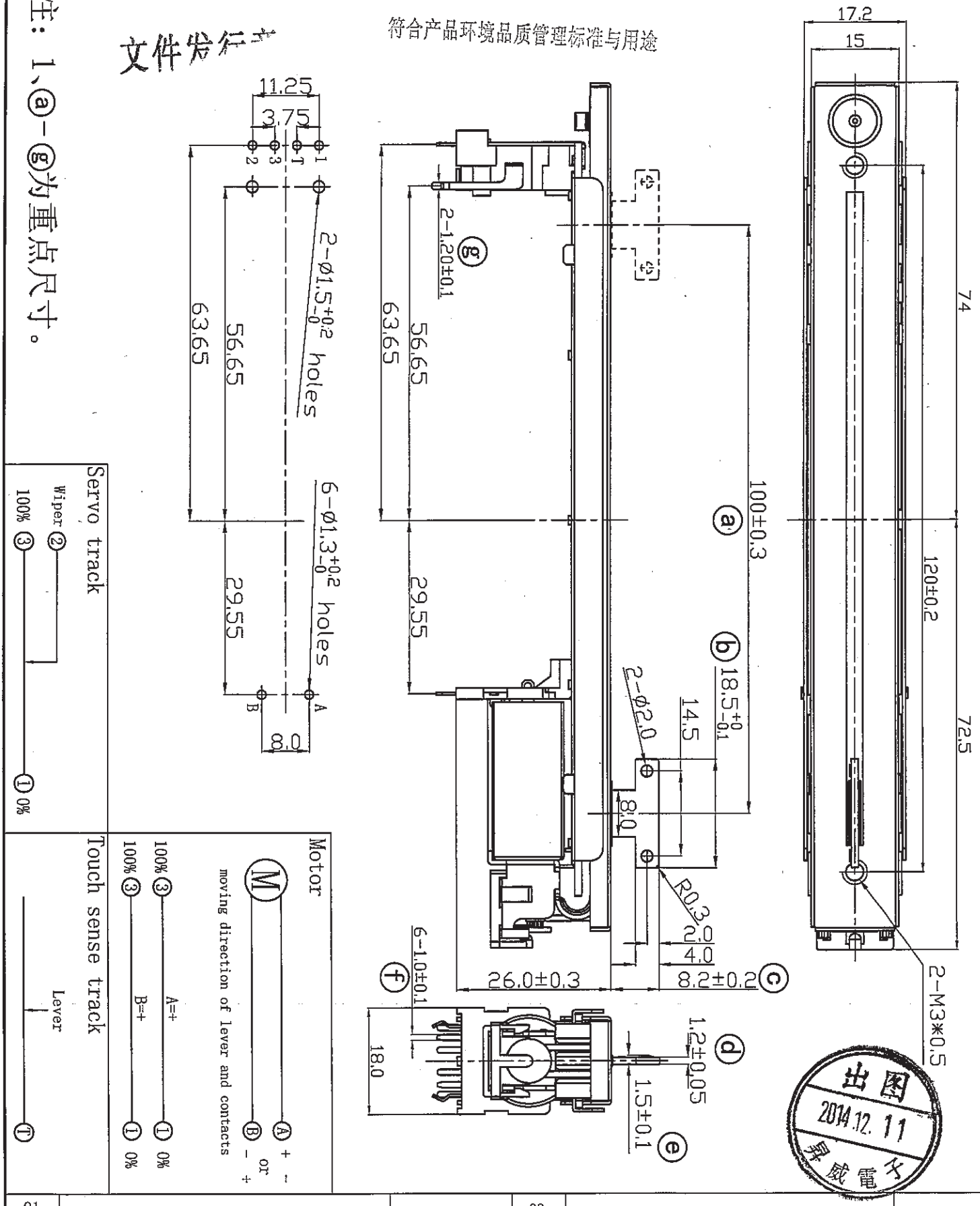
注：1、ⓐ-ⓖ为重点尺寸。

文件发行

符合产品环境品质管理标准与用途



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00	ORIGINAL DRAWING	2014-12-11	02		
. ISSU.	REVISION	DATE	. ISSU.		

