



产品目录册

PRODUCT CATALOGUE

宁波合业科技有限公司/宁波合业电子有限公司



www.nbheye.com

宁波合业科技有限公司/宁波合业电子有限公司

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关于我们

ABOUT US

宁波合业科技有限公司是专业生产合成碳膜电位器、编码器、开关以及与之配套的旋钮，产品广泛用于电动工具、电焊机、仪器仪表、调音调速、汽车行业。自2010年7月成立至今，凭借“品质稳定、服务优质、高性价比”，使“合业HEYE”品牌深得市场认可。

公司采用标准化流水线生产模式，结合自动化设备，实现稳定高效集约化生产，年生产能力5000万只以上。

公司推崇科学管理：建立ISO:9001质量管理体系；采用ERP管理系统，推行“精益生产”。

公司具备自主研发和来样设计的能力，可为客户进行量身定制；专业的销售团队可为客户提供一站式购需指导和售后服务。

合业，经过数年成长已逐步实现劳动密集型向智慧型工厂的转型，我们将砥砺前行，致力打造成为“独树一帜的行业NO.1”，为广大客户提供更好的产品和服务。

热忱欢迎来电来函咨询、或莅临洽谈指导

Ningbo Heye Technology Co., Ltd. is a professional manufacturer of synthetic carbon film potentiometers, encoders, switches and their supporting knobs. The products are widely used in electric tools, welding machines, instruments, tuning speed regulation, automotive industry. Since its establishment in July 2010, HEYE has gained market recognition by virtue of its stable quality, high service quality and high cost performance.

The company adopts the standardized production line mode, combined with automation equipment, to achieve stable and efficient intensive production, with an annual production capacity of more than 50 million.

The company esteems scientific management: establishing ISO:9001 quality management system; adopting ERP management system to implement "lean production".

The company has the ability of independent research and development and sample design, which can be customized for customers. The professional sales team can provide one-stop shopping guidance and after-sales service for customers.

After several years of growth, has gradually realized the transformation from labor-intensive to intelligent factory. We will move forward and strive to create a "unique industry NO.1" to provide better products and services for our customers.

We Warmly welcome your letter or consultation.

企业文化

Enterprise culture

企业愿景

Corporate vision

创一流品牌，建一流企业

Creating first-class brands and building first-class enterprises

企业精神

Corporate spirit

诚信做人做企业，专心专业做产品

Be honest and be an enterprise and concentrate on making products.

质量方针

Quality policy

严格管理、不断创新、持续改善、用户满意

Strict management, continuous innovation, continuous improvement and customer satisfaction.

经营方针

Management policy

以市场为导向，以生产为中心，以技术为保证，以品质为生命

Market oriented, production centered, technology based and quality based.





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装配车间
Assembly Shop



装配车间
Assembly Shop



自动车间
Automatic workshop



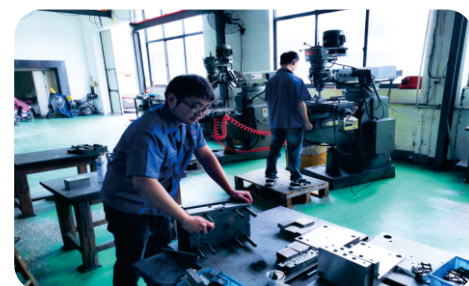
注塑车间
Injection Shop



自动车间
Assembly Shop



自动车间
Automatic workshop



模具车间
Die shop



模具车间
Die shop



注塑车间
Injection Shop



注塑车间
Injection Shop

1 Application Note 使用注意事项

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2 Synthetic carbon film potentiometer 合成碳膜电位器

WH06 SERISE

WH06系列

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PT06,PT10,PT15 SERISE

PT06系列、PT10系列、PT15系列

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WHE10 SERISE

WHE10系列

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WH08 SERISE

WH08系列 (汽车大灯调光专用)

RV16 SERISE

RV16系列 (升降马达专用)

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WHΦ12 SERISE

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WH138系列

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3 Glass glaze potentiometer 玻璃釉电位器

3296,3362,3323,3386,WIB06 SERISE

3296系列、3362系列、3323系列、3386系列、WIB06系列、WIB08系列

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4 Encoder 编码器

EC11,EC12,EC16 SERISE

EC11系列、EC12系列、EC16系列

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5 Description of potentiometer resistance characteristic curve 电位器电阻特性曲线说明

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1,慎用化学品Use of chemicals

电位器因使用了诸如聚碳酸酯等合成树脂，所以应避免将电位器暴露于氨、胺、碱溶液、芳烃等化学物品浓烈气氛中。

Synthetic resins such as polycarbonate are used in the potentiometer. therefore, Care must be taken not expose the resistor to thick atmosphere of ammonia, amines, alkali solution, aromatic hydrocarbon, ketenes, esters, halogenated hydrocarbon, ketenes, esters, halogenated hydrocarbons, etc.

2,慎用助焊剂Use of flux

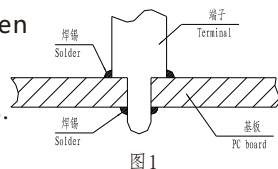
焊锡时应避免使用水溶性助焊剂，否则将会对构成电位器的金属和其他材料产生不良影响。

When soldering, avoid using water-soluble flux, otherwise, it might cause an adverse effect on molding material and metal.

3,焊锡 Soldering

布线设计和焊锡方法应避免导致(如图1)所示，熔锡流到PCB板上平面，这样会引起接触不良。

Avoid employing wiring designs and soldering methods in which molten solder flows over the upper surface of PC board, as illustrated in the schematic drawing. This could cause occurrences of imperfect contacts.



4,推荐的电路接法 Recommended Circuit Configuration

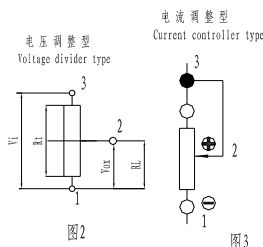
电位器作为可变电位器使用时，建议作调整电压的分压器使用，同时电位器的负载电阻RL应小于电位器公称阻值RT的10倍（见图2）。

电位器在直流电路中作为电流调节使用时，将有电流通过电位器的滑动臂，此时由于阳极氧化的原因会导致电阻异常增加。在这种情况下，建议将连接电阻体的端子接负极，滑动臂接正极（见图3）。

When using variable resistors, it is recommended that implement the product as voltage divider. The load resistance, is RL of

potentiometer should not less than 10 times of nominal resistance RT, as shown in Fig 2.

In applications where a direct current is allowed to flow through the potentiometer's sliding arm, there could be a problem of anodic oxidation due to an unusual increase in resistance value. In this case, it is recommended that connecting the negative line to the resistance element and the positive line to the sliding arm, as shown in fig 3.



5,残留电阻Residual resistance

尽管电位器电阻 二是印刷银层，但为了提高抗硫化的可靠性，通常在电阻体二极覆盖一层碳膜，如果希望低残留电阻，请与本公司联系。

Although electric poles of resistors are generally formed by silver printing, we provide carbon coating over the silver poles to enhance reliability against sulfurization. Contact us if you wish to use the part in a low residual resistance state.

6,凝露 Dew Condensation

电位器在使用过程中，电阻体表面应避免结露，否则，将导致绝缘电阻恶化或短路。

Avoid using the potentiometer where dew or water drops might occur on the surface of the resistor, etc. Deterioration of insulation or shorting may occur.

7,施加于端子应力 Stress Being Applied to the terminals

手拿端子时应特别注意避免过分用力，同时应设计正确的焊锡条件。

Care must be taken not to apply excessive stress when handling the terminals. Also, be sure to design appropriate soldering conditions.

8,轴的径向晃动 Looseness of the Shaft

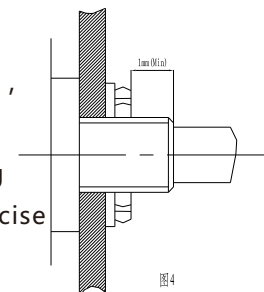
当使用长度过分的转轴时，其径向晃动量将与轴长成正比，应按实际需要选用轴长。

When long shaft are being employed, the looseness (deviation) tends to grow in proportion to the shaft length. Conducting a test under actual operating conditions is recommended.

9,面板安装 Chassis Mounting

当电位器是用螺母安装于面板时，过紧将使旋转接触功能失效或螺纹滑牙，锁螺母是应非常小心。图4

When this part is fastened to the chassis using a nut, excessive tightening may deteriorate the rotary contact performance, or strip the threads. Exercise care when tightening the nut.



10,低温工作 Operation at Low Temperature

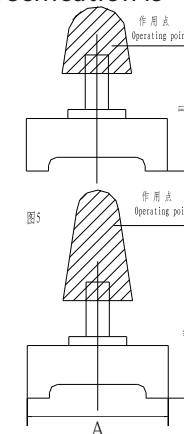
当产品用于低温环境时，如寒带的汽车收音机或汽车音响等，本公司按客户要求提供手感舒适产品，请订货时加以说明。

When these products are expected to be used under low temperature environments such as applications for car radios or car stereos, we can customize them for easier and more smooth movements. When placing orders, indicate whether the low temperature specification is necessary or not.

11,滑柄长度 Lever length

长度越短越好（至少5mm）在滑柄的宽度A不变的情形下，滑柄长度愈短，手感愈好，另出力点愈高，手感愈差。（如图5）

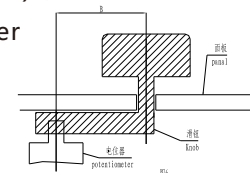
If conditions permit, it is recommended that using the shortest lever (over 5mm) for the application. Since the length A of the slider is constant as shown, the shorter the length up to the operating point, the better slide feeling will be obtained. (the longer the length up to the operating point like H2, the more unfavorable slide feeling will be given.)



12,驱动臂 Driving lever

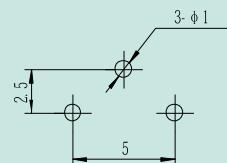
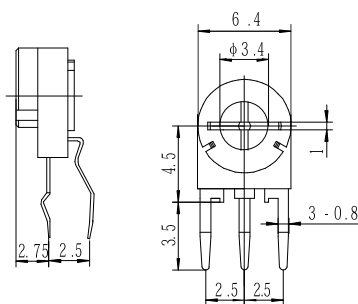
切勿使操作点远离滑柄中心线，基于同样理由，两者距离B越短越好（如图6）。

It is recommended that not to make the operating point away from the center line of the lever as shown. For the same reason as mentioned above, the

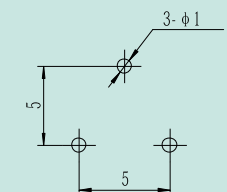
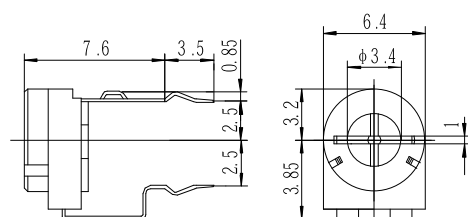




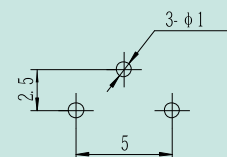
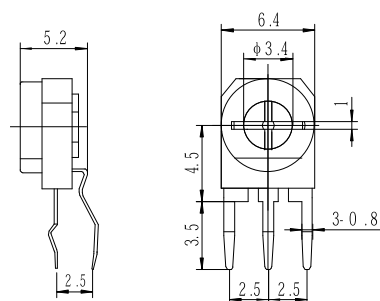
WH06-H



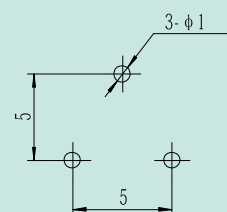
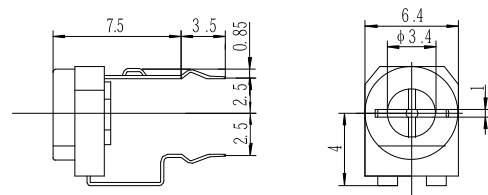
WH06-V



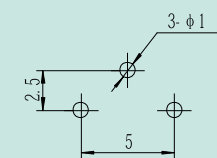
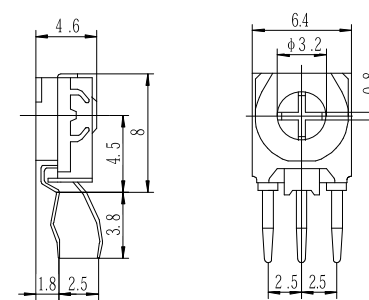
WH06L-H



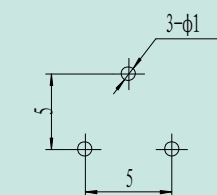
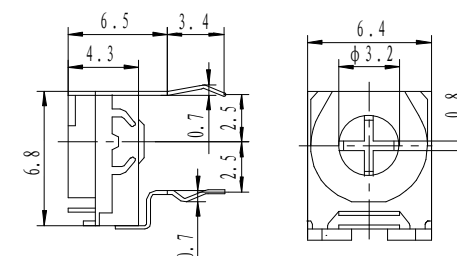
WH06L-V



WH06R-H



WH06R-V



电气性能 Electrical characteristics

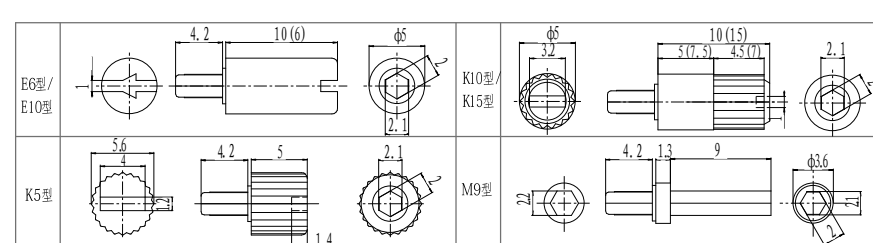
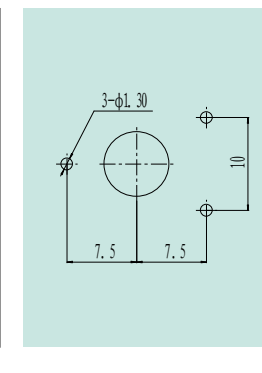
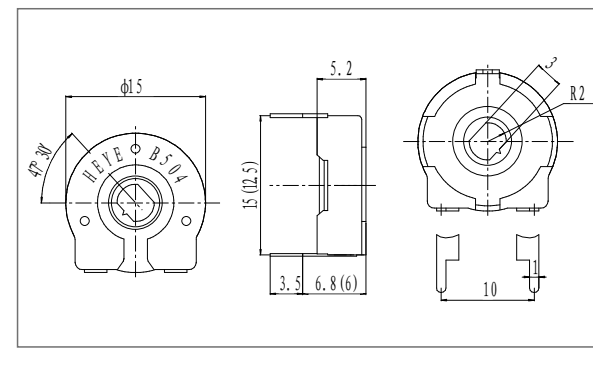
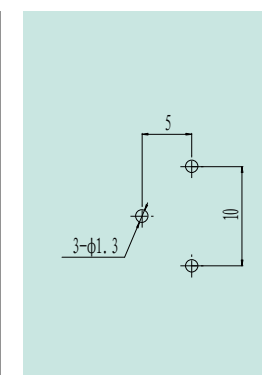
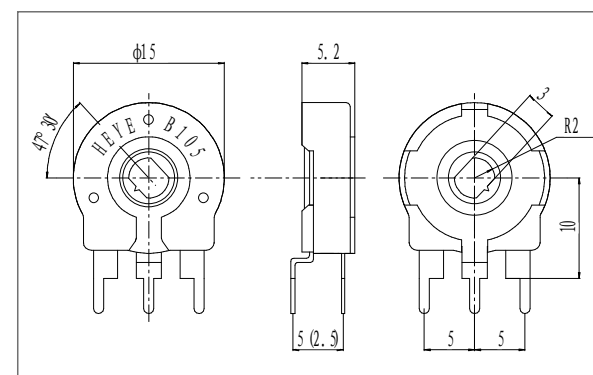
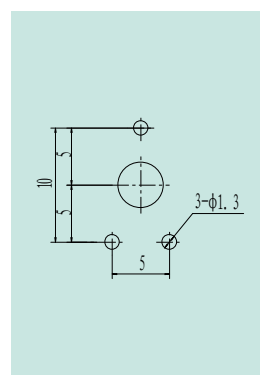
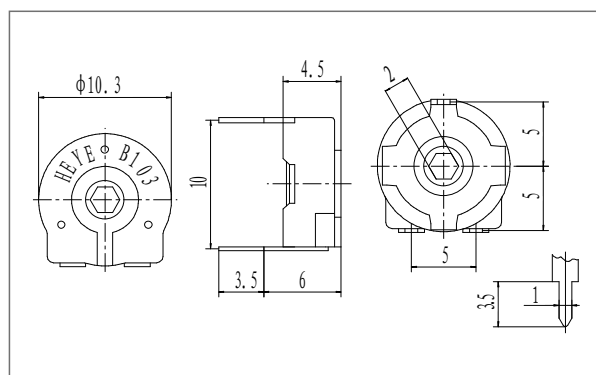
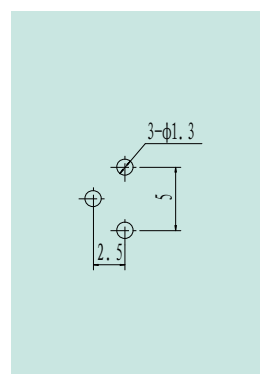
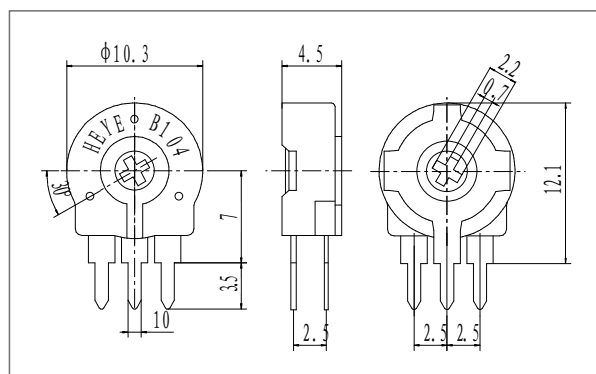
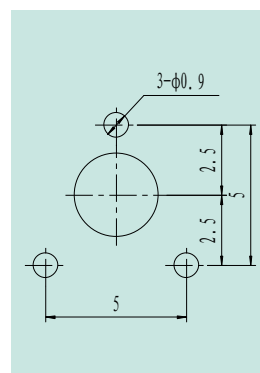
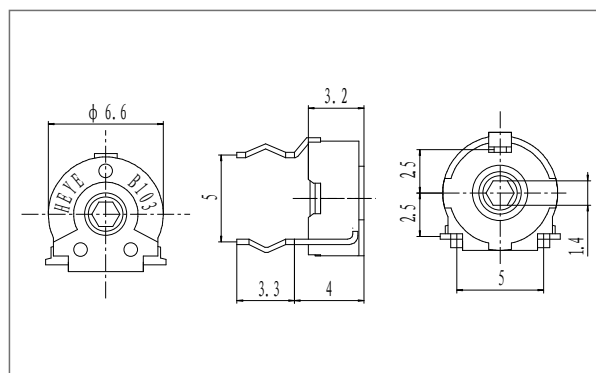
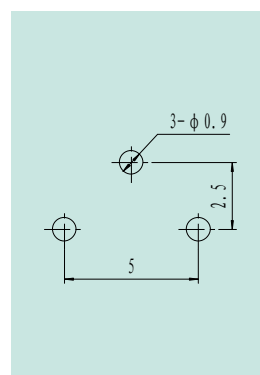
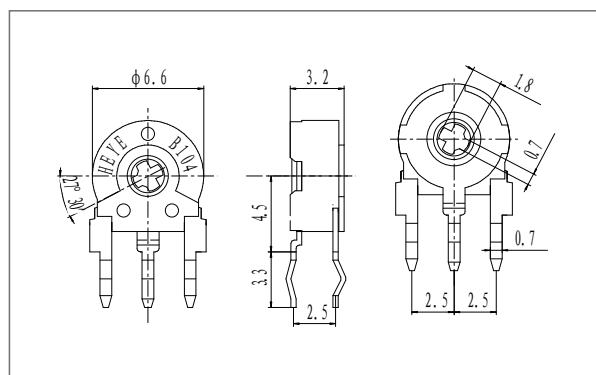
型号 Series	WH06
总阻值 Total resistance	100Ω~1MΩ
总阻误差 Total resistance tolerance	±20%
残留阻值 Residual resistance	Less than 1%R OR 20Ω
接触电阻变化 Contact Resistance Variation	Less than 5%R
有效电行程 Effective Electrical Travel	200°±10°
最高工作电压 Max.working voltage	50V DC
额定功率 Rated power(50°C)	0.1W

