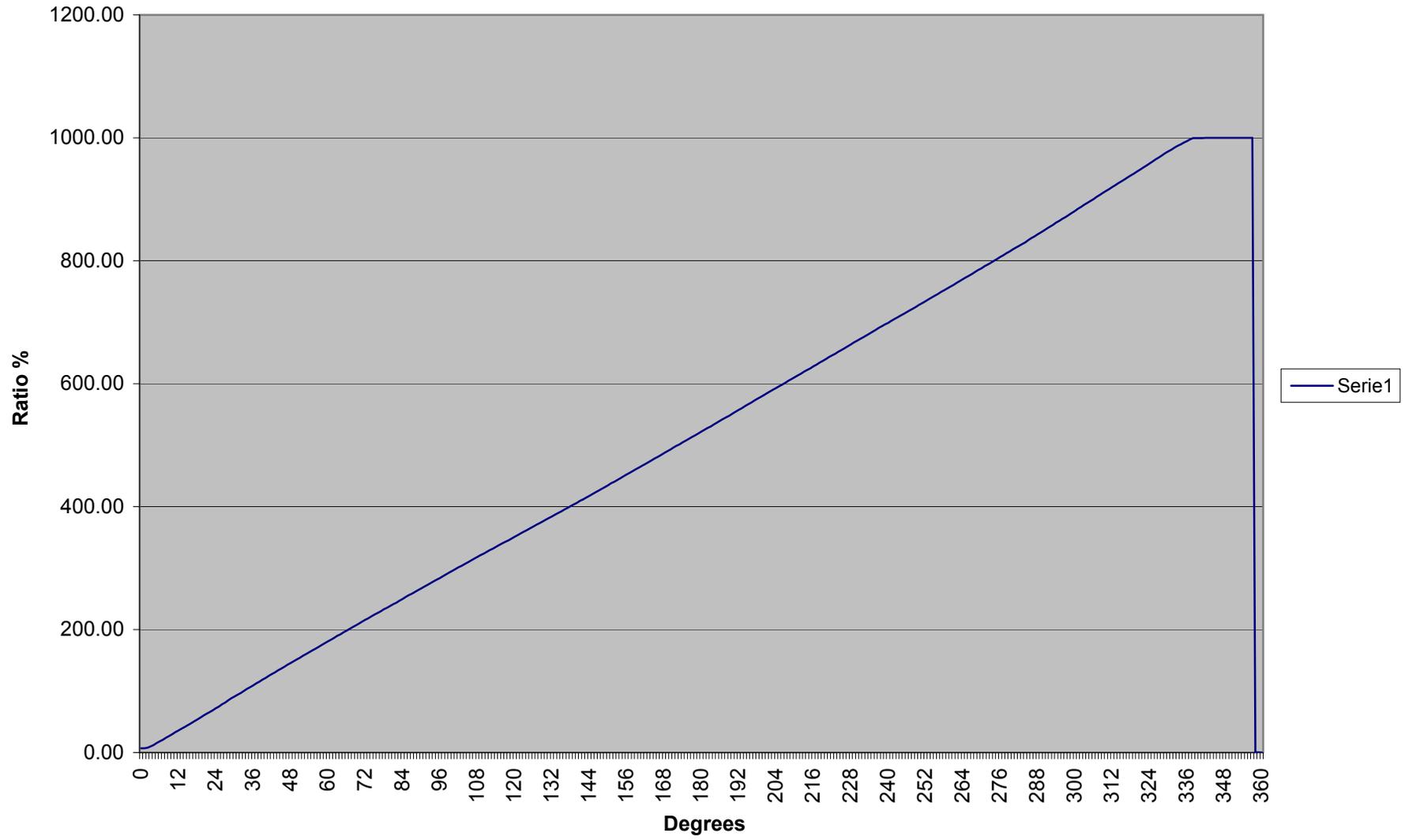




**sfc18a-10726=sfc18a-2172f**



●Standard Resistance Values ■No. of Wire Turns ■Resistance Wire Used

Resist. Value ( $\Omega$ )	100	200	500	1k	2k	5k	10k	20k
No. of Wire Turns	370	470	450	570	740	1,000	1,270	1,670
Resist. Wire Used	Cu-Ni System			Ni-Cr System				

●Special Specifications Available

Extra taps (Available up to 1 tap), 2 ganged, Shaft with front and rear extension (Rear shaft with 2mm dia. and 10mm length), Special electrical travel, Special machining on the shaft.