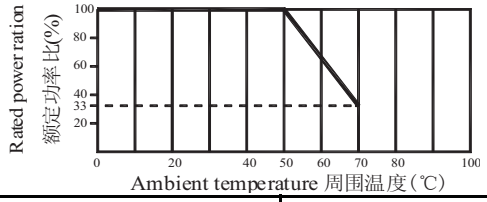
欧阳昌雄	SOUNDWELL 2014-12-11 HUNG KAM PIU	SOUNDWELL 2014-12-11 HUNG KAM PIU	TOL. UNLESS OTHERWISE SPEC.	SOUNDWELL®	SOUNDWELL ELECTRONICS
			BASIC DIMENSIONS / TOL.	TITLE:	马达直滑电位器
			L≦10 / ±0.3	MODEL:	SM10001NKA0X-HA1-M18A082
DSGD.	CHKD.	APPD.	10<L / ±0.5		
	SCALE		100≦L / ±0.8	DRAWING NO:	C-SMXXXX-0004 NO:
	UNIT	mm	ANGLE / ±5°		

SM SERIES GENERAL SPECIFICATION
SM系 列 规 格 书

1、GENERAL一般事项

1-1、Scope	适用范围
The specification applies to model SM type mainly used for consumer products	此规格书适用于SM机型
1-2、Operating temperature range	使用温度范围： -10℃~60℃
1-3、Storage temperature range	保存温度范围： -30℃~70℃
1-4、Test conditions:	试验状态
Standard atmospheric conditions:	标准状态
Unless otherwise specified,the standard range of atmospheric conditions for making measurements and test is as follows: Ambient temperature:5~35℃ Relative humidity:45~85% Air pressure:86kpa to 106kpa	无特别规定之实验及测定时以温度5~35℃，相对湿度45~85%，气压86~106kpa之标准状态测定。
If there is any doubt about the results,measurements shall be Made within the following limit: Ambient temperature:20±2℃ Relative humidity:60~70% Air pressure:86kpa to 106kpa	发生判定疑问或另有特别要求则以基准状态（温度20±2℃，相对湿度60~70%，气压 86~106kpa）为标准测定。

2 ELECTRICAL CHARACTERISTICS电气性能

Item 项 目	Conditions 条 件	Specifications 规 格
2-1、Nominal total resistance and tolerance 公称全阻抗值	The resistance between terminals 1 and 3 shall be measured 端子1-3间阻值测定。	10KΩ ±20%
2-2、Resistance law 阻抗变化特性	Measurement shall be made by the resistance law method. For other procedures(refer JISC5261 standard) 用电压法测试，参照JISC5261标准	B Taper线性 Refer to the attached 参见附页
2-3、Power rating 额定功率 （W）	Power rating is based on continuum full load operation at the maximum voltage between terminals 1 and 3 . Power rating vs.ambient temperature shall be denoted on the following graph. 端子1-3间连续负载后的最大功率。 环境温度对功率影响的曲线如下图表示： 	B Taper： 0.5W Other Taper：0.25W
2-4、 Rated voltage 额定电压	Rated voltage 额定电压：$E=\sqrt{PR}$ Max Operation Voltage 最高工作电压 AC	DC 10V AC 200V
	Power rating P: 额定功率 (W) Nominal total resistance R：公称全阻抗值 (Ω) When the rated voltage exceeds the maximum operating voltage. The maximum operating voltage shall be the rated voltage. 额定电压大于最高使用电压时,最高使用电压作为额定电压。	

文控编号： SM-001	编制时间：	SOUNDWELL® SOUNDWELL ELECTRONIC			
版本号：01	2014.7.4				
REVISION变更记事：	变更时间：				
重新整理	2014.11.18	DSGD.主 办 技术部 14-12-29 杨慧	CHKD.审 查 技术部 14-12-29 欧阳昌雄	APPD.核 准 技术部 14-12-29 苏朝晖	TITLE 标题： Master Type Potentiometer (Slide) 马达驱动电位器(直滑)