机械性能 Mechanical characteristics

旋转角度 Total rotational angle	210°±10°
旋转力矩 Rotational torque	20-350gf.cm
止档强度 Rotation stopper strength	≥500gf.cm
旋转寿命 Rotational life	100Cycles

命名方法示例 Example of naming method

WH06	L	—	V	—	B	223	—	2020
系列	孔型		终端形式 H=立式 V=卧式		线性	阻值代码		允许总阻偏差 0505=±5% 1010=±10% 0705=+7%-5%



PT06 中心孔型				PT10 中心孔型		
M孔	K孔	X孔	L孔	M孔	G孔	
PT15 中心孔型						
N孔	L孔	D孔	R孔			

PT15旋钮

A型旋钮 	HT32旋钮
B型旋钮 	HT23旋钮
C型旋钮 	护套
A D型旋钮 	小护套

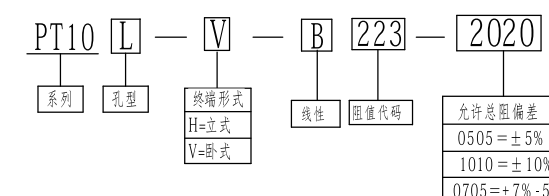
电气性能 Electrical characteristics

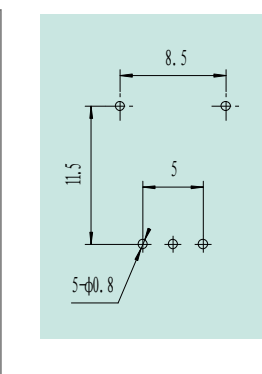
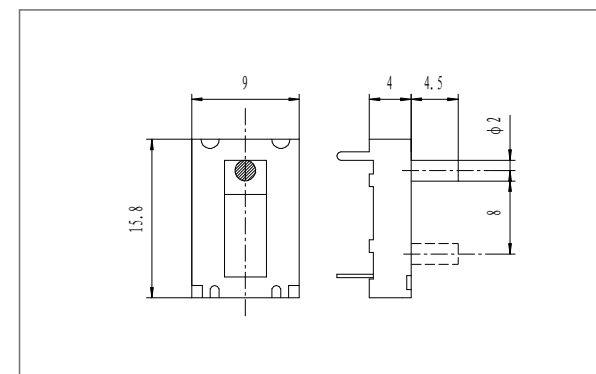
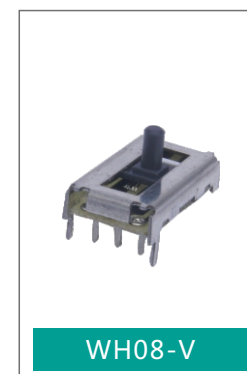
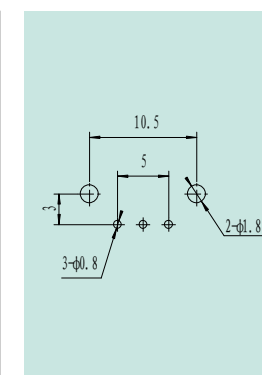
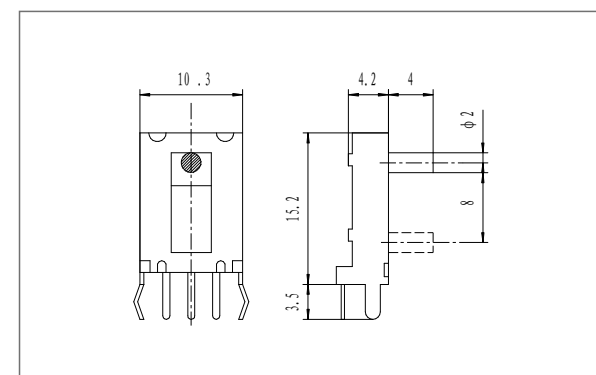
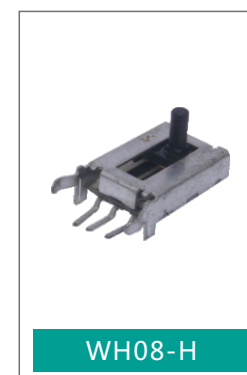
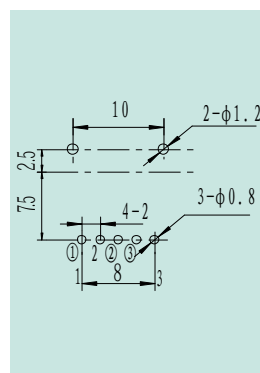
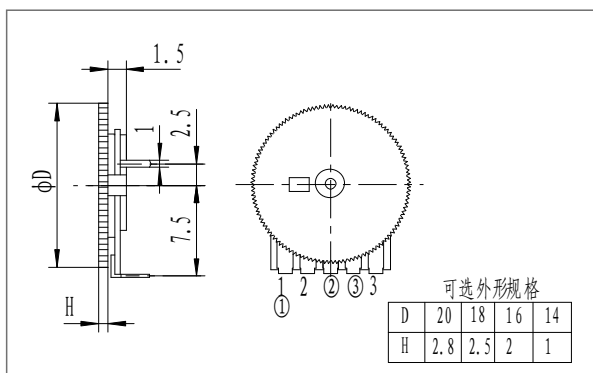
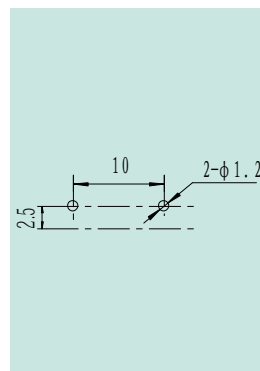
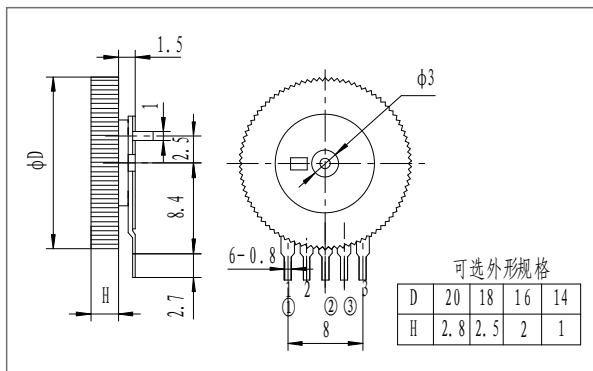
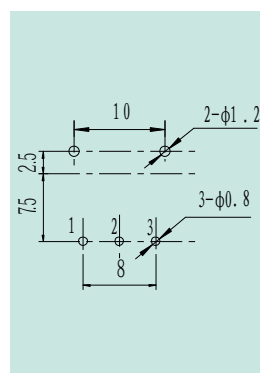
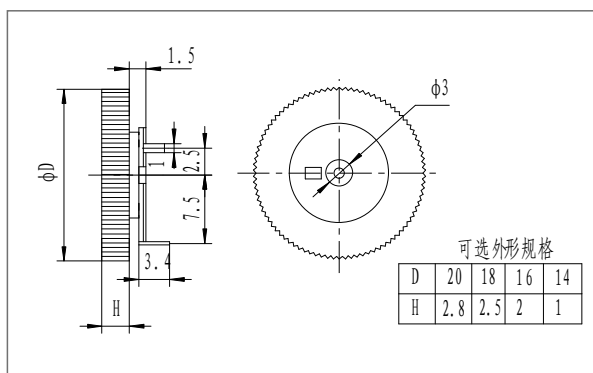
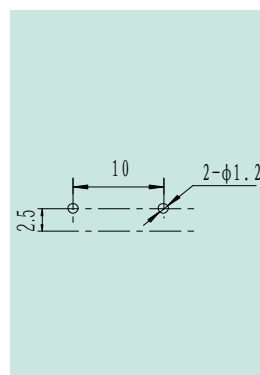
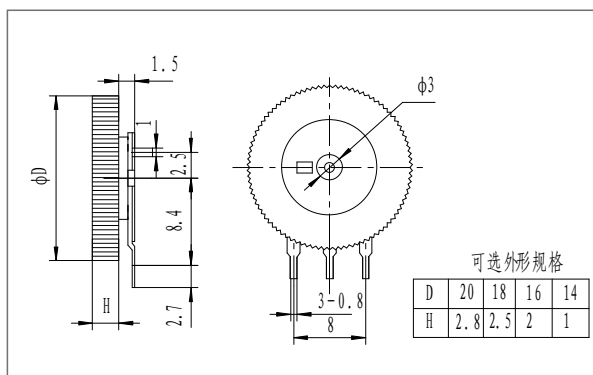
型号 Series	PT06	PT10	PT15
总阻值 Total resistance	100Ω~5MΩ		
总阻误差 Total resistance tolerance	±20%		
阻值规律 Resistance taper	A B C		
残留阻值 Residual resistance	Less than 20Ω		
滑动噪音 Slide noise	Less than 100 mV		
最高使用电压 Max.operating voltage	DC : 100V	DC : 200V	DC : 250V
额定功率 Rated power	0.1W	0.15W	0.25W

机械性能 Mechanical characteristics

旋转角度 Total rotational angle	235°±5°	235°±5°	265°±5°
旋转力矩 Rotational torque	20~200gf.cm	40~200gf.cm	50~250gf.cm
止档强度 Rotation stopper strength	0.4Kgf.cm Min	0.5Kgf.cm Min	1Kgf.cm Min
旋转寿命 Rotational life		10,000 Cycles	

命名方法示例 Example of naming method



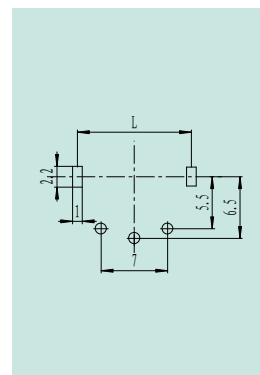
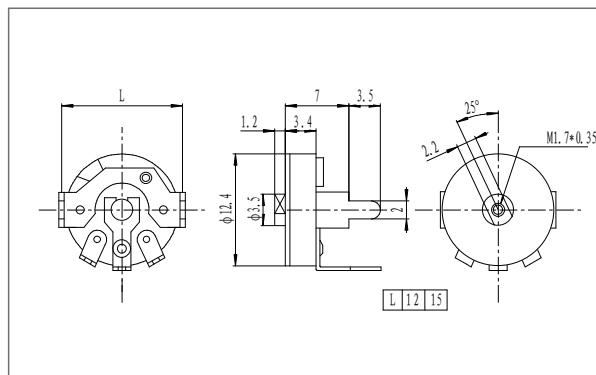
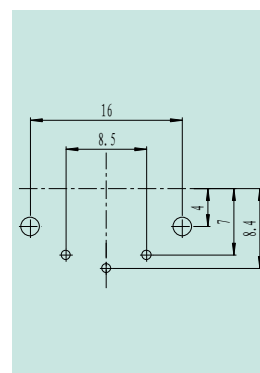
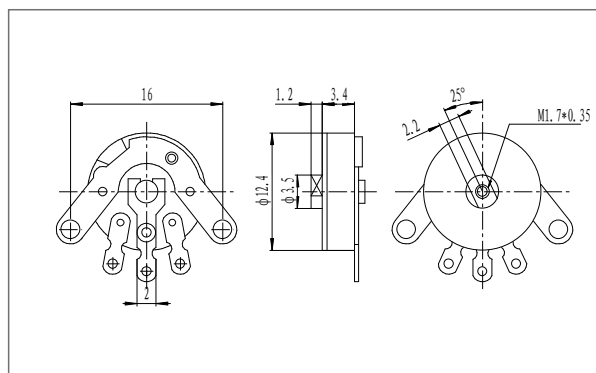
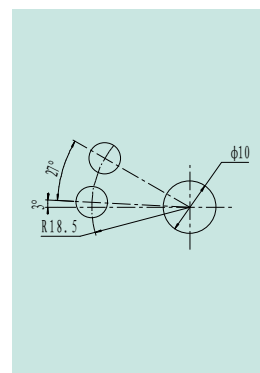
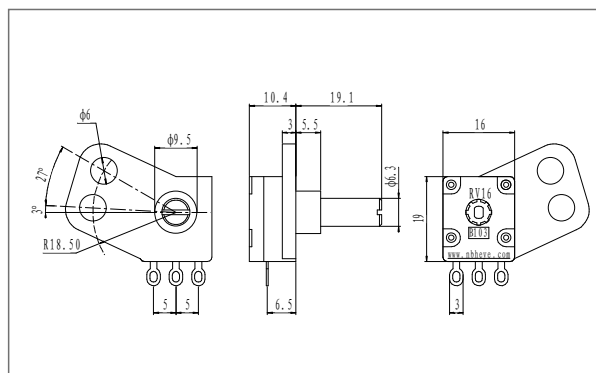
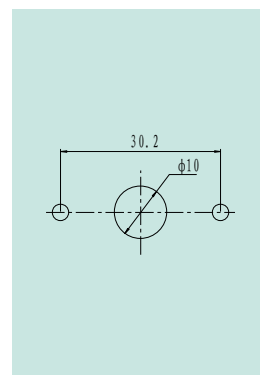
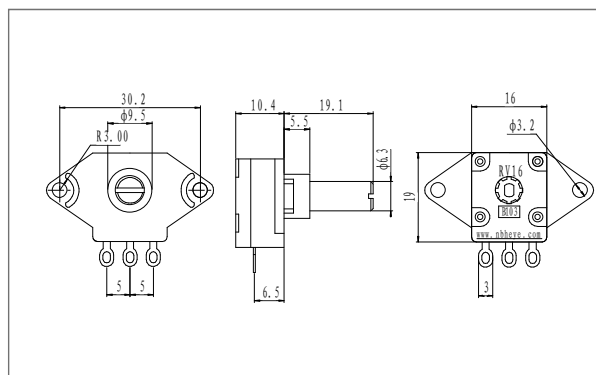


电气性能 Electrical characteristics

型号 Series	WH08	WHE10
总阻值 Total resistance	500Ω~1MΩ	1KΩ~2MΩ
总阻误差 Total resistance tolerance	±20%	
阻值规律 Resistance taper	A B C	
残留阻值 Residual resistance	Less than 20Ω	
滑动噪音 Slide noise	Less than 100 mV	
最高使用电压 Max.operating voltage	AC 50V	AC 50V
额定功率 Rated power	Linear taper B : 0.1W	Linear taper B :0.03W
耐电压 Withstand voltage	1 minute at AC 100V	1 minute at AC 500V
绝缘电阻 Insulation resistance	More than 100MΩ at DC 200V	

机械性能 Mechanical characteristics

滑动行程 Sliding distanle	8±1mm	270°±10°
滑动力 Operating force	20gf.cm~200gf.cm	5gf.cm~100gf.cm
止档强度 Rotation stopper strength	5Kgf.cm Min	700gf.cm Min
旋转寿命 Rotational life	15,000 Cycles	10,000 Cycles