SPECIALLY ORDERED ITEMS

Model SFCP18A-2172F



(1-turn Pot. with special housing case and completely sealed -IP65-.)

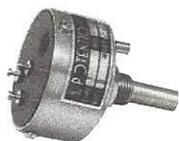
Model SLNB30-2546B



(1-turn Pot. with low-torque and special housing case.)

The following items discontinue to manufacture as our standard items and however, we can manufacture them as specially ordered items.

Model CP33 (Wirewound)  
(1-turn Pot.)



Standard Resistance Range : 500 $\Omega$  ~ 20k $\Omega$   
 Total Resistance Tolerance :  $\pm 3\%$  (H)  
 Independent Linearity Tolerance :  $\pm 0.5\%$   
 Power Rating : 1W  
 Noise : Below 100 $\Omega$  E.N.R.  
 Electrical Travel : 355°  $\pm 5^\circ$   
 Mechanical Travel : 360° (Endless)  
 Mass : Approx. 60g

Model CP70 (Wirewound)  
(1-turn Pot.)



Standard Resistance Range : 50 $\Omega$  ~ 100k $\Omega$   
 Total Resistance Tolerance :  $\pm 3\%$  (H)  
 Independent Linearity Tolerance :  $\pm 0.4\%$   
 Power Rating : 2W  
 Noise : Below 100 $\Omega$  E.N.R.  
 Electrical travel : 355°  $\pm 3^\circ$   
 Mechanical travel : 360° (Endless)  
 Mass : Approx. 170g



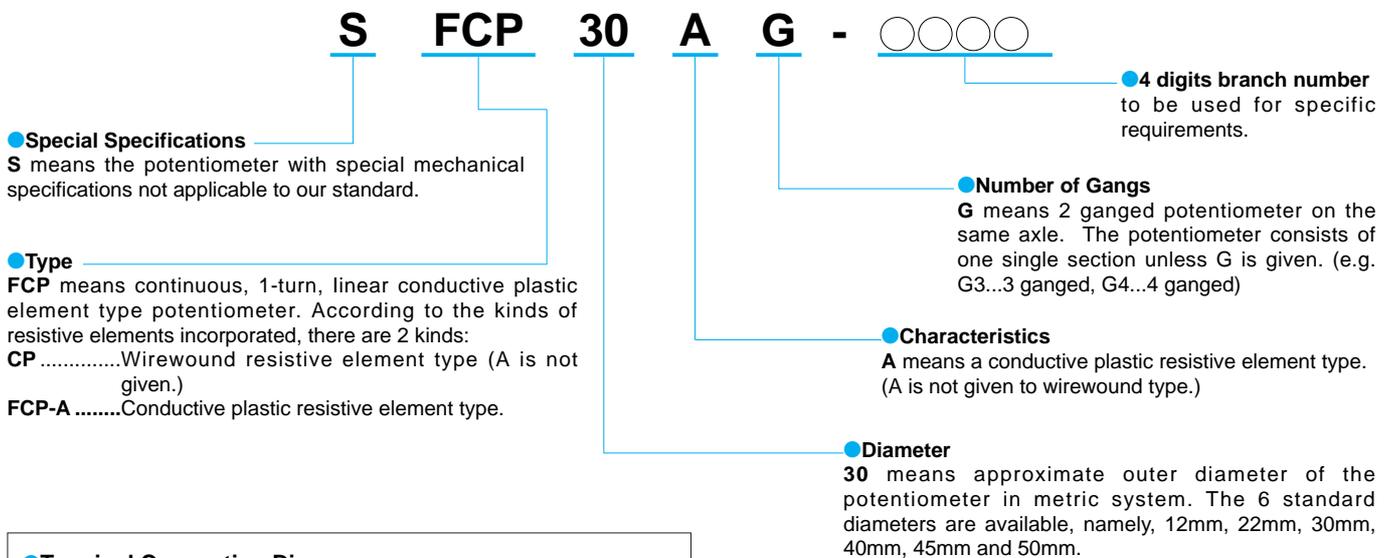
# 1-TURN POTENTIOMETER

(Precision 1-turn, Wirewound & Conductive Plastic Element)

