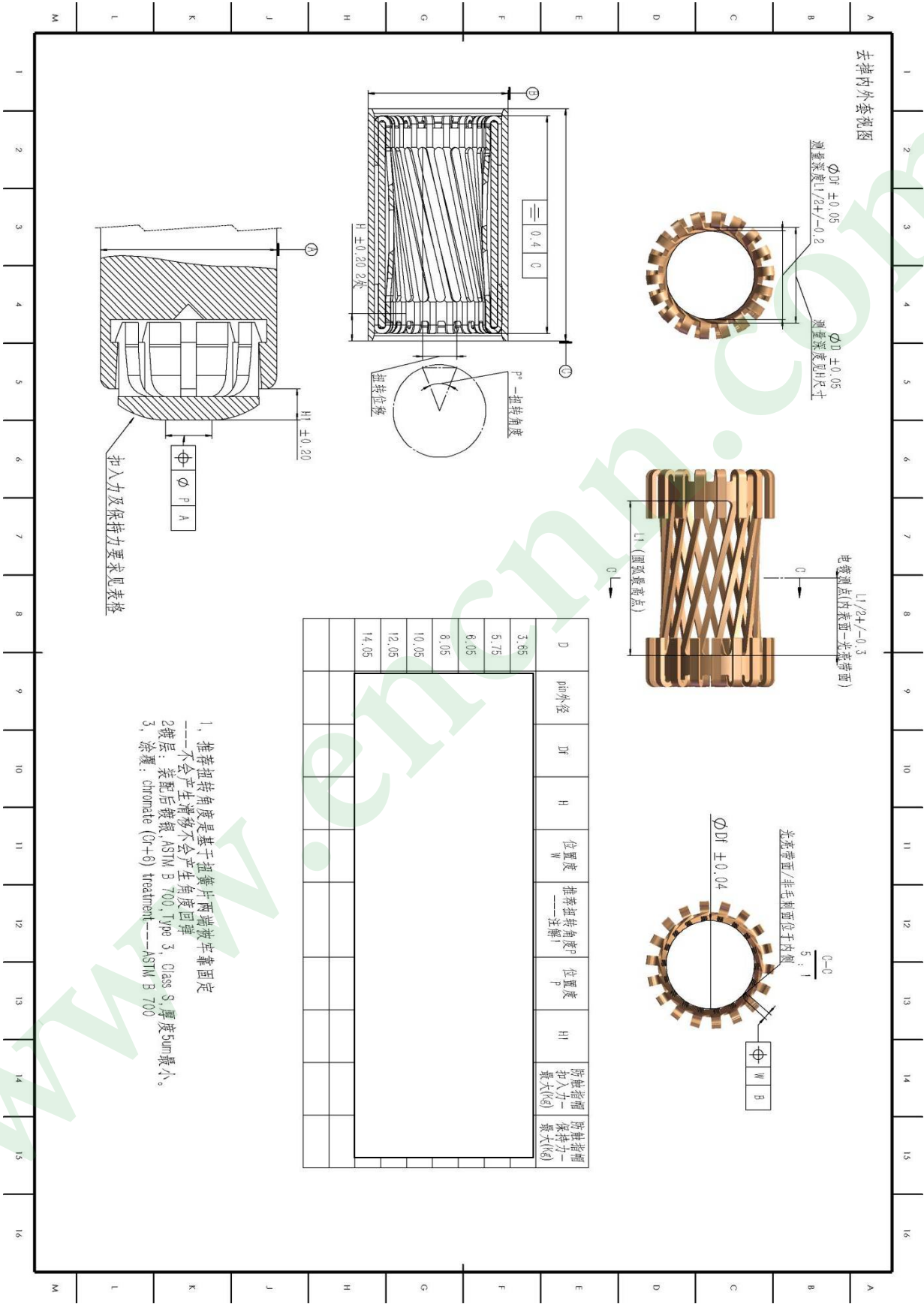








2, 结构 2.6 装配





3,材料

3.1 铍铜 C17410(待转化为公司标准)重要参数

化学成分

Element	Weight %
Iron	≤ 0.2
Cobalt	0.35-0.60
Silicon	≤ 0.2
Beryllium	0.15-0.50
Aluminum	≤ 0.2
Copper	Remainder

机械性能 --轧制方向

Temper			Yield Strength (a)		Elongation in 50 mm [2 inch] (a)
ASTM	Designation	EN	≥ MPa [N/mm ²]	≥ ksi	≥ %
TH02 (b)	1/2 HT	Y550	550-690	80-100	10-20
TH04M (b)	HT-Special	Y655	655-760	95-110	10-20
TH04 (b)	HT	Y690	690- 830	100- 120	7-17

折弯性能

Temper			R/T	
ASTM	Designation	EN	Good Way	Bad Way
TH02	1/2 HT	Y550	1.0	3.5
TH04M	HT-Special	Y655	2.0	4.0
TH04	HT	Y690	2.5	5.5

导电率：大于 26 米/Ω *mm² (45%IACS)

表面状态：不大于 Ra0.4.

3.2 C14700(待转化为公司标准)重要参数

化学成分: S,0.2-0.5%,杂质 0.1%,其余 Cu+Ag.