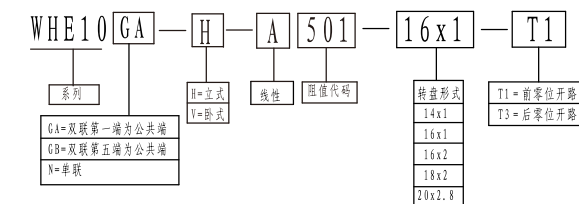
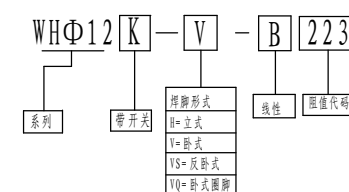
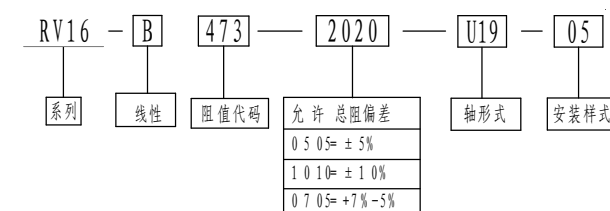
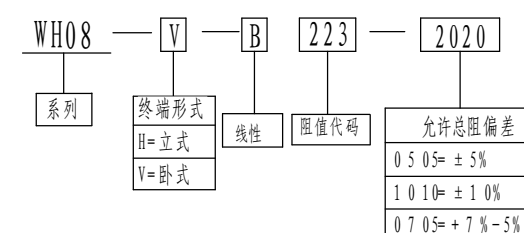
电气性能 Electrical characteristics

型号 Series	RV16	WHΦ12
总阻值 Total resistance	500Ω~5MΩ	100Ω~1MΩ
总阻误差 Total resistance tolerance	±20%	
阻值规律 Resistance taper	A B C	
残留阻值 Residual resistance	Less than 20Ω	
滑动噪音 Slide noise	Less than 100 mV	
最高使用电压 Max.operating voltage	AC : 500V	AC : 150V
额定功率 Rated power	0.2W	0.1W

机械性能 Mechanical characteristics

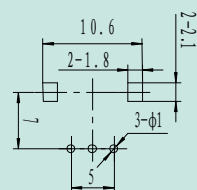
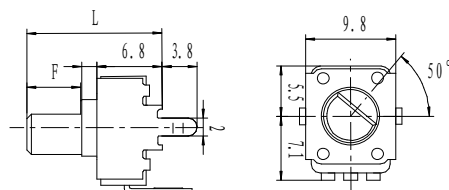
旋转角度 Total rotational angle	300°±5°	230°±10°
旋转力矩 Rotational torque	50~250gf.cm	20~150gf.cm
止档强度 Rotation stopper strength	6Kgf.cm Min	2Kgf.cm Min
旋转寿命 Rotational life	10,000 Cycles	

命名方法示例 Example of naming method

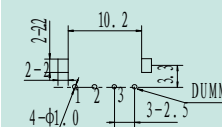
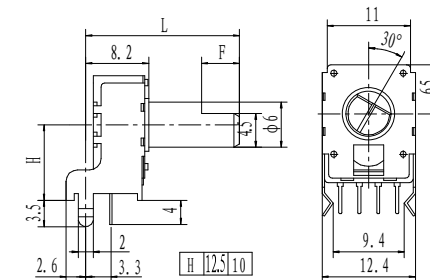




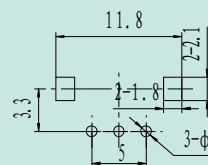
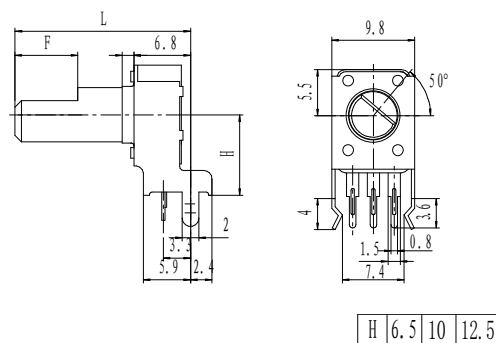
WH0901N-V



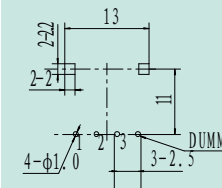
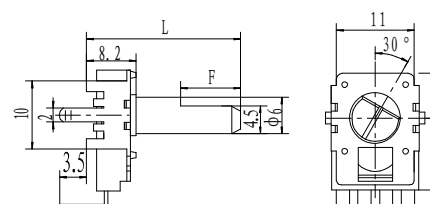
WH1101N-H



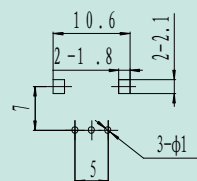
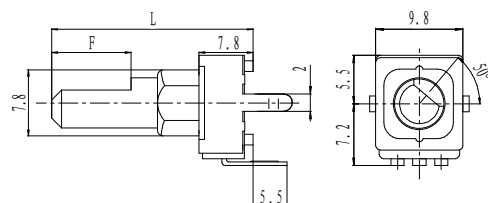
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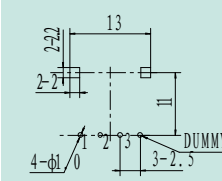
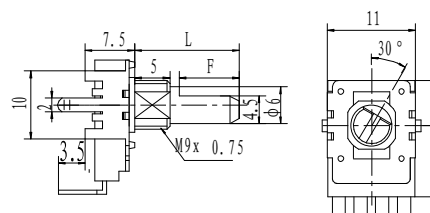
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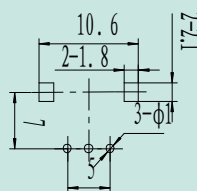
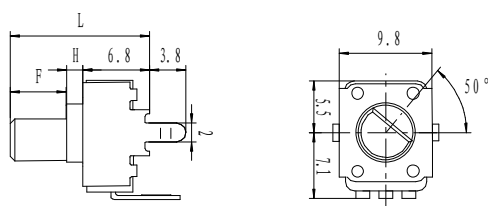
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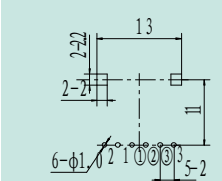
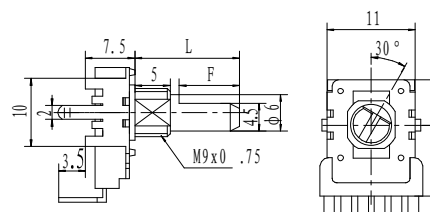
WH1111N-V



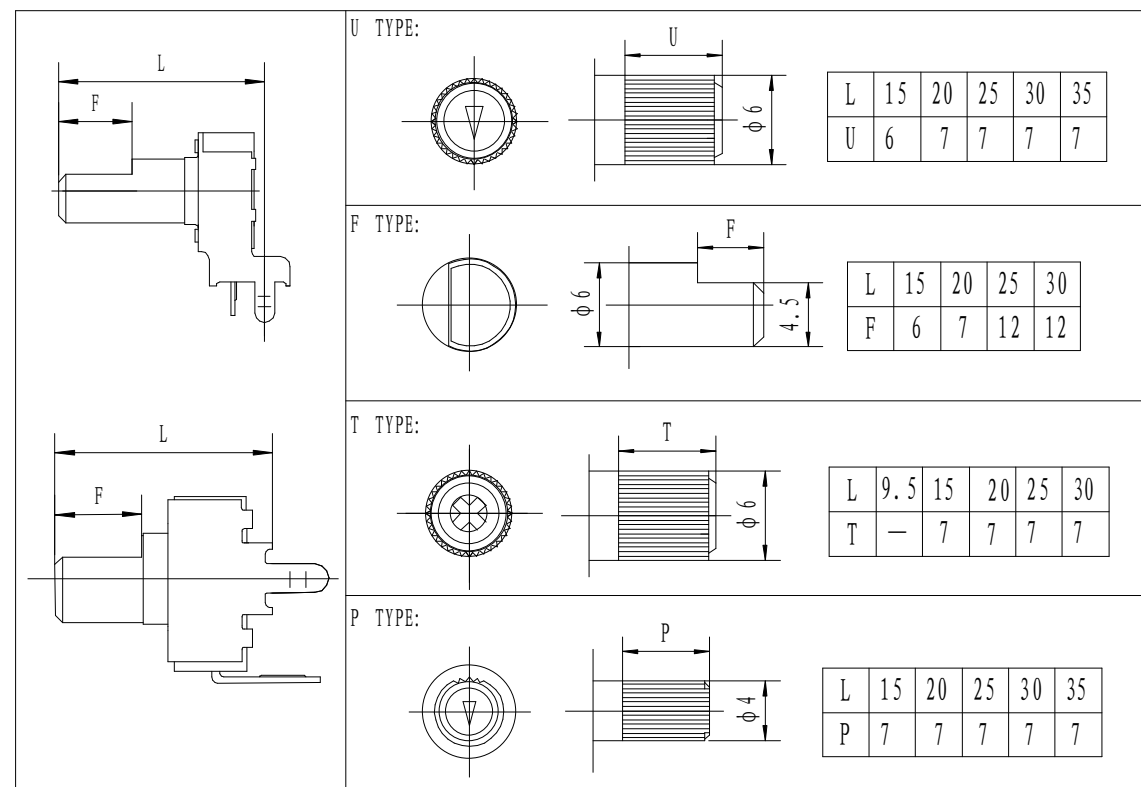
WH0902N-V



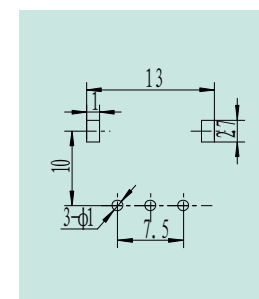
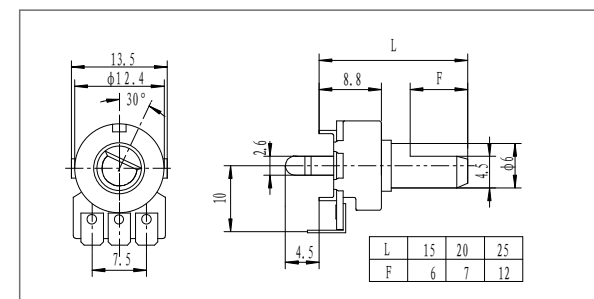
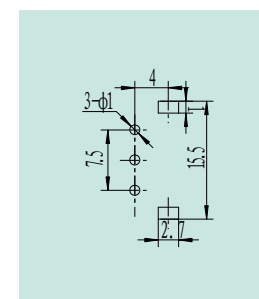
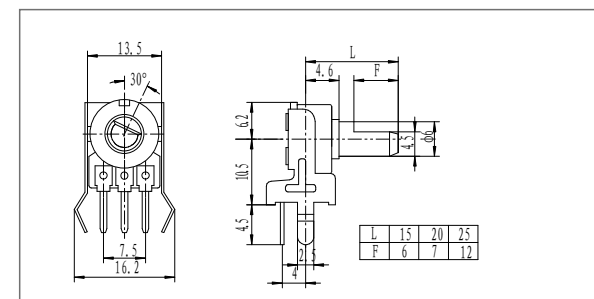
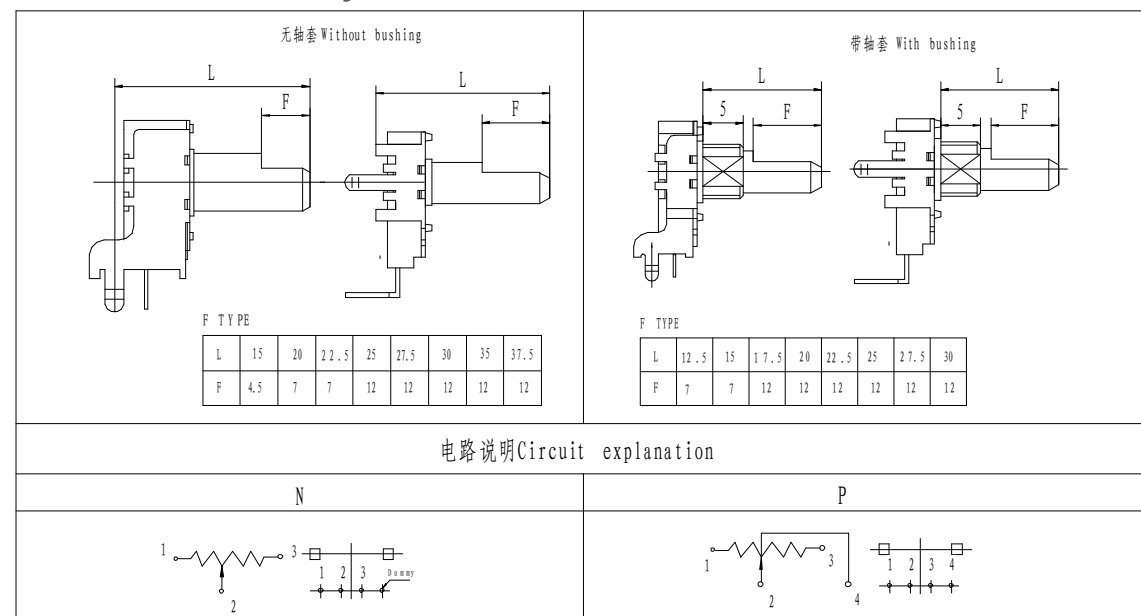
WH1111G-V



WH09 轴型图



WH11 轴型图 Shaft style



电气性能 Electrical characteristics

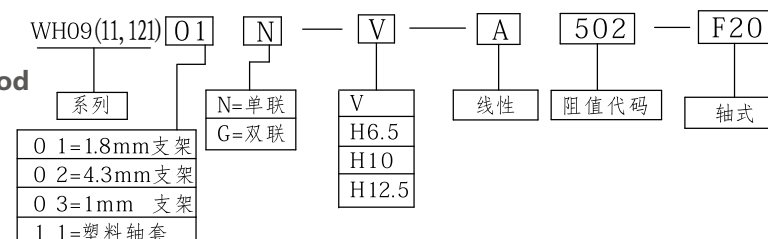
型号 Series	WH09	WH11	WH121
总阻值 Total resistance	500Ω~1MΩ		
总阻误差 Total resistance tolerance	±20%		
阻值规律 Resistance taper	A B C		
残留阻值 Residual resistance	Less than 20 Ω		
滑动噪音 Slide noise	Less than 100 mV		
最高使用电压 Max.operating voltage	AC : 50V		
额定功率 Rated power	0.05W	0.1W	

机械性能 Mechanical characteristics

旋转角度 Total rotational angle	280°±5°	300°±5°
旋转力矩 Rotational torque	10~100gf.cm	20~200gf.cm
止档强度 Rotation stopper strength	3Kgf.cm Min	3Kgf.cm Min
旋转寿命 Rotational life	10,000 Cycles	

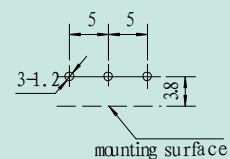
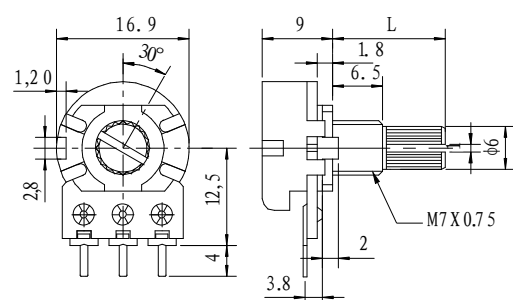
命名方法示例

Example of naming method

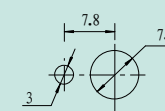
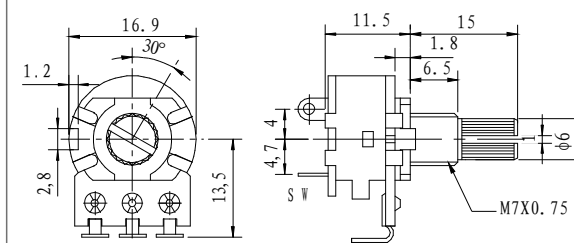




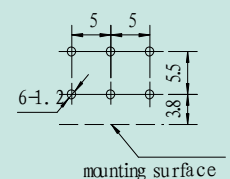
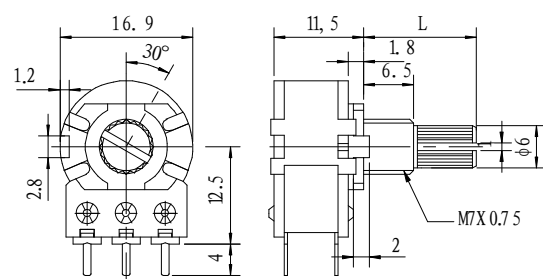
WH148N-H12.5



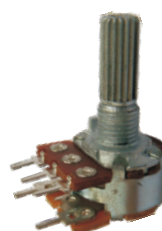
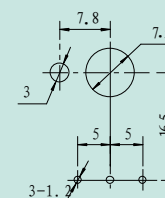
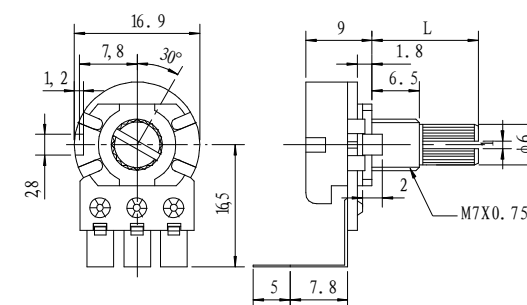
WH148NK-V13.5



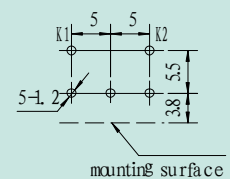
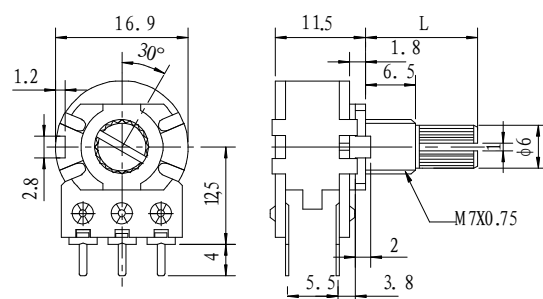
WH148G-H12.5(护套)



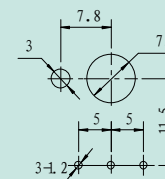
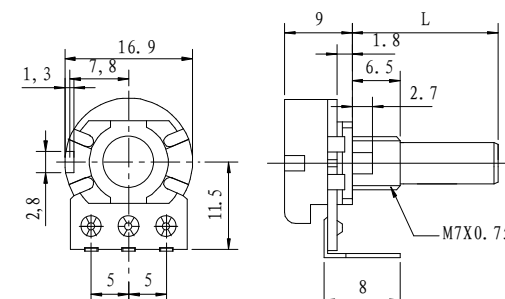
WH148N-V16.5