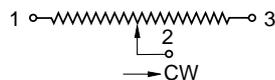
**SAKAE 1-turn Potentiometers** are fully continuous rotation potentiometers without stopper and are highly reliable in offering an excellent quality as well as a prolonged rotating life. There are 2 kinds of resistive element available in this series: Wirewound (**CP**) and Conductive Plastic (**FCP-A**) elements. You can easily make a best selection between these versions to your versatile application programs ranging from hand-operating use to servo applications.

**CP** or **FCP-A** is respectively contained in an aluminum housing case processed by electrolytic corrosion-proof plating in silver color (**CP**) and black color (**FCP-A**) with performances and dimensions according to U.S. MIL, and V.R.C.I. Standards. They are light in weight and small in size as well as of rigid construction. Selection of any desired item is possible among a variety of standard models, of which diameters are variable between 12mm and 50mm.

## THE NOMENCLATURE OF SAKAE 1-TURN POT. SERIES



### Terminal Connection Diagram



## SELECTION GUIDE

Kind of Element	Diameter (mm)	Model No.	Features
Wirewound	Ø22	CP22C, CP22E	Bushingmount type low-cost pot. with outer diameter of 22mm.
	Ø22~Ø50	CP22, CP30, CP45, CP50	Servomount type precision pots with outer diameter of 22mm to 50mm and excellent in temperature coefficient.
Conductive Plastic	Ø12, Ø22	FCP12AC, FCP22AC, FCP22E	Bushingmount type low-cost pots with outer diameter of 12mm and 22mm.
		FCPS22AC	Servomount type low-cost pot. with outer diameter of 22mm.
	Ø12~Ø50	FCP12A, FCP22A, FCP30A, FCP40A, FCP50A	Servomount type precision pots with outer diameter of 12mm to 50mm and with a patented multi-finger contact to make a good contact stability and excellent high speed tracking ability.

## ● General Performances

Kind of Element	Model No.	Standard Total Resistance Range (Ω)	Special Lower Resistance Values (Ω)	Special Higher Resistance Values (Ω)	Independent linearity Tolerance (%)	Special Specifications					
						With Stopper	Front and Rear Shaft Extension	Extra Taps	Simple Sealing Type	With switch	Multi-ganged
Wirewound	CP22C	50~10k	10, 20	20k	±0.5~±0.25	○	○	○	○	—	—
	CP22E	50~10k	10, 20	20k	±0.5~±0.25	○	○	○	○	—	○
	CP22	50~10k	10, 20	20k	±0.5~±0.2	○	○	○	○	—	○
	CP30	50~20k	10, 20	50k	±0.5~±0.15	○	○	○	○	—	○
	CP45	50~20k	10, 20	50k	±0.5~±0.1	○	○	○	○	○	○
	CP50	50~20k	10, 20	50k	±0.5~±0.1	○	○	○	○	○	○
Conductive Plastic	FCP12AC	1k~10k	500	20k, 50k, 100k	±2.0~±1.0	○	○	○	○	—	—
	FCP12A	1k~10k	500	20k, 50k, 100k	±2.0~±1.0	○	○	○	○	—	—
	FCP22AC	1k~10k	500	20k, 50k, 100k	±1.5~±1.0	○	○	○	○	—	—
	FCP22E	1k~10k	500	20k, 50k, 100k	±1.5~±1.0	○	○	○	○	—	○
	FCPS22AC	1k~10k	500	20k, 50k, 100k	±1.0~±0.5	○	○	○	○	—	—
	FCP22A	1k~10k	500	20k, 50k, 100k	±1.0~±0.3	○	○	○	○	—	○
	FCP30A	1k~10k	500	20k, 50k, 100k	±1.0~±0.2	○	○	○	○	—	○
	FCP40A	1k~10k	500	20k, 50k, 100k, 200k	±0.5~±0.2	○	○	○	○	○	○
FCP50A	1k~10k	500	20k, 50k, 100k, 200k, 500k	±0.5~±0.05	○	○	○	○	○	○	

Note: 1. For detailed performances, please refer to specifications of each model in this catalog.