2 ELECTRICAL CHARACTERISTICS电气性能

Item 项 目	Conditions 条 件		Specifications 规 格
2-5、 Residual resistance 残留电阻	The resistance at the end of the (A).Resistance between terminals 1 and 2,and terminal 2 and 3 shall be measured. A: Travel of effective slide 接触刷停留在(A)终端位置,在端子1-2间,端子2-3间测定之电阻值. A:有效滑动行程		R1,2: ___/___Ω less R2,3: ___/___Ω less
2-6、 Slide noise 滑动噪音	Apply DC 20V between terminals 1-3 to measure the noise voltage . (rated voltage ≤20V .apply by rated voltage) 在端子1-3间加直流电压20V(额定电压≤20V,则以额定电压值测试)后,测定的杂音电压. Slide speed : 1 Cycles/3s 滑动速度: 1来回/3秒		68mVp-p Less than 68mVp-p 以下
2-7、 Insulation resistance 绝缘阻抗	Apply voltage of DC 250V and measure for 1 minute. DC 250V 1分钟	Between individual terminals and frame 端子-固定板	100MΩ or more 100MΩ 以上
2-8、 Dielectric strength 耐电压	Trip current:2mA Measuring frequency : 50~60Hz ; 250V AC for 1 min 电流: 2mA 频率: 50~60Hz AC 250V 1分钟	Between individual terminals and frame. 端子-固定板	Without arcing or breakdown. 不得有绝缘破坏。
2-9.Conductive resistance 导通阻抗	Touch sense track resistance (lever berween terminal (T)) 测量推柄与端子(T)脚间阻抗。		1 KΩ MAX. 1 KΩ 以下

3 Mechanical characteristics 机械性能

3-1、Total travel slide 全滑动行程	Travel fo effective slide. 有效滑动行程	☐ 60±0.5mm ☑ 100 ±0.5mm
3-2、Sliding force 滑动推力	Standard atmospheric conditions 常温5°C至35°C。 Traveling speed :20 mm/S 移动速度: 20 ㎜/秒。 Operating position:Tip of the lever 操作位置: 柄部顶端。	0.5±0.3N (50±30gf)
3-3、Starting force 起动力	Standard atmospheric conditions 常温5°C至35°C。 Traveling speed :20 mm/S 移动速度: 20 ㎜/秒。 Operating position:Tip of the lever 操作位置: 柄部顶端。	Sliding force + 1N MAX 滑动推力 + 1N 以下
3-4、Stop trength 止档强度	The following torsion moment load of 5Kgf shall be applied to the shaft for 10sec at both ends (after fixation) 固定后滑动到前后两端末加5Kgf拉力保持10秒	Electrical characteristics shall be satisfied with specification. 电气性能符合规定要求
3-5、Slide andle wlbble 滑柄偏摆量		1.6mm Max.
3-6、Terminal strength 端子强度	After fixed add 0.7kgf static force along to the terminal position and keep 10 s 固定后沿端子方向加 0.7kgf 静载荷力并保持10秒	Electrical characteristics shall be satisfied with specification. 电气性能符合规定要求