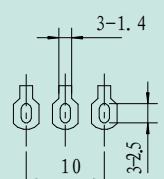
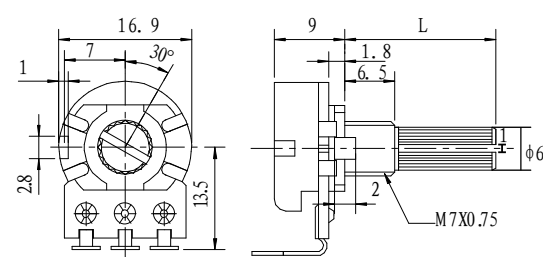
WH148NK-H12.5



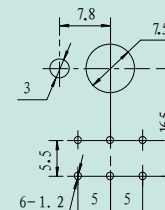
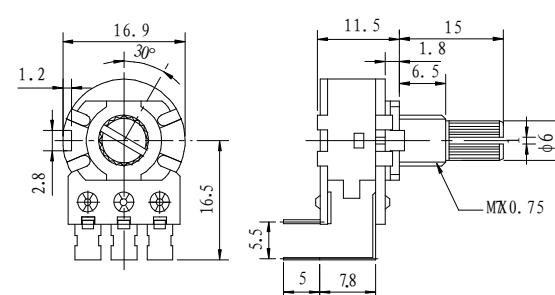
WH148N-VS



WH148N-V13.5

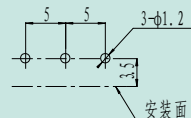
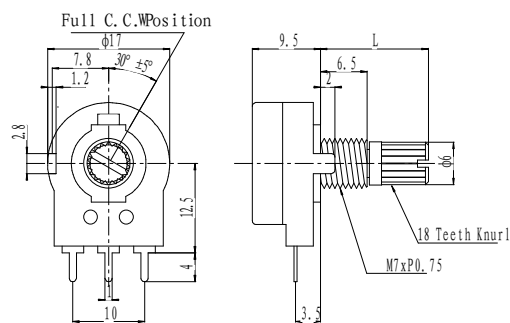


WH148G-V16.5

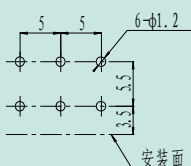
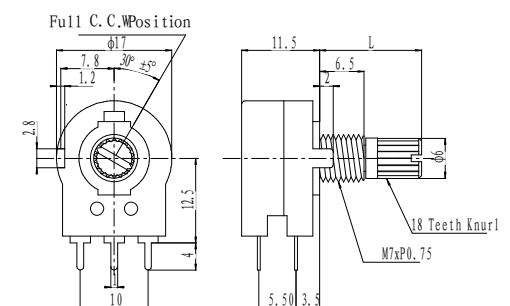




WH148S-H



WH148GS-H



WH148 轴型图 Shaft style

轴型 Shaft	轴心规格 Shaft specification																	
<p>M7 x P0.75 18 Teeth Knurl</p>	<table><tr><td rowspan="2">K型</td><td>L</td><td>10</td><td>12</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td></tr><tr><td>T</td><td>4</td><td>4</td><td>6</td><td>10</td><td>12</td><td>12</td><td>12</td></tr></table>	K型	L	10	12	15	20	25	30	35	T	4	4	6	10	12	12	12
K型	L		10	12	15	20	25	30	35									
	T	4	4	6	10	12	12	12										
<p>M7 x P0.75</p>	<table><tr><td rowspan="2">F型</td><td>L</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td></tr><tr><td>F</td><td>4</td><td>7</td><td>12</td><td>12</td><td>14</td><td>14</td></tr></table>	F型	L	10	15	20	25	30	35	F	4	7	12	12	14	14		
F型	L		10	15	20	25	30	35										
	F	4	7	12	12	14	14											
<p>M7 x P0.75</p>	<table><tr><td>E型</td><td>L</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td></tr></table>	E型	L	10	15	20	25	30	35									
E型	L	10	15	20	25	30	35											

电气性能 Electrical characteristics

型号 Series	WH148	WH148S
总阻值 Total resistance	500Ω~1MΩ	
总阻误差 Total resistance tolerance	±20%	
阻值规律 Resistance taper	A B C	
残留阻值 Residual resistance	Less than 20Ω	
滑动噪音 Slide noise	Less than 100 mV	
最高使用电压 Max.operating voltage	AC : 150V	
额定功率 Rated power	0.2W	
耐电压 Withstand voltage	1 minute at AC 500V	
绝缘电阻 Insulation resistance	More than 100MΩ at DC 500V	

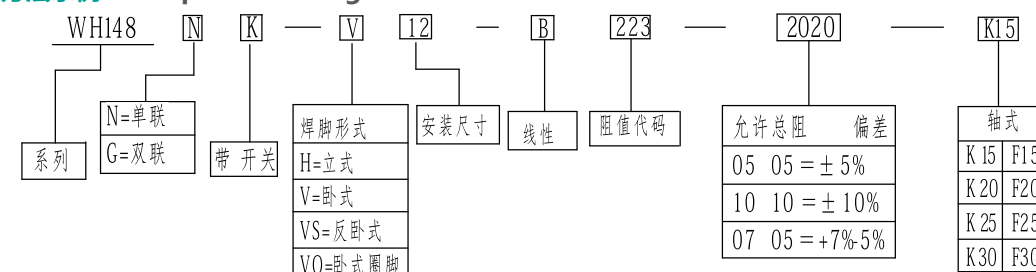
开关性能 Switch specifications

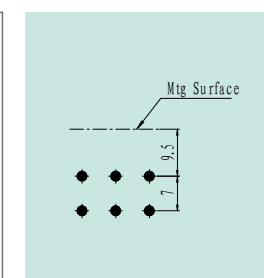
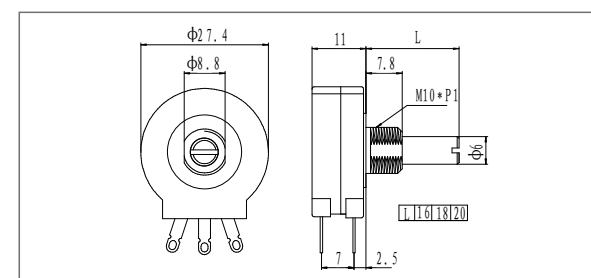
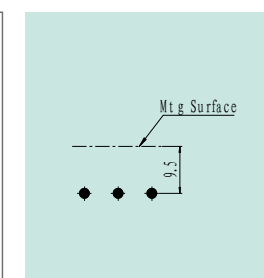
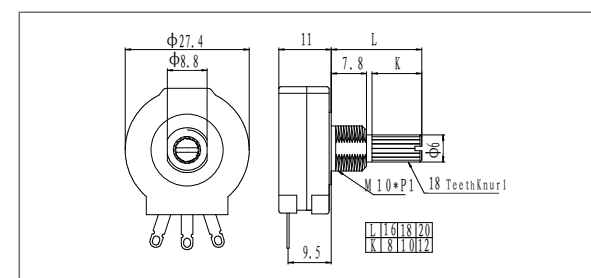
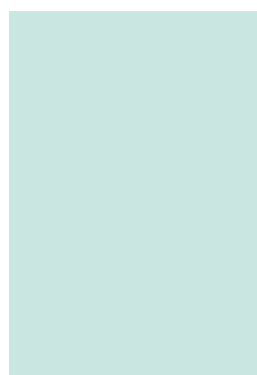
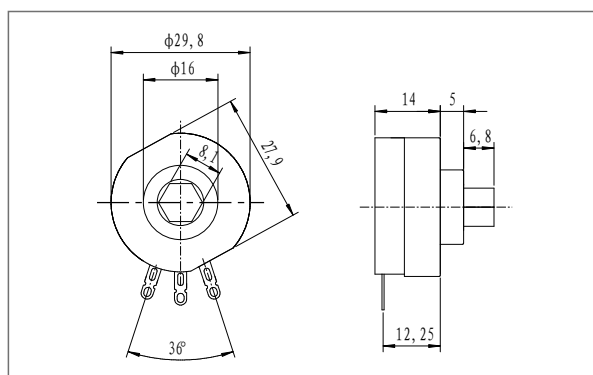
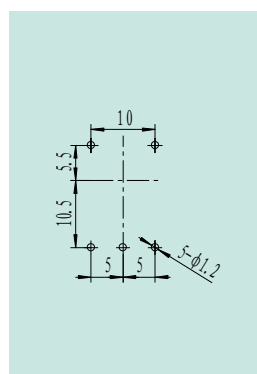
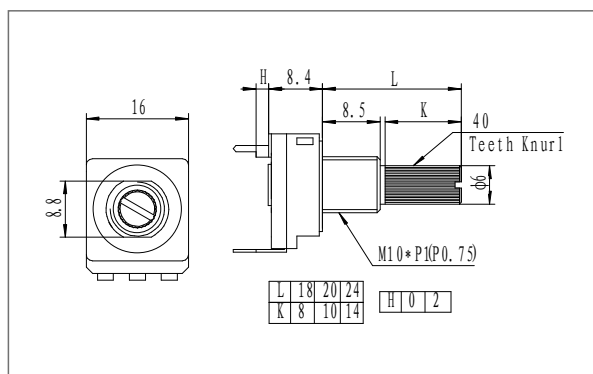
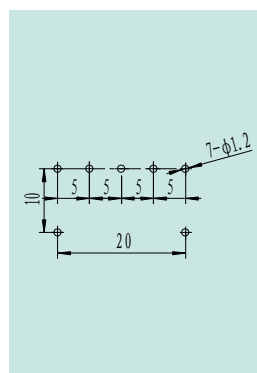
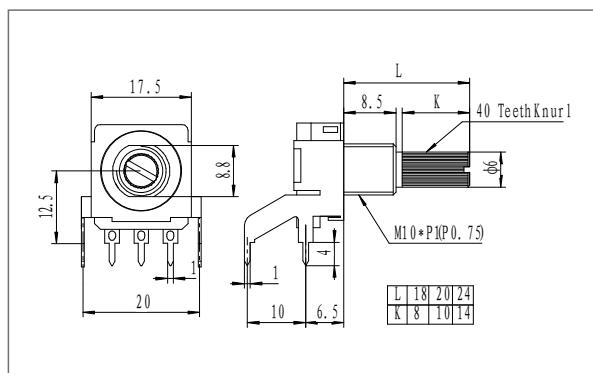
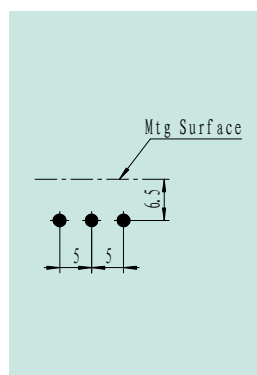
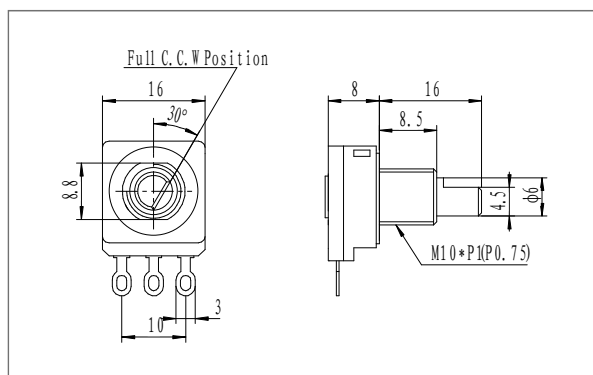
开关回路 Switch Circuit	S.P.S.T
开关残留电阻 Switch Contact Resistance	≤0.5Ω
开关承受负载 Switch Power Rating	DC 12V 1A max

机械性能 Mechanical characteristics

旋转角度 Total rotational angle	300°±10°	
旋转力矩 Rotational torque	20gf.cm~200gf.cm	
止档强度 Rotation stopper strength	6Kgf.cm Min	4Kgf.cm Min
轴推拉强度 Push pull wtrengh	8Kgf Min	
旋转寿命 Rotational life	10,000 Cycles	

命名方法示例 Example of naming method





电气性能 Electrical characteristics

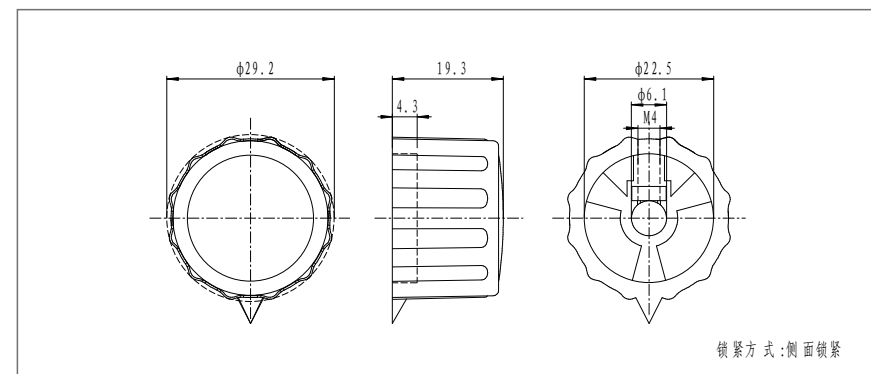
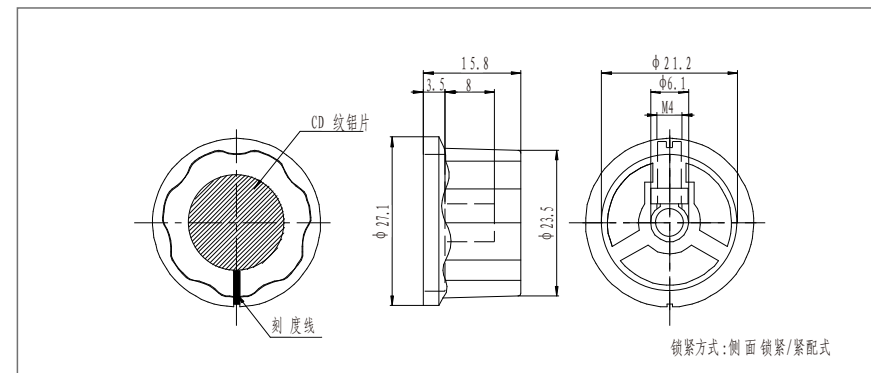
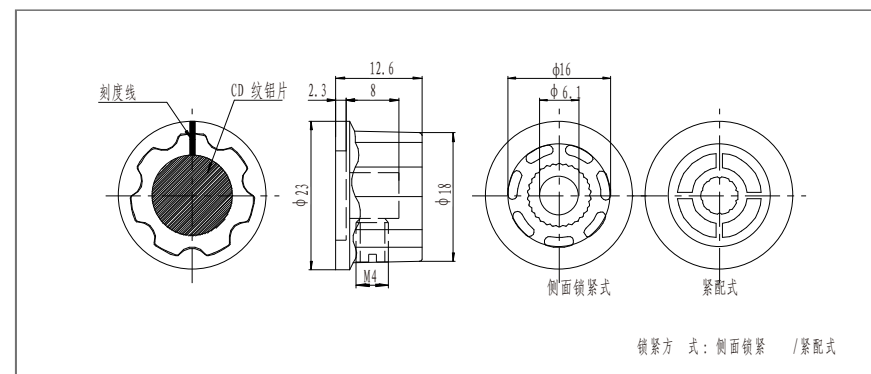
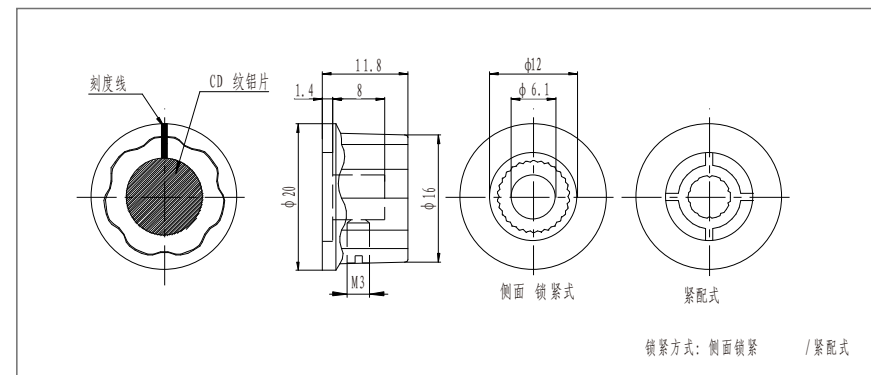
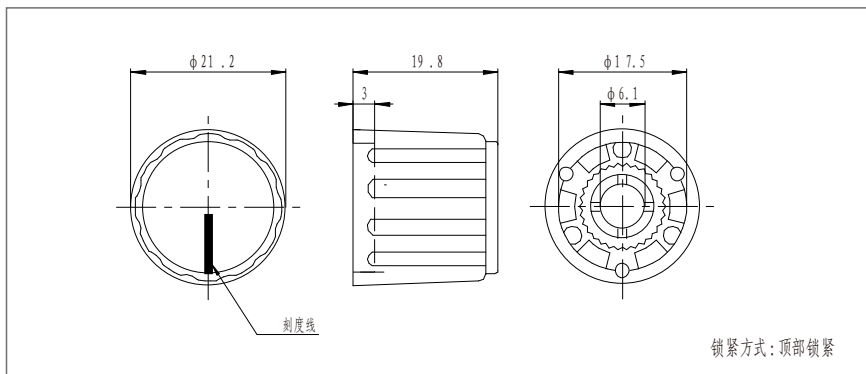
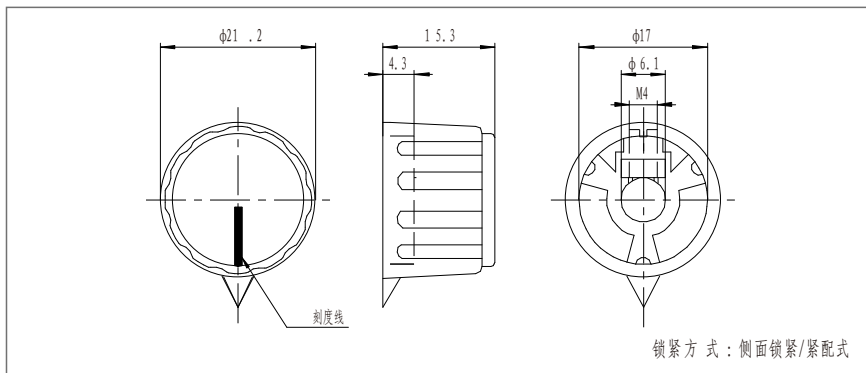
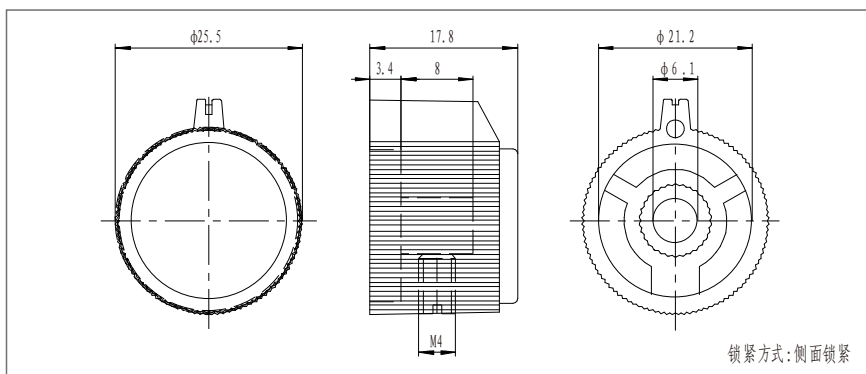
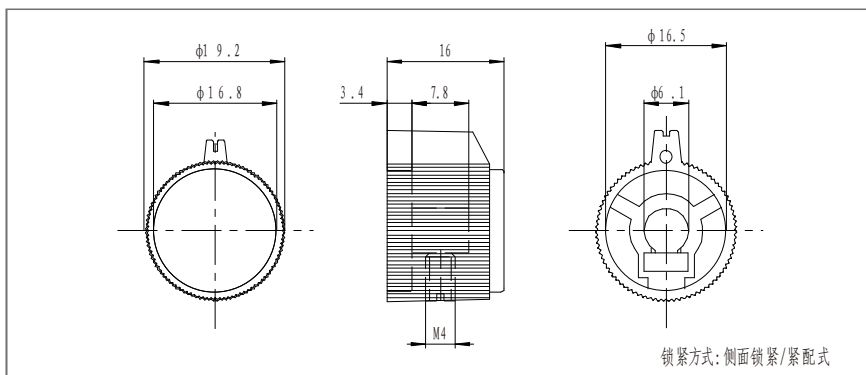
型号 Series	WH16	RV28S	RV30
总阻值 Total resistance	100Ω~5MΩ		
总阻误差 Total resistance tolerance	±20%		
阻值规律 Resistance taper	A B C		
残留阻值 Residual resistance	Less than 20Ω		
滑动噪音 Slide noise	Less than 100 mV		
最高使用电压 Max.operating voltage	AC : 500V		
额定功率 Rated power	0.2W	0.5W	