机械性能:

	Tensile strength		Yield strength(a)		Elongation in 50 mm (2 in.), %	Hardness, HRB	Shear strength	
Temper	MPa	ksi	MPa	ksi			MPa	ksi
6 mm (0.25 in.) diameter								
H02	295	43	275	40	18	43	180	26
H04	365	53	340	49	10	54	200	29
13 mm (0.50 in.) diameter								
OS015	230	33	76	11	46	43 HRF	150	22
H02	295	43	275	40	20	43	180	26
H04	330	48	305	44	15	48	185	27
25 mm (1 in.) diameter								
OS050	220	32	69	10	50	40 HRF	150	22
H02	290	42	275	40	25	42	170	25
H04	330	48	305	44	20	48	185	27
50 mm (2 in.) diameter								
H02	290	42	270	39	35	42	170	25



导电率：大于 95%IACS

切削性能: 85%(相对于 C36000)

3.3 C36000(待转化为公司标准)重要参数

化学成分

Copper	56.5-59.5	57.0-61.0		57.0-59.0	
Lead	2.5-3.5	1.8-3.7		2.5-3.5	1.6-2.5
Iron	≤ 0.35			≤ 0.3	
Aluminum	-----			≤ 0.05	
Nickel	-----			≤ 0.3	
Tin	-----			≤ 0.3	
Others, Total	-----			≤ 0.2	
Iron + Tin	-----	≤ 0.50	≤ 0.60	-----	
Zinc	Remainder				

机械性能

Temper Designation			Nominal Cross-Sectional Dimension						Tensile Strength @ R _m	Yield Strength R _{p 0.2}	Elongation		
DIN	EN	Condition	Ø mm			// across flats, mm			≥ MPa	≈ MPa (a)	≥ %		
CuZn39Pb3 CuZn40Pb2	CW614N CW617N	M	2	---	≤ 80	2	---	≤ 60	As Manufactured				
		R400	6	---	≤ 14	5	---	≤ 10	400	160	---	12	15
		R380	---	> 14	≤ 40	---	> 10	≤ 35	380	160	---	---	18
		R360	---	> 40	≤ 80	---	> 35	≤ 60	360	150	---	---	20
		R430	2	---	≤ 40	2	---	≤ 35	430	250	6	8	10
		R500	2	---	≤ 14	2	---	≤ 10	500	390	4 (a)	6	8
		R550	2	---	≤ 6	2	---	≤ 5	550	420	---	---	---

导电率：大于 26%IACS

切削性能: 100%

3.4 PA66

性能 Properties	测试标准 Test Standards	测试条件 Test Conditions	国际单位 S.I. Units	典型值 S.I. ^[1] Typical Values
机械性能 Mechanical				
拉伸强度 Tensile Strength	ISO 527-2	10mm/min	MPa	150
伸长率 Elongation at break	ISO 527-2	10mm/min	%	3.1
弯曲强度 Flexural Strength	ISO 178	2mm/min	MPa	220
弯曲模量 Flexural Modulus	ISO 178	2mm/min	MPa	7900
悬臂梁缺口冲击强度 Impact Strength, IZOD notched	ISO 180/1A	23℃	KJ/m ²	9
洛氏硬度 Rockwell Hardness	ISO 2039-2	R Scale	--	120
热性能 Thermal				
热变形温度 Heat Deflection Temperature	ISO 75-2	0.45MPa	℃	250
		1.80MPa	℃	245
电性能 Electrical				
体积电阻率 Volume Resistivity	IEC 60093	--	Ω .cm	10 ¹⁵
介电强度 Dielectric Strength	IEC 60243-1	2mm, in oil	KV/mm	17
CTI Comparative Tracking Index	IEC 60112	--	V	400
其他 Others				
密度 Density	ISO 1183	--	g/cm ³	1.37
玻纤含量 Glass Fiber Content	ISO 3451/1	--	%	25
收缩率 Mold Shrinkage	ISO 2577	--	%	0.4/0.9
吸湿率 Moisture Absorption	ISO 62	Equilibrium 23℃/50% r.h.	%	2.0
阻燃性 Flammability	UL 94	--	--	V-0

[1] 典型值是指实验室平均数据，仅用于使用时的参考，不作为产品的标准。



4, 电镀及涂覆/plating&coating.

工程应用镀银(ASTM B 700 待转化为公司标准)重要参数

纯度, *Type 1*—99.9 % min
 Type 2—99.0 % min
 Type 3—98.0 % min

外观色泽等级,

Grade A, Mat—Electrodeposits without luster, obtained from electroplating solutions operated without the use of brighteners.

Grade B, Bright—Electrodeposits obtained by the use of brighteners in the electroplating bath.

Grade C, Bright—Electrodeposits obtained by mechanical or chemical polishing of *Grade A* silver coatings.

Grade D, Semibright—Electrodeposits obtained by the use of addition agents in the electroplating bath.

涂覆/镀后表面处理,

Class N—A finish that has had no supplementary tarnish resistant (that is, chromate) treatment (see Appendix X5).

Class S—A finish that has had a supplementary tarnish resistant (that is, chromate) treatment.



4,产品性能

4.1 外观: (1) 表面光滑, 无明显划伤, 凹塌点, 突出点;

(2) 边缘无明显压塌, 翻卷现象

(3) 簧片无断裂, 挤出现象.

4.2 接触电阻-见表格

4.3 插拔力-见表格

4.4 插拔寿命-见表格

4.5 载流能力/current carrying capacity



Pin 外径	接触电阻	插入力	保持力	插拔寿命
3.6				
5.7				
6				
8				
10				
12				
14				



Pin 外径	$\Delta 30^\circ$	$\Delta 40^\circ$	$\Delta 50^\circ$	$\Delta 60$
3.6				
5.7				
6				
8				
10				
12				
14				



5, 应用规格/Application Specification

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