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3 Mechanical characteristics 机械性能		
Item **项 目**	**Conditions** **条 件**	**Specifications** **规 格**
3-7、Handle press force 推柄按压力	Push pull static load of 5Kgf shall be applied to the handle in perpendicular to axial directions for 10 s(After fixation) 固定后在与推柄垂直的端面方向加5Kgf静载荷并保持10秒。	Electrical characteristics shall be satisfied with specification. 电气性能符合规定要求
4 ENDURANCE CHARACTERISTICS耐久性能		
4-1、Solder ability 焊锡性	The terminals shall be immersed into solder bath at 260±5°C for 3±0.5s in the same manner as para. 端子在260±5°C温度的焊锡槽内浸锡3±0.5秒。	A new uniform coating of solder shall cover 75% minimum of the surface being immersed. 浸渍面须有75%以上焊锡付着
4-2、 Resistance to soldering heat 焊锡耐热性	☐ Manual soldering手工焊接 Bit temperature of soldering iron： 350°C less than Application time of soldering iron： within 3 s. 温度350°C以下，时间3秒以内。 ☐ Dip soldering槽焊 1. Printed wiring board : single-sided copper clad laminate board with thickness of 1.6mm; 使用基板：t=1. 6㎜的单面覆铜板。 2. Solder flux:Flux of 0.82 specific weight in bubbing type,solder flux coating apparatus shall be used and bubling surface height shall be defined substantially as half thickness of substrate,Flux shall not flow up on substrate surface; 助焊剂：使用发泡式比重0.82以上的焊剂，发泡面高大致在基板厚度一半的位置，而且助焊剂不可流入基板表面上。 3. Preheating : Surface temperature of board: 100°C or less; Preheating time : within 2 min. 预热：基板表面温度100°C以下，时间2分钟以内。 4. Soldering : Solder temperature : 260℃±5℃ less Immersion time:within 5±1 s 焊接：温度260℃±5℃，时间5±1 s。 Apply the above soldering process for 1 or 2 times. 以上工程适用1至2次。	Electrical characteristics shall be satisfied No mechanical abnormality. 不得有绝缘体的破损、变形、接触无异常。
4-3、Resistance to heat 耐热性	The potentiometer shall be stored at a temperature of 70±2°C for 240±8h in a thermostatic chamber.Then the potentiometer shall be measured after maintaining at standard atmospheric conditions for 1h . 温度70±2°C恒温槽中240±8小时放置后,置于常温常湿1小时除去水滴后测定。	Change in total resistance is relative to the value before test : ±20% 总阻变化值：初期值的±20%

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		技术部 14-12-29 杨慧	技术部 14-12-29 欧阳昌雄	技术部 14-12-29 苏朝晖	Master Type Potentiometer (Slide) 马达驱动电位器(直滑)

4 ENDURANCE CHARACTERISTICS耐久性能

Item 项 目	Conditions 条 件	Specifications 规 格
4-4、Resistance to cold 耐寒性	The potentiometer shall be stored at a temperature of -25±3°C for 96±4h in a thermostatic chamber.Then the potentiometer shall be taken out of the chamber and its surface moisture shall be removed. And measure the potentiometer which shall be subjected to standard atmospheric conditions for 1h . 温度-25±3°C恒温槽中96±4小时放置后，置于常温常湿1小时除去水滴后, 1小时内测定。	Change in total resistance is relative to the value before test : ±20% 总阻变化值：初期值的±20%
4-5、Damp heat 耐湿性	The potentiometer shall be stored at a temperature of 40±2°C, with relative humidity of 90% to 95% for 96±4h in a thermostatic chamber. Then the potentiometer shall be taken out of the chamber and its surface moisture shall be removed.and measure the potentiometer which shall be subjected to standard atmospheric conditions for 1h. 温度40±2°C,湿度90-95%,恒温恒湿槽中放置96±4小时后, 置于常温常湿1小时除去水滴后,1小时内测定。	Change in total resistance is relative to the value before test : +35~-5% 总阻变化值:初期值的+35~−5% Insulation resistance：50MΩ or more 绝缘阻抗:50MΩ 以上 Noise:150mV p-p less than 转动噪音:150mV p-p 以下
4-6、 Change of temperature 温度循环试验	The potentiometer shall be subjected to 5 successive change of temperature cycles as shown in table below. Then is surface moisture shall be removed.And measure the potentiometer which shall be subjected to standard atmospheric conditions for 1hour . 以下条件温度连续5个周期的试验后,置于常温常湿1小时除去水滴后,1小时内测定。	Change in total resistance is relative to the value before test : ±20% 总阻变化值：初期值的±20% Slide noise:150mVp-p less than 滑动噪音： 150mVp-p 以下 Sliding force ： 0.1-1N（10-100gf） 滑动推力：0.1-1N（10-100gf）

	Temperature 温度	Duration 放置时间
1	-10±3°C	30 min (分)
2	standard atmospheric conditions 常温	10 to 15 min
3	70±2°C	30 min (分)
4	standard atmospheric conditions 常温	10 to 15 min(分)