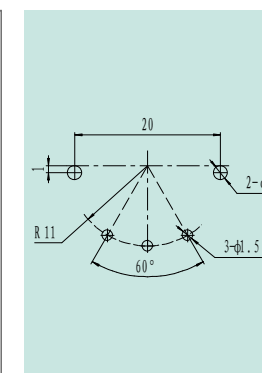
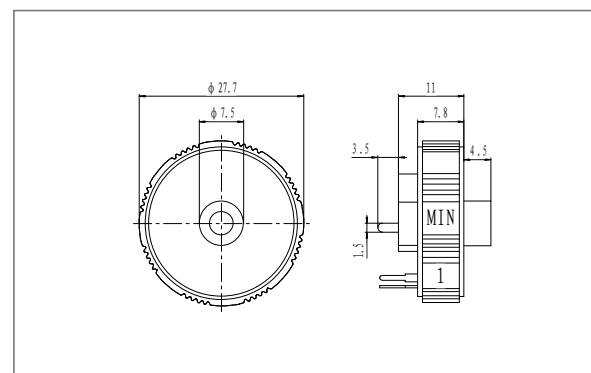
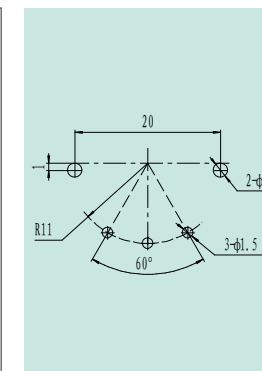
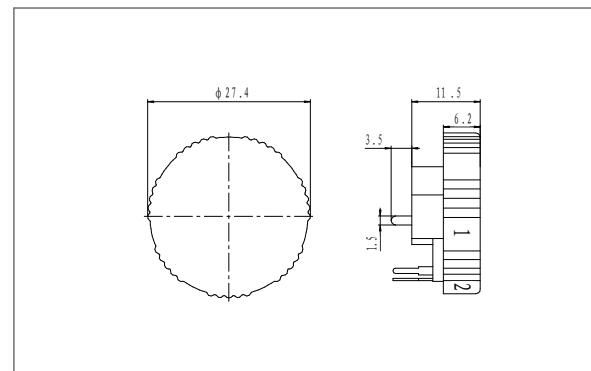
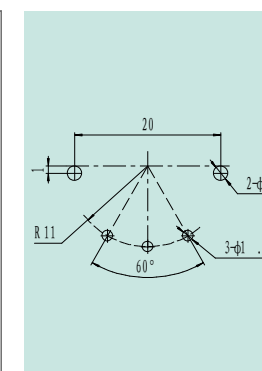
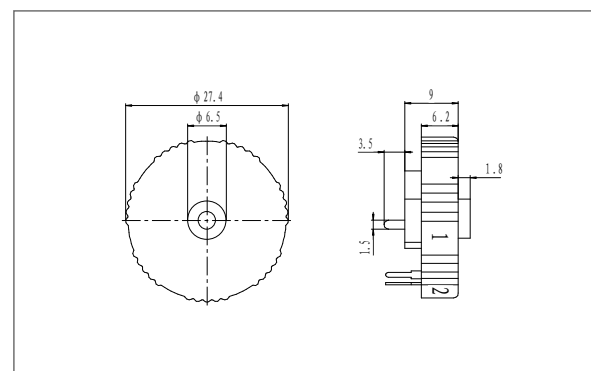
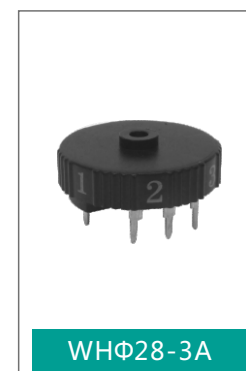
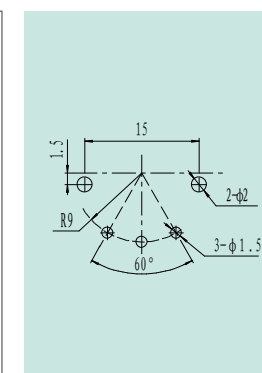
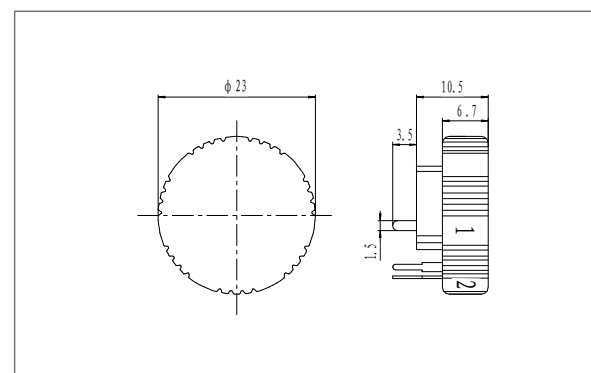
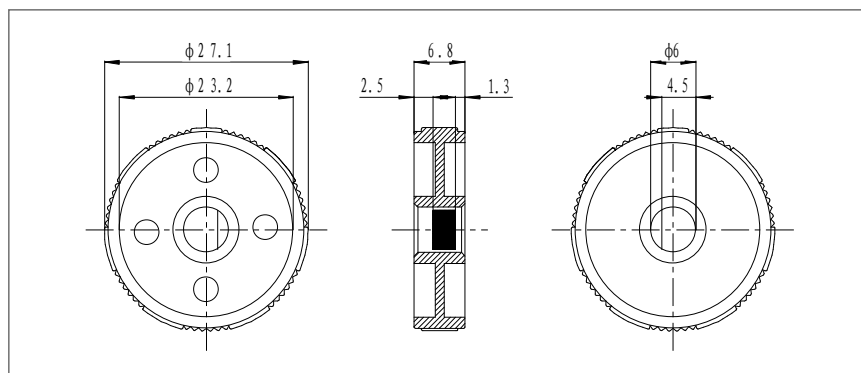
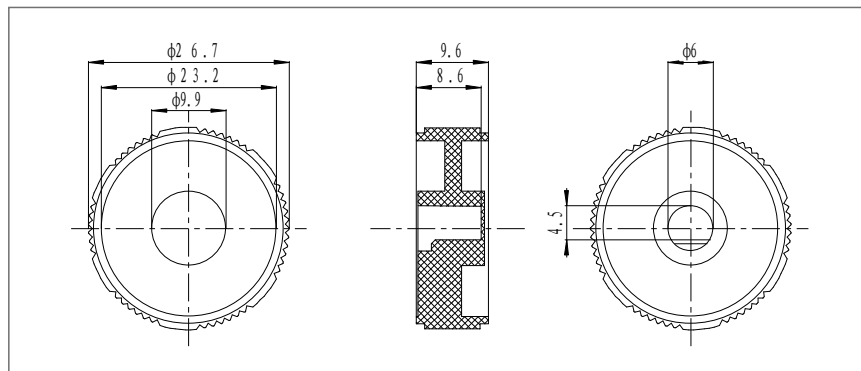
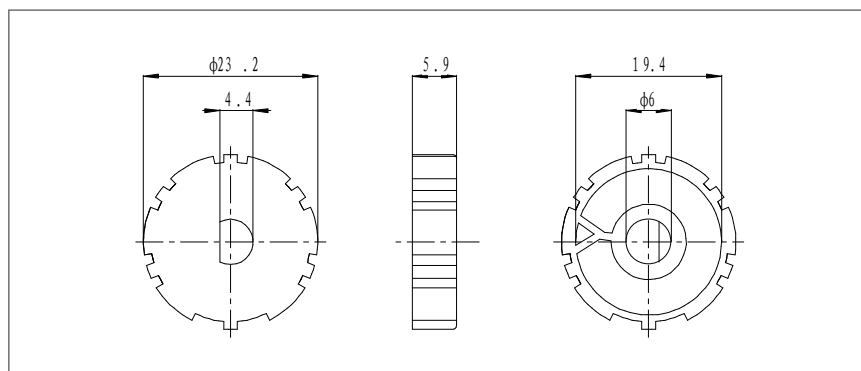
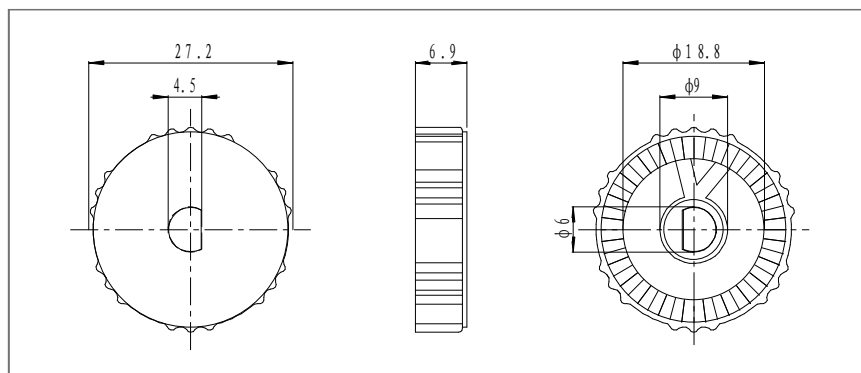
机械性能 Mechanical characteristics

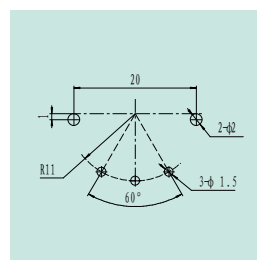
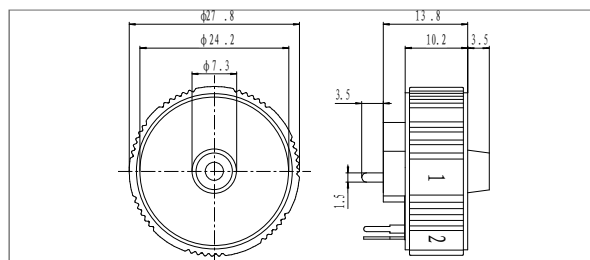
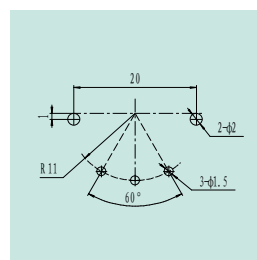
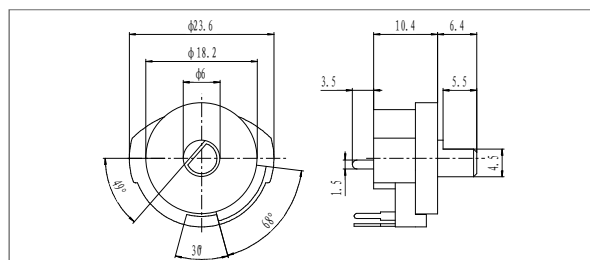
旋转角度 Total rotational angle	300°±5°	260°/300°±5°	260°±5°
旋转力矩 Rotational torque	50~200gf.cm		
止档强度 Rotation stopper strength	6Kgf.cm Min		
旋转寿命 Rotational life	10,000 Cycles		

命名方法示例 Example of naming method

RV28	G S	B	473	2020	20/3
系列	G=双联	线性	阻值代码	允许总阻偏差	轴形式
				0505 = ± 5%	16 /3
				1010 = ± 10%	20 /3
				0705 = +7%-5%	







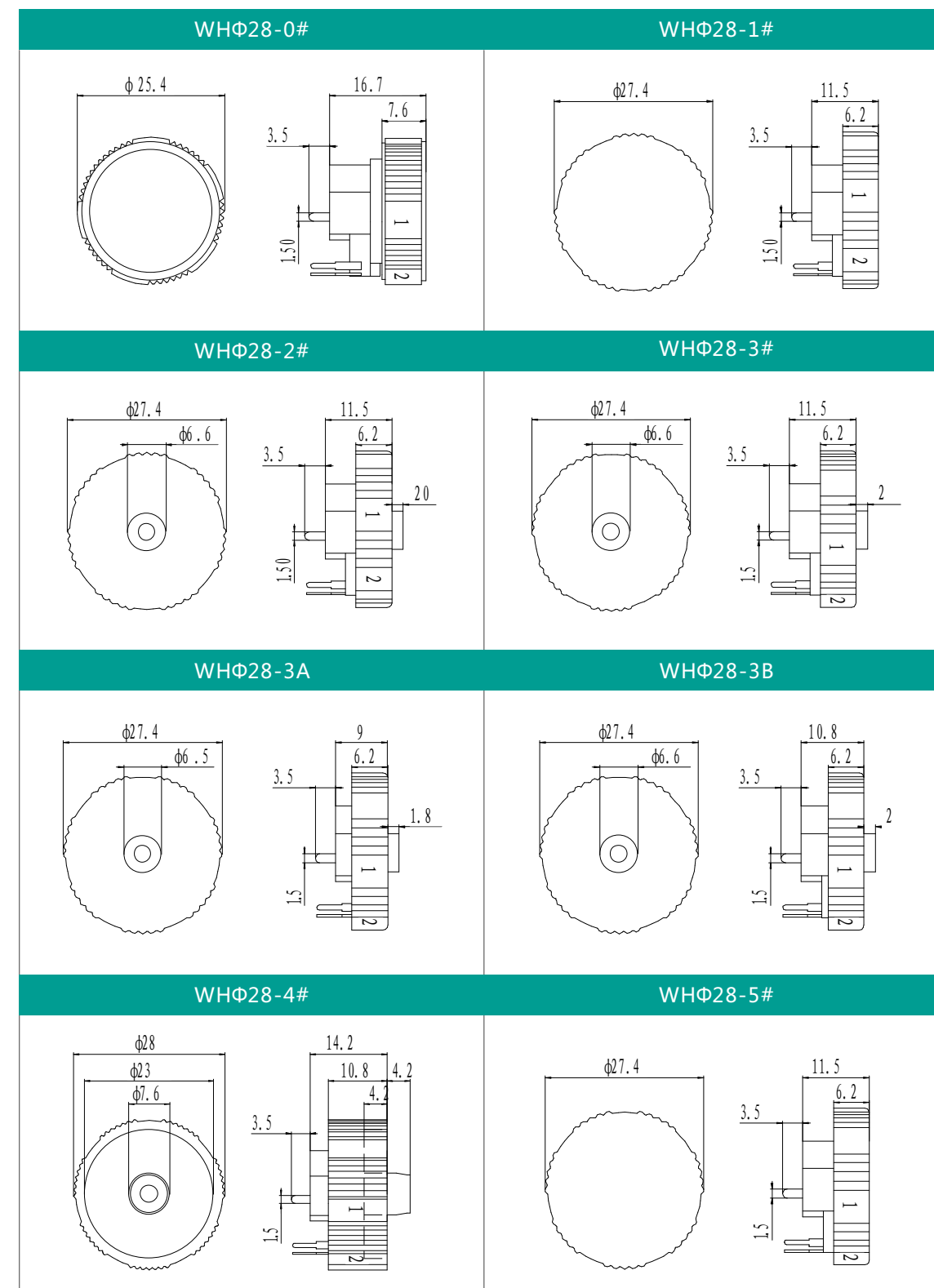
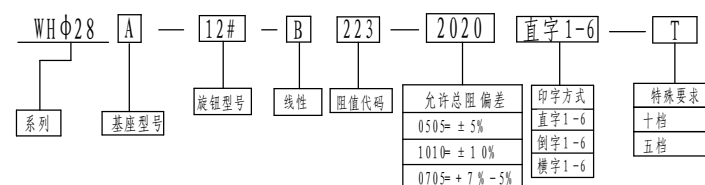
电气性能 Electrical characteristics