4-7、Endurance 耐久性	The moving contact without electrical load shall be slide from one end stop to the other and returned to its original position exceeds 90% of effective angle.This procedure constitutes 1 cycle. And the moving contact shall be subjected to 600 cycles per hour. total 30,000±200 cycles.(5000 to 8000continuous cycles for 24h). 在无负载的条件下，推柄以600周/小时(来回算1周)的速度推动,24小时推动5000~8000周, 有效滑动行程超过90%,共30,000±200周.	Change in total resistance is relative to the value before test : ±15% 总阻变化值：规格值范围的±15% Slide noise:150mVp-p less than 滑动噪音： 150mVp-p 以下 Sliding force ： 0.1-1N（10-100gf） 滑动推力：0.1-1N（10-100gf）

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5 Motor drive characteristics 马达驱动时性能

Item 项 目	Conditions 条 件	Specifications 规 格
5-1、Rated voltage 额定电压	Between terminals of the motor 马达端子间	10 V D.C.
5-2、Operating supply votage range 使用电压范围	Voltage supply ripple: 0.3%or less 电压波动：0.3%以下	6 -11 V D.C.
5-3、Starting current 起动电流	Supply voltage 10 V D.C. 加电压10 V D.C.	800 mA or less 800 mA以下
5-4、Starting force 起动滑动推力	Supply voltage 10 V D.C. It shall be measured at the top or lever 加电压10 V D.C.，测量位置为柄部顶端	0.2N（20gf）or more 0.2N（20gf) 以上
5-5、Moving speed of lever 推柄移动速度	Supply voltage 10 V D.C. 加电压10 V D.C.	20 mm /0.1 ses or more 20 mm /0.1 秒以上
5-6、Maximum current 推柄固定时电流	Lock the shaft the motor and the rated vol-rage shall be applied to the motor. 推柄固定后加额定电压测试	400 - 800 mA

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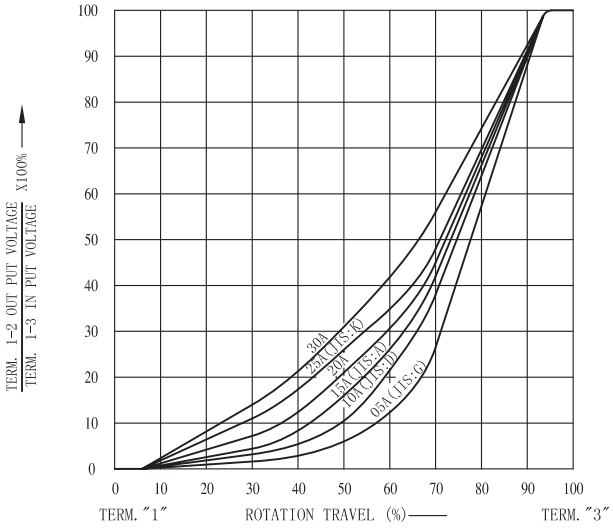
STANDARD RESISTANCE TAPER (電位器專用)

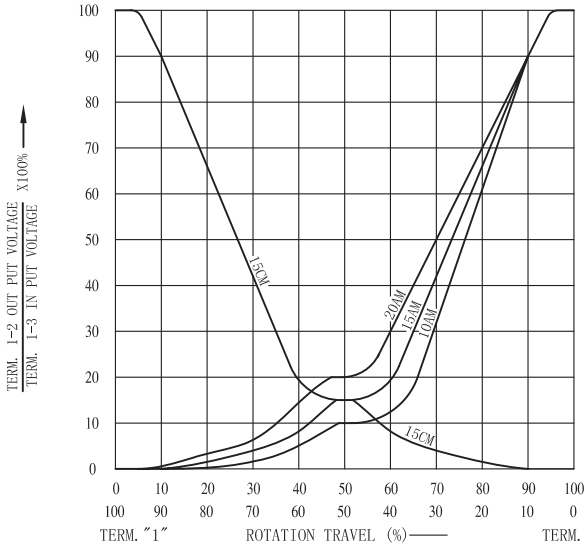
Rotary, Slide, Equalizer & Trimmer (Only be applicable to potentiometer)

TAPERS (A) SERIES



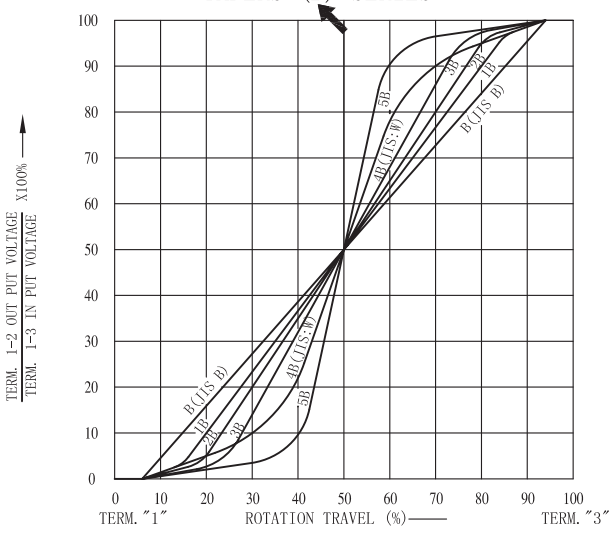
☐ 05A	☐ 10A	☐ 15A
☐ 20A	☐ 25A	☐ 30A

TAPERS (A&C) WITH 50% TAP



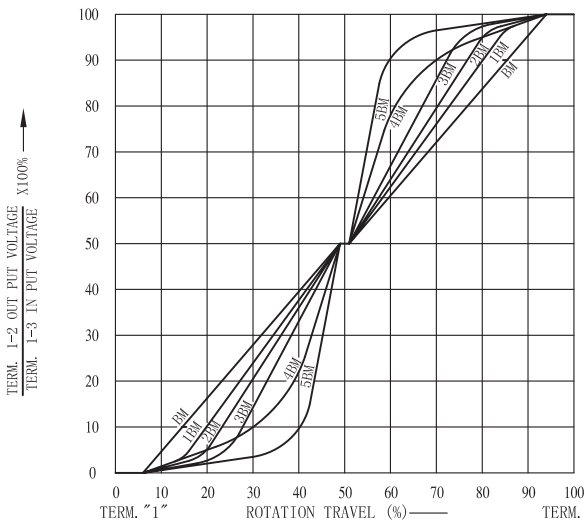
☐ 15CM	☐ 10AM	☐ 15AM	☐ 20AM

TAPERS (B) SERIES



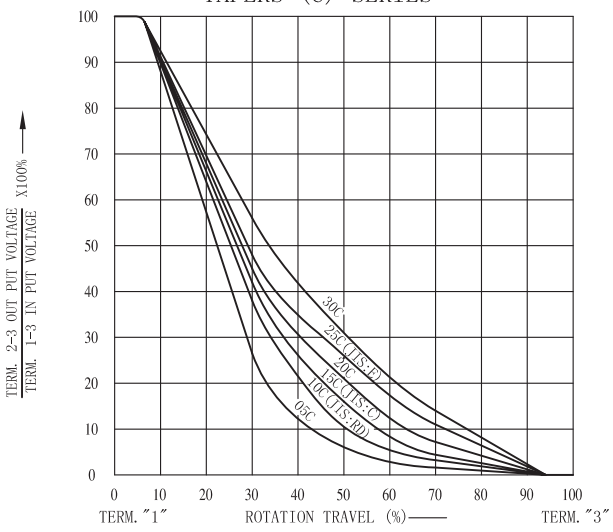
☐ 0B	☐ 1B	☐ 2B
☐ 3B	☐ 4B	☐ 5B

TAPERS (B) WITH 50% TAP



☐ 0BM	☐ 1BM	☐ 2BM
☐ 3BM	☐ 4BM	☐ 5BM

TAPERS (C) SERIES



☐ 05C	☐ 10C	☐ 15C
☐ 20C	☐ 25C	☐ 30C

TAPERS (M & N)