型号 Series	WHΦ22	WHΦ28
总阻值 Total resistance	500Ω~5MΩ	
总阻误差 Total resistance tolerance	±20%	
阻值规律 Resistance taper	A B C	
残留阻值 Residual resistance	Less than 20Ω	
滑动噪音 Slide noise	Less than 100 mV	
最高使用电压 Max.operating voltage	AC : 200V	
额定功率 Rated power	0.1W	
开关接触电阻 Switch contact resistance	Less than 50mΩ	
开关额定电流 Switch current rating	AC 250V 4A	

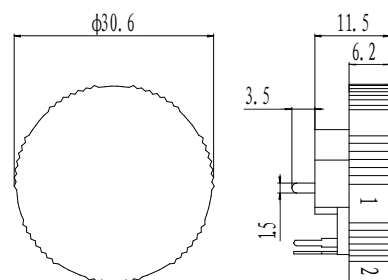
机械性能 Mechanical characteristics

旋转角度 Total rotational angle	265°±10°
旋转力矩 Rotational torque	20~500gf.cm
止档强度 Rotation stopper strength	3Kgf.cm Min
旋转寿命 Rotational life	10,000 Cycles

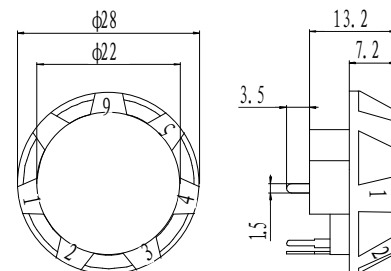
命名方法示例 Example of naming method



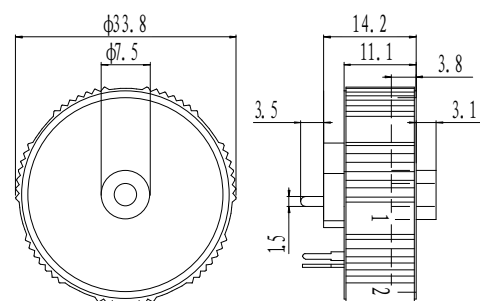
WHΦ28-6#



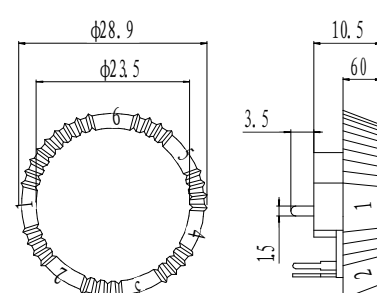
WHΦ28-7#



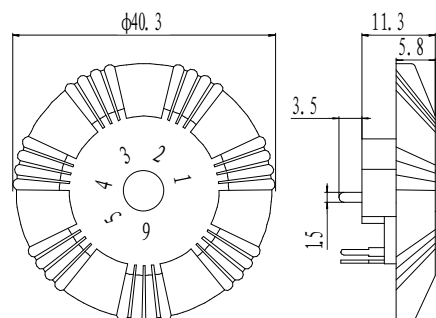
WHΦ28-8#



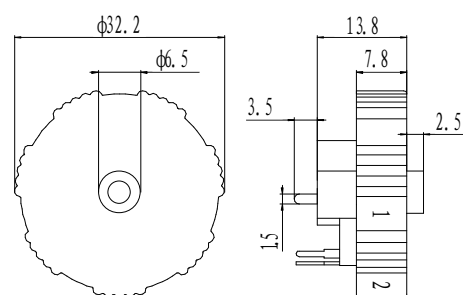
WHΦ28-9#



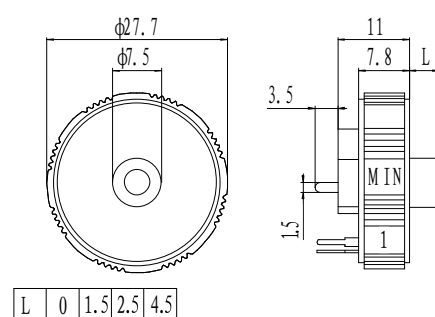
WHΦ28-11#



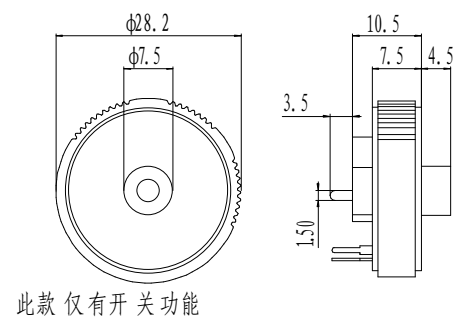
WHΦ28-12#



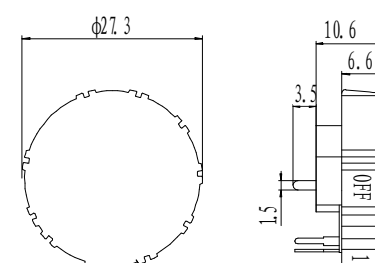
WHΦ28-13#



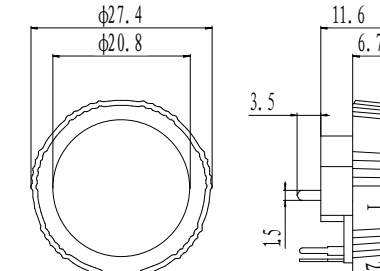
WHΦ28-13K



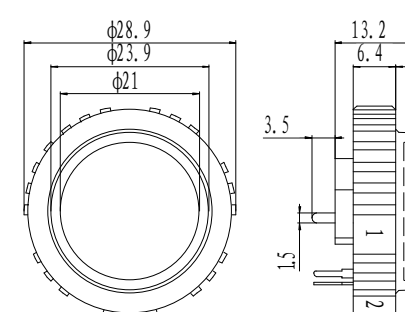
WHΦ28-14#



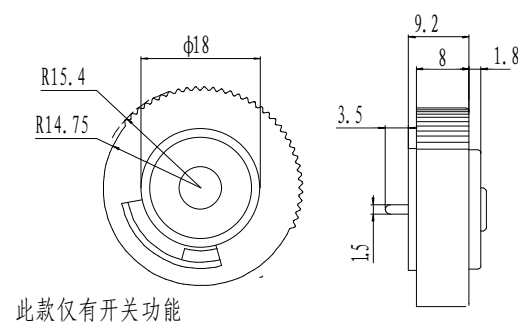
WHΦ28-15#



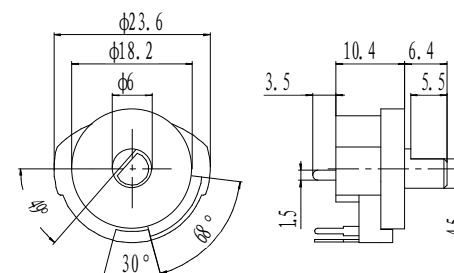
WHΦ28-16#



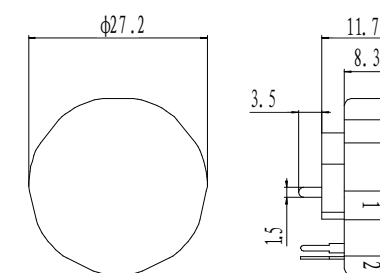
WHΦ28-17#



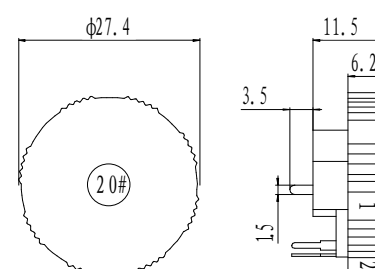
WHΦ28-17B



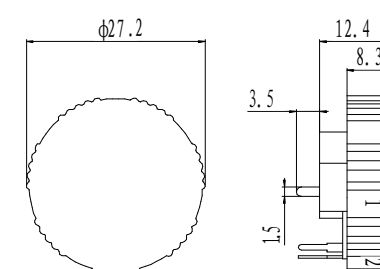
WHΦ28-18#



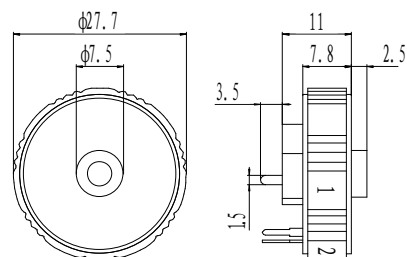
WHΦ28-20#



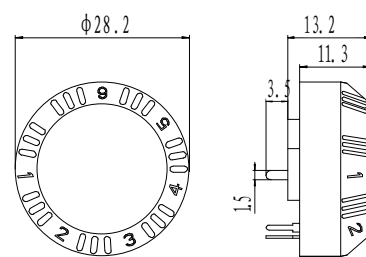
WHΦ28-21#



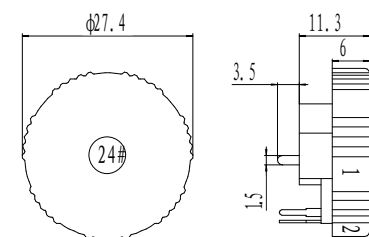
WHΦ28-22#



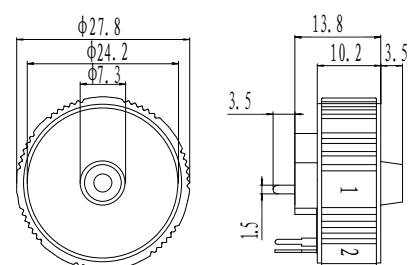
WHΦ28-23#



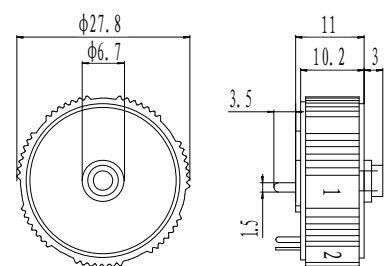
WHΦ28-24#



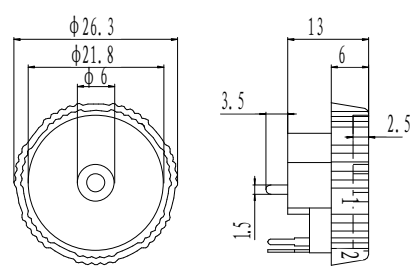
WHΦ28-25#



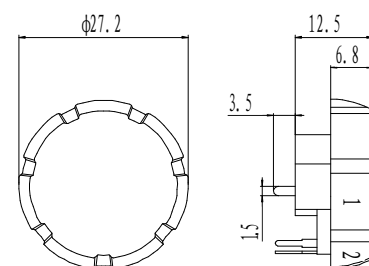
WHΦ28-25B



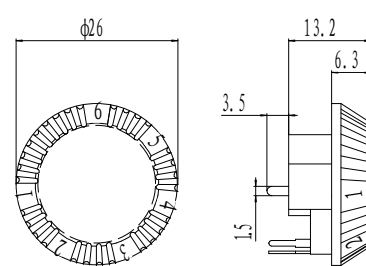
WHΦ28-26#



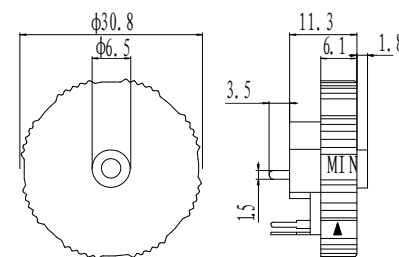
WHΦ28-27#



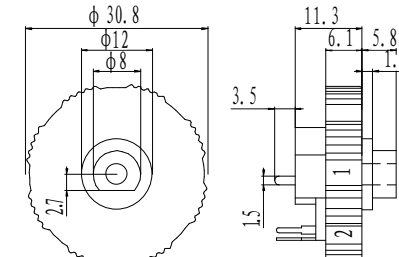
WHΦ28-28#



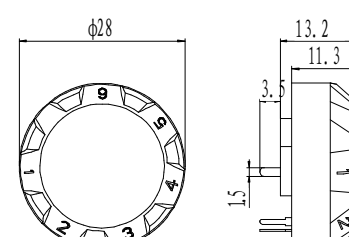
WHΦ28-29#



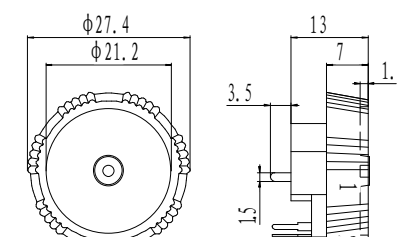
WHΦ28-30#



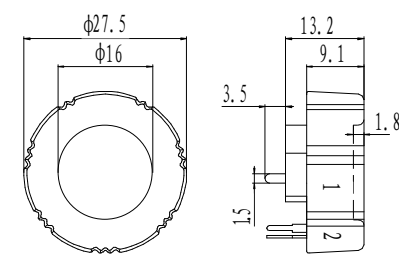
WHΦ28-31#



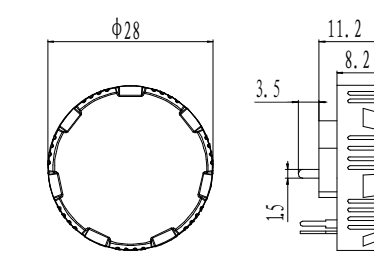
WHΦ28-32#



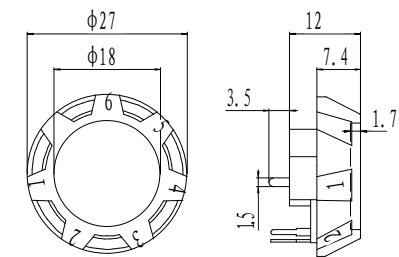
WHΦ28-33#



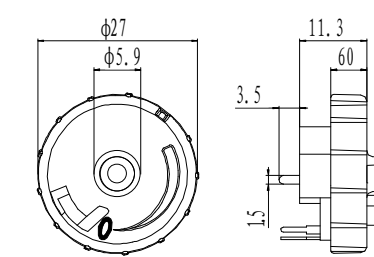
WHΦ28-34#



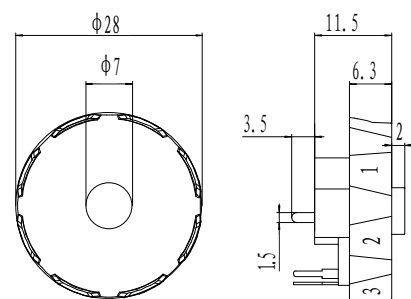
WHΦ28-35#



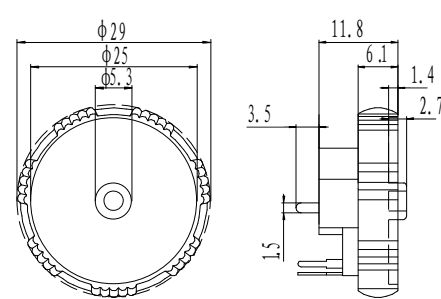
WHΦ28-37#



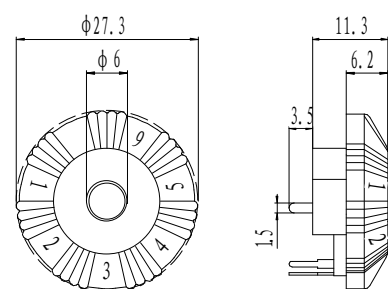
WHΦ28-38#



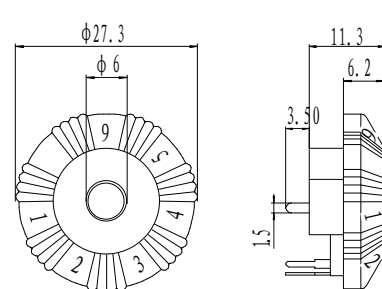
WHΦ28-39#



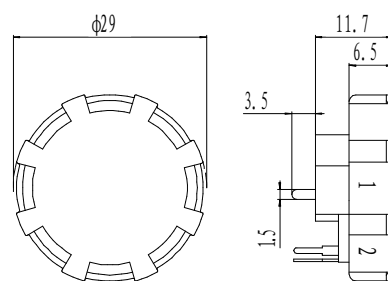
WHΦ28-52#



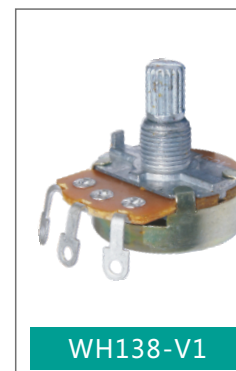
WHΦ28-52B



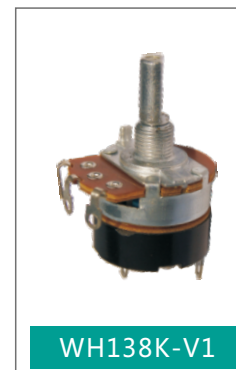
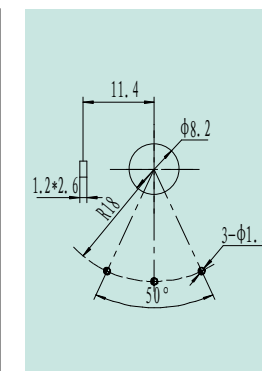
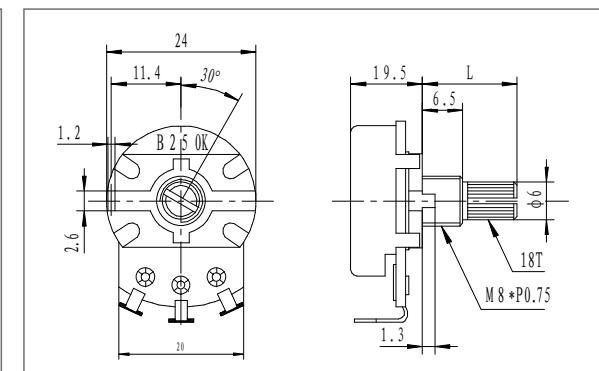
WHΦ28-77#



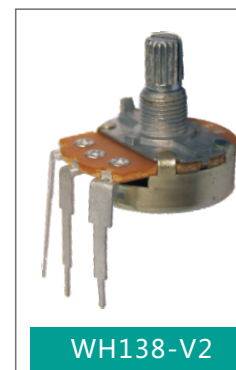
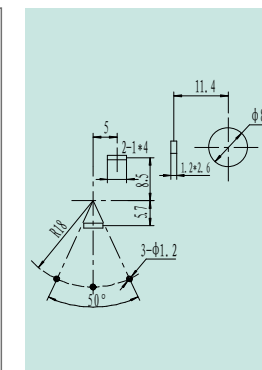
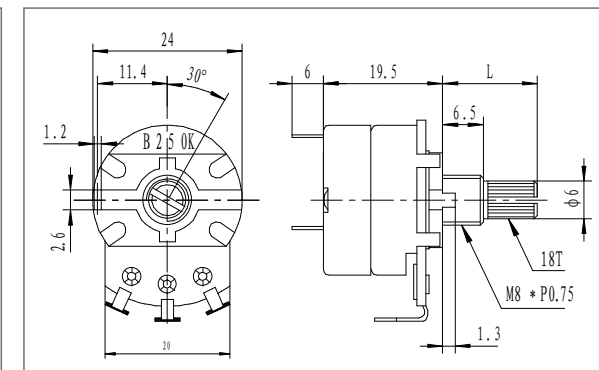
凸轮型号	普通凸轮	GG凸轮	十档凸轮	五档凸轮	全齿凸轮	导轮
凸轮样式						
凸轮作用	带开关功能 开关打开闭合响声1次	带开关功能（常闭） 开关打开闭合响声1次	带开关功能 旋转过程中共有10响	带开关功能 旋转过程中共有5响	无开关功能（常开） 旋转过程中共有11响	无开关功能（常开） 旋转过程中无响声



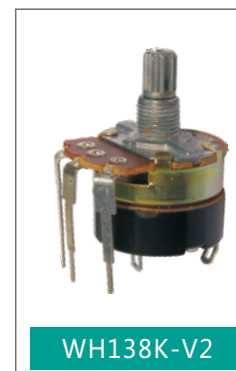
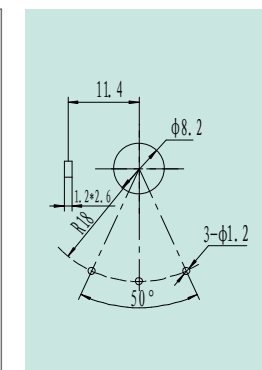
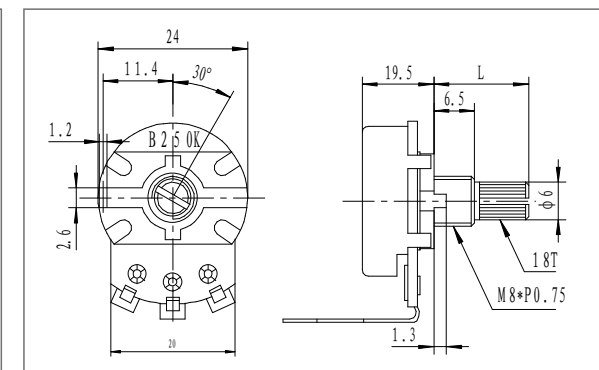
WH138-V1



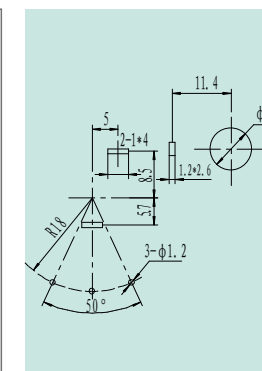
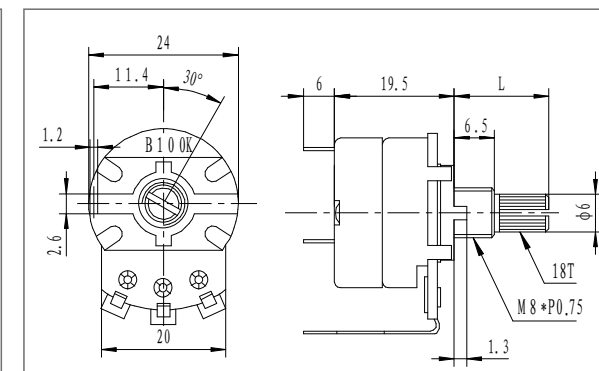
WH138K-V1



WH138-V2



WH138K-V2



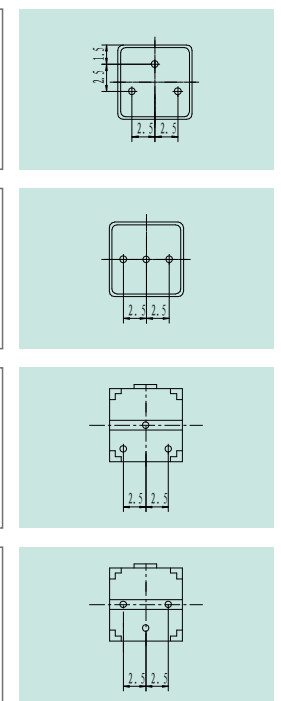
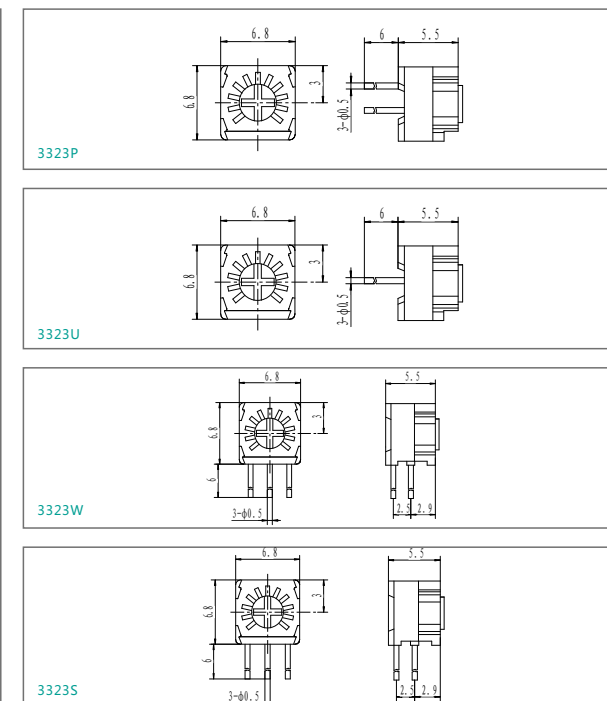
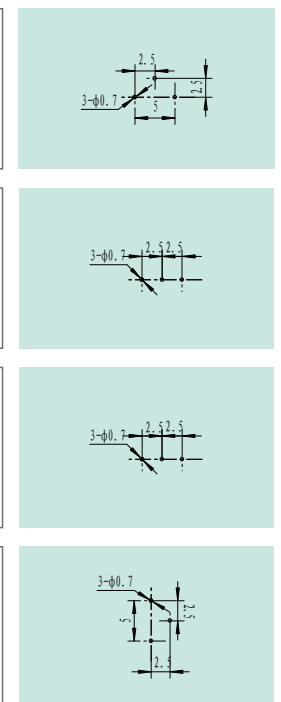
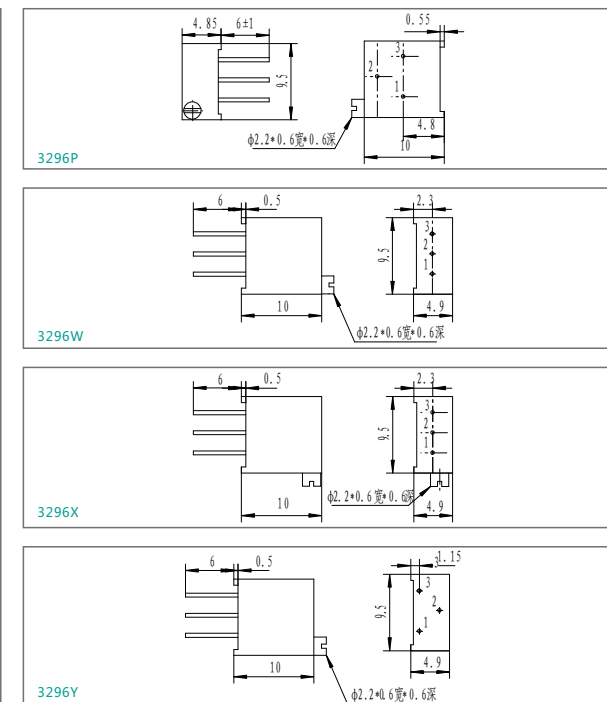
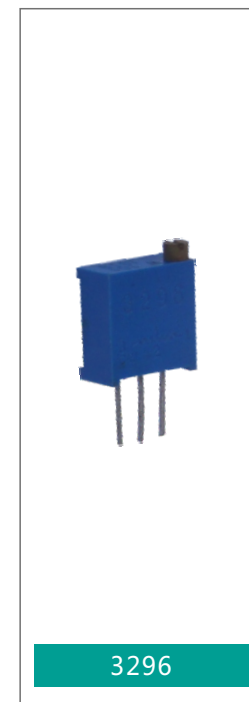
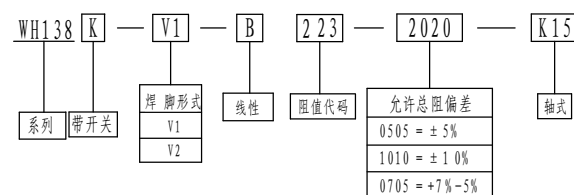
电气性能 Electrical characteristics

型号 Series	WH138
总阻值 Total resistance	500Ω~5MΩ
总阻误差 Total resistance tolerance	±20%
阻值规律 Resistance taper	A B C
残留阻值 Residual resistance	Less than 20Ω
滑动噪音 Slide noise	Less than 100 mV
最高使用电压 Max.operating voltage	AC : 500V
额定功率 Rated power	0.5W
开关接触电阻 Switch contact resistance	Less than 50mΩ
开关额定电流 Switch current rating	DC 125V 5A

机械性能 Mechanical characteristics

旋转角度 Total rotational angle	300°±10°
旋转力矩 Rotational torque	20~200gf.cm
止档强度 Rotation stopper strength	6Kgf.cm Min
旋转寿命 Rotational life	10,000 Cycles
开关动作角度 Switch working angel	50°±10°
开关操作力矩 Switch working torque	150~450gf.cm

命名方法示例 Example of naming method





电气性能 Electrical characteristics

型号 Series	3296	3323	3362	3386
总阻值 Total resistance	10Ω~5MΩ			
总阻误差 Total resistance tolerance	±10%			
残留阻值 Residual resistance	Less than 1%R OR 2Ω			
接触电阻变化 Contact Resistance Variation	Less than 1%R OR 3Ω			
绝缘电阻 Insulation resistance	More than 1GΩ (100V AC)			
有效电行程 Effective Electrical Travel	≥机械行程的 70%	200°±10°		250°±10°
耐电压 Withstand voltage	DC 640V	DC 500V		
额定功率(300V max)Rated power(70℃)	0.5W	0.5W	0.25W	0.5W

机械性能 Mechanical characteristics

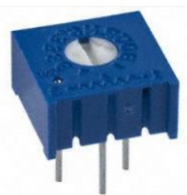
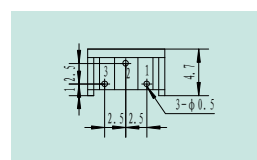
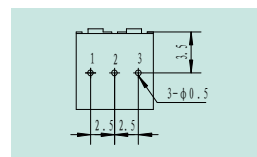
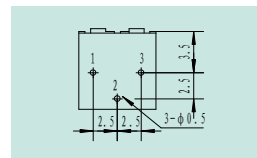
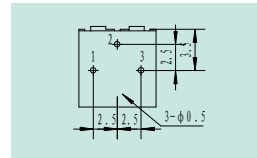
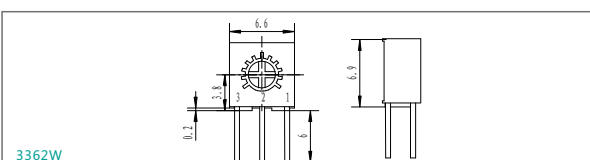
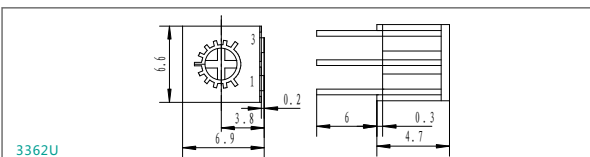
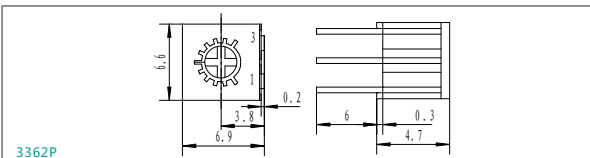
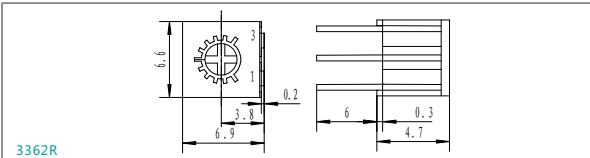
旋转角度 Total rotational angle	28 圈±2 圈	270°±10°	260°±10°	300°±10°
旋转力矩 Rotational torque	≤360gf.cm	≤ 200gf.cm		
止档强度 Rotation stopper strength	≥500gf.cm			

环境特性 Environment Characteristics

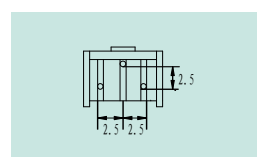
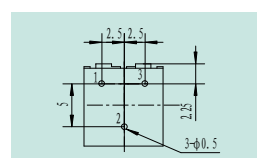
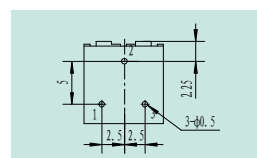
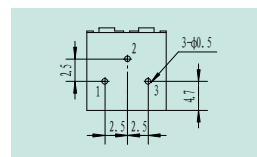
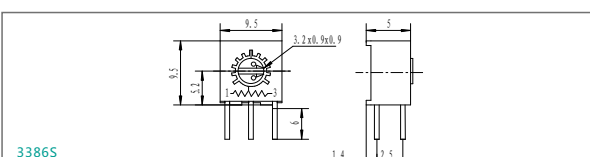
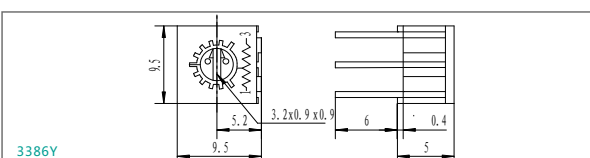
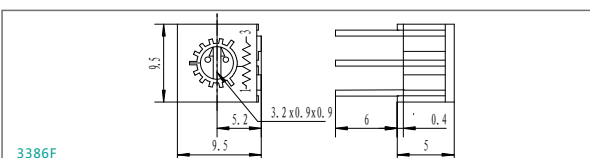
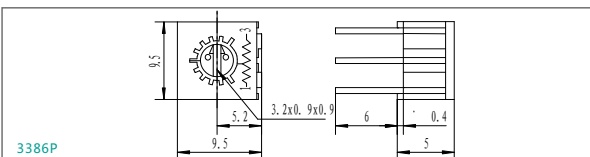
温度范围 Temperature range	-55℃--+125℃
温度系数 TCR	±250x10 ⁶ /℃
碰撞(390m/S ² 4000 次)Collision	ΔR≤±1%R
振动 (10-50HZ , 0.75mm.6h) Vibrition	ΔR≤±1%R ΔUab/Uac≤±2%R,电气间断≤100 μs
温度变化 (-55℃/30min,+125℃ /30min,5cycles) Temperature variation	ΔR≤±2%R ΔUab/Uac≤±2%R,
气候顺序 Clinate category(IEC68-2-2)	ΔR≤± (5%R+0.1Ω) ,绝缘电阻≥100MΩ
70℃电气耐久性 Electricalendurance(0.25W,1000h)	ΔR≤± (5%R+0.1Ω) ,CRV≤±3%R or 5Ω
机械耐久性(200cycles)Mechanical endurance	ΔR≤± (10%R+0.5Ω) ,CRV≤±3%R or 5Ω
稳态湿热(IEC68-2-3,Ca,96) hSteady damp heat	ΔR≤± (5%R+0.1Ω) , 绝缘电阻≥100MΩ

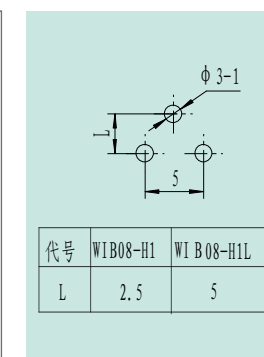
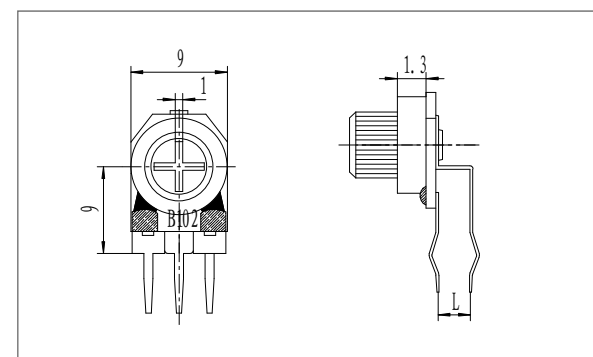
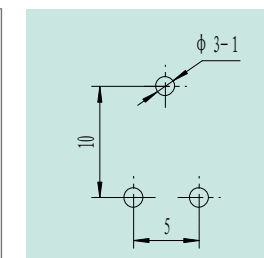
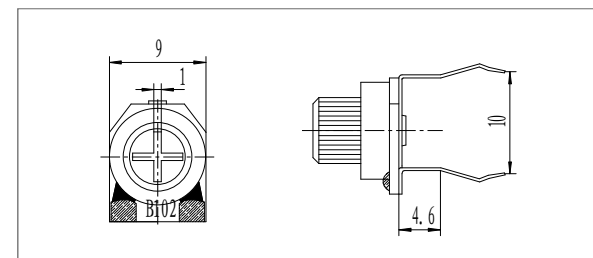
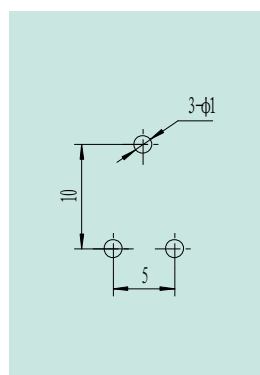
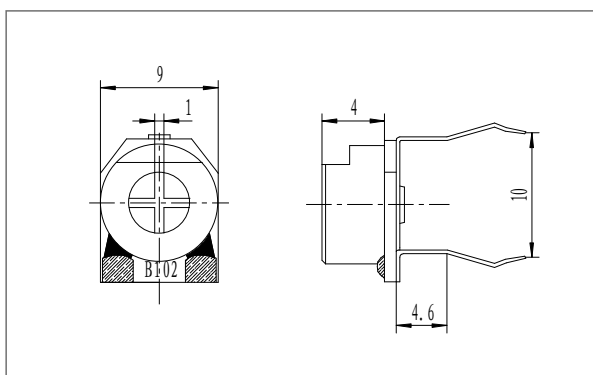
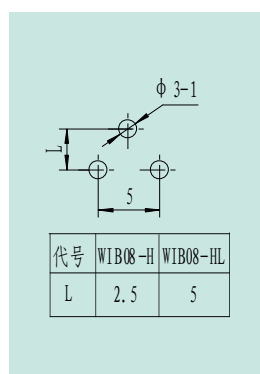
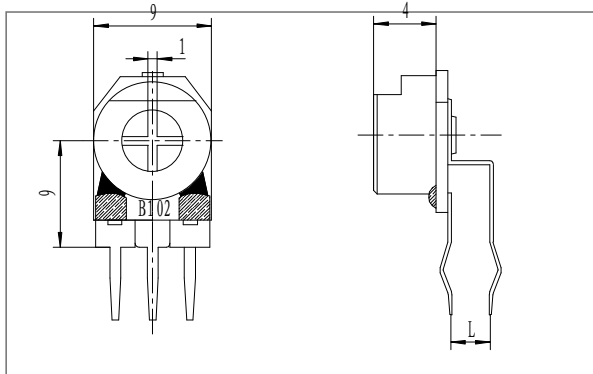
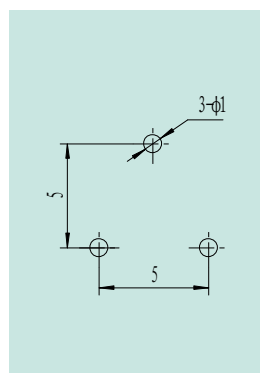
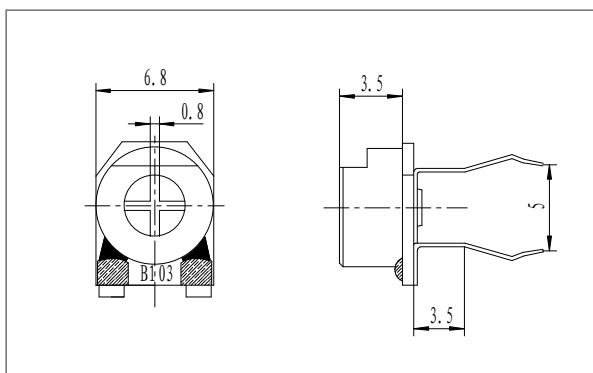
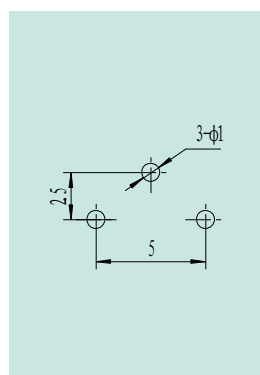
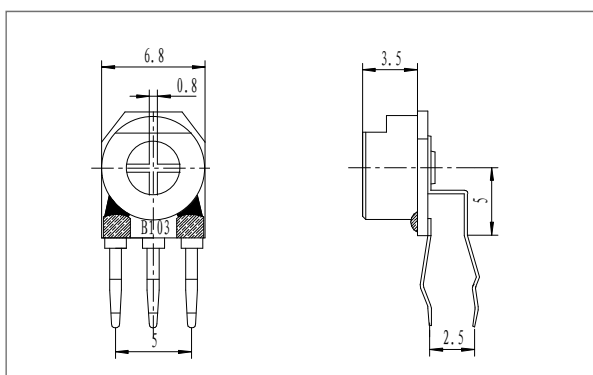


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电气性能 Electrical characteristics

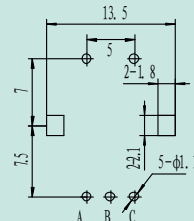
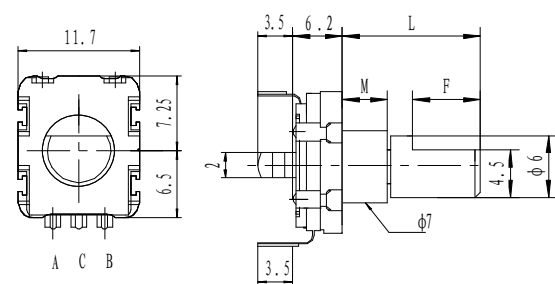
型号 Series	WIB06	WIB08
总阻值 Total resistance	100Ω~1MΩ	
总阻误差 Total resistance tolerance	±20%	
残留阻值 Residual resistance	Less than 20Ω	
滑动噪音 Slide noise	Less than 100 mV	
耐电压 Withstand voltage	DC : 100V	DC : 250V
额定功率 Rated power	0.3W	0.5W

机械性能 Mechanical characteristics

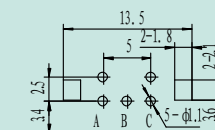
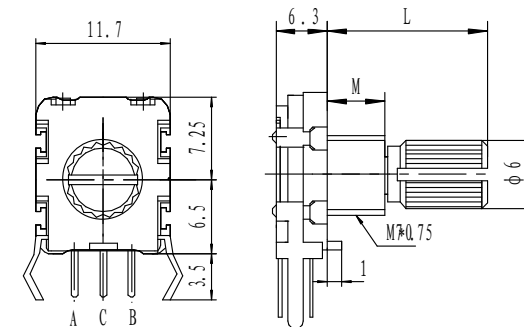
旋转角度 Total rotational angle	260°±10°
旋转力矩 Rotational torque	50~350gf.cm
止档强度 Rotation stopper strength	500gf.cm Min
旋转寿命 Rotational life	200 Cycles



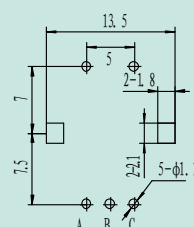
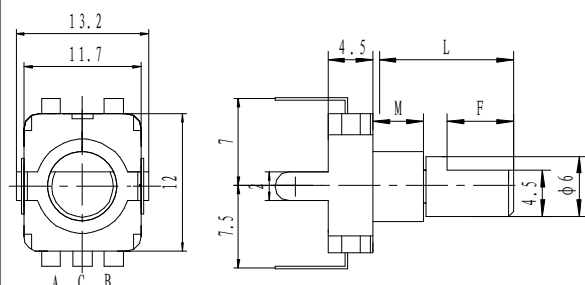
EC11K-V



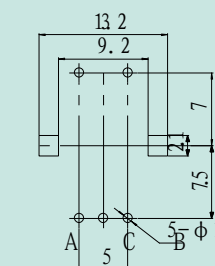
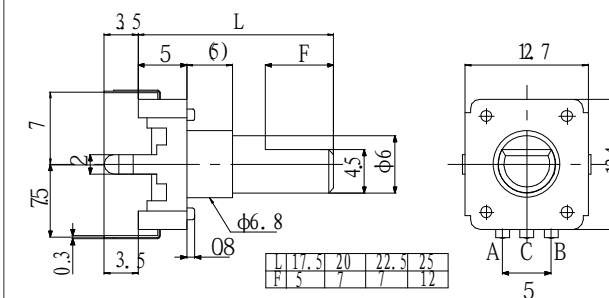
EC11K-H



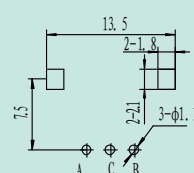
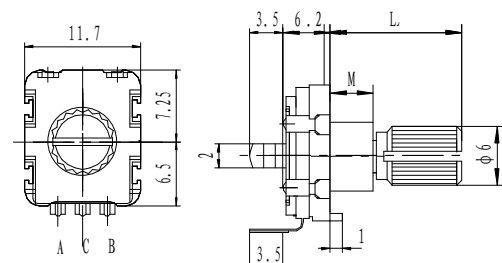
EC11K-VB



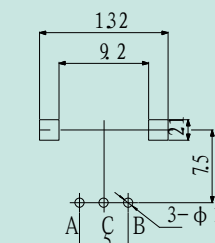
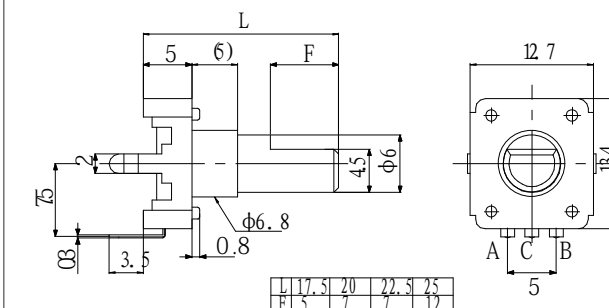
EC12K-V



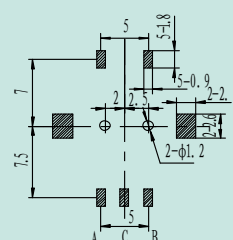
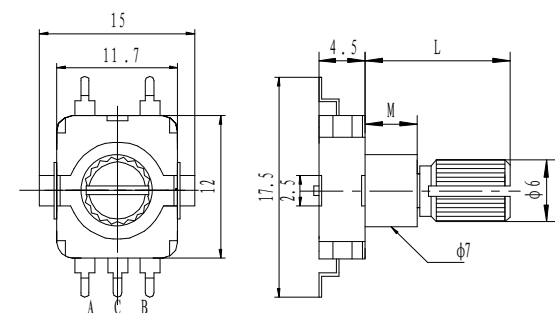
EC11-V



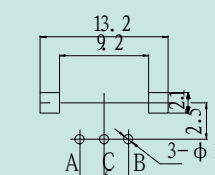
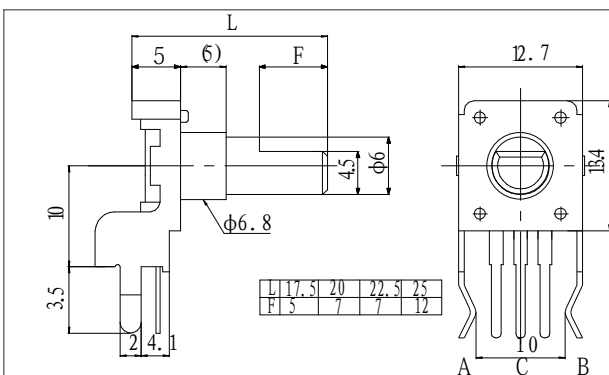
EC12-V



EC11K-HB

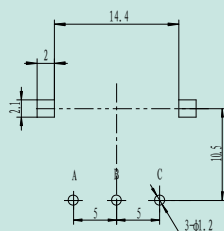
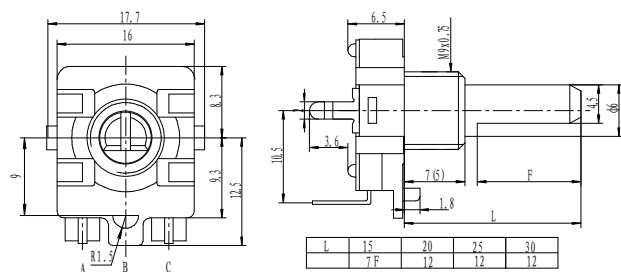


EC12-H

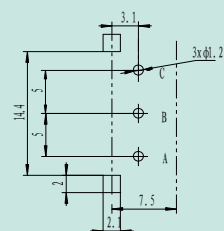
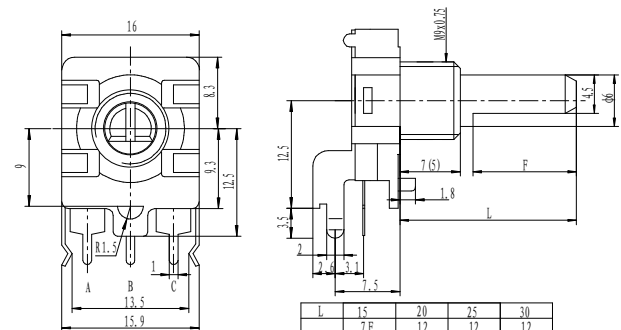




EC16-V



EC16-H



电气性能 Electrical characteristics

型号 Series	EC11	EC12	EC16
额定功率 Rated power	DC 5V 10mA		DC5V 5mA
振动 Oscillation	t1,t3≤2ms	t1,t3≤3ms	
滑动噪声(反弹)Sliding Nosie(Bounce)	T2≤2ms		
滑动噪音 Sliding Nosie	3.5V Min		
相位差Phase Difference	ΔT≥4ms		
耐电压 Withstand Voltage	1 minute at AC 300V	1 minute at AC 50V	
绝缘电阻 Insulation resistance	More than 100MΩ at DC 250V	More than 10MΩ at DC 50V	

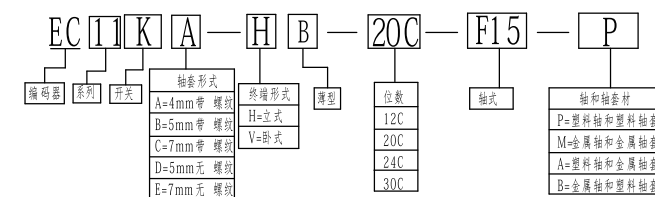
机械性能 Mechanical characteristics

旋转角度 Total rotational angle	Continuous		
旋转力矩 Rotational torque	100gf.cm~200gf.cm	10gf.cm~50gf.cm	50gf.cm~200gf.cm
数 量 和 位 置 定 位 Number and Position of Detent	20 Detents (Step Angle:18°±3°)	24 Detents (Step Angle:15°±3°)	
轴推拉强度 Push pull wtrengh	5Kgf Min		
旋转寿命 Rotational life	15,000 Cycles	30,000 Cycles	

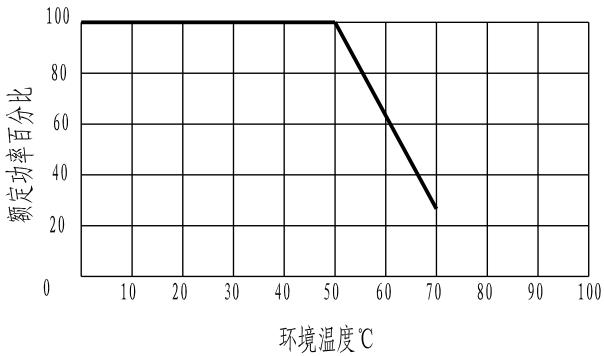
开关性能 Switch specifications

额定功率 Maximum Ratings	DC5V 10mA	
残留电阻 Contact Resistance	10m Ω MAX	
绝缘电阻Insulation resistance	More than 100M Ω at DC 250V	More than 10M Ω at DC 50V
耐电压 Withstand Voltage	1 minute at AC300V	1 minute at AC 60V
距离 Travel	0.5±0.3mm	
开关推力 Operating Force	200gf.cm~500gf.cm	
开关寿命 Operating Life	15,000 Cycles	

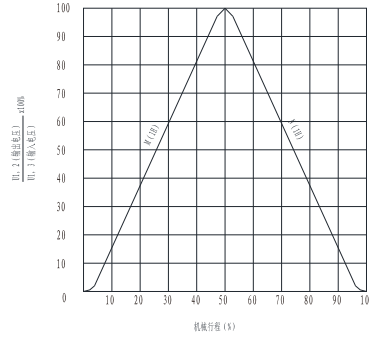
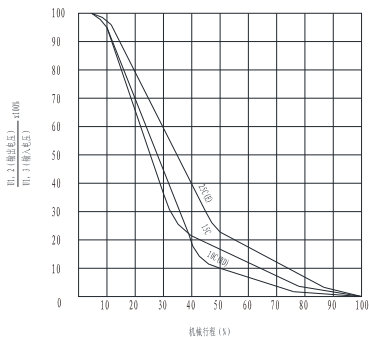
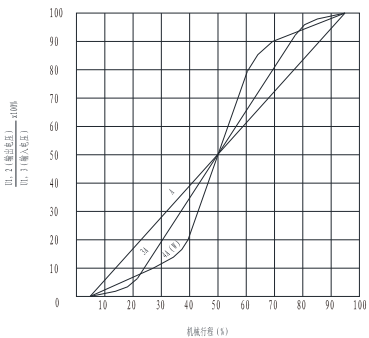
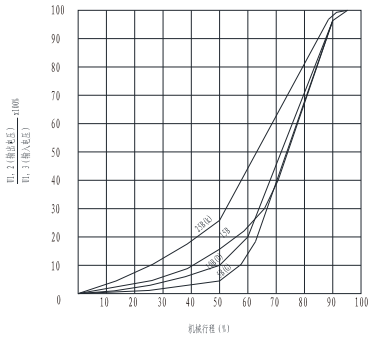
命名方法示例 Example of naming method



1、功率温度表
Power thermometer



2、电位器电阻特性曲线说明（IEC）
Potentiometer resistance characteristic curve illustrates



阻值代码换算
Resistance code conversion

标准对照表

标准地区 \ 种类	直线	指数	对数
IEC标准	A	B	C
JIS标准	B	A	C