## ● Environmental Performances

Model Nos.	CP22C, CP22E, CP22, CP30, CP45, CP50 (LNB22 ... Page 76)	FCP12AC, FCP12A, FCP22E, FCP22AC, FCPS22AC	FCP22A, FCP30A, FCP40A, FCP50A
<b>Operating Temperature Range</b>	-55℃~+105℃	-55℃~+105℃	-55℃~+125℃
<b>Temperature Cycle</b>	5 cycles under -55℃~+105℃ Total resistance value variation: below ±5% No mechanical damage	5 cycles under -55℃~+105℃ Total resistance value variation: below ±10% No mechanical damage	5 cycles under -55℃~+125℃ Total resistance value variation: below ±10% No mechanical damage
<b>Exposure at Low Temperature</b>	24 hours at -55℃ Total resistance value variation: below ±5% No mechanical damage	24 hours at -55℃ Total resistance value variation: below ±5% No mechanical damage	24 hours at -55℃ Total resistance value variation: below ±5% Output voltage variation: below 0.5% No mechanical damage
<b>Exposure at High Temperature</b>	1,000 hours at 105℃ Total resistance value variation: below ±5% No mechanical damage	1,000 hours at 105℃ Total resistance value variation: below ±10% No mechanical damage	1,000 hours at 125℃ Total resistance value variation: below ±10% Output voltage variation: below 0.5% No mechanical damage
<b>Vibration</b>	10Hz to 2,000Hz 147m/s <sup>2</sup> 12 hours Total resistance value variation: below ±5% No mechanical and electrical damage	10Hz to 2,000Hz 147m/s <sup>2</sup> 12 hours Total resistance value variation: below ±2% No mechanical and electrical damage	10Hz to 2,000Hz 147m/s <sup>2</sup> Total resistance value variation: below ±2% No mechanical and electrical damage
<b>Shock</b>	490m/s <sup>2</sup> 11ms 18 times Total resistance value variation: below ±1% No mechanical and electrical damage	490m/s <sup>2</sup> 11ms 18 times Total resistance value variation: below ±1% No mechanical and electrical damage	490m/s <sup>2</sup> 11ms 18 times Total resistance value variation: below ±1% No mechanical and electrical damage
<b>Moisture Resistance</b>	40℃ 95%RH 240 hours Total resistance value variation: below ±10% Insulation resistance: over 10MΩ	40℃ 95%RH 120 hours Total resistance value variation: below ±10% Insulation resistance: over 10MΩ	40℃ 95%RH 120 hours Total resistance value variation: below ±10% Insulation resistance: over 10MΩ
<b>Rotational Life Expectancy (at 25℃)</b>	No load at 40 r.p.m. 1,000,000 shaft revolutions 500,000 shaft revolutions for CP22C & CP22E Total resistance value variation: below ±5% against initial value Independent linearity tolerance: below 150% of specified value Noise: below 5000 E.N.R.	No load at 400 r.p.m., inverting every 15 minutes FCP12AC.....5,000,000 shaft revolutions FCP12A } 10,000,000 shaft FCP22E } revolutions FCP22AC } FCPS22AC ...200,000,000 shaft revolutions Total resistance value variation: below ±10% against initial value Independent linearity tolerance: below 150% of specified value Output smoothness: below 150% of specified value	No load at 400 r.p.m., inverting every 15 minutes 50,000,000 shaft revolutions Total resistance value variation: below ±10% against initial value Independent linearity tolerance: below 150% of specified value Output smoothness: below 150% of specified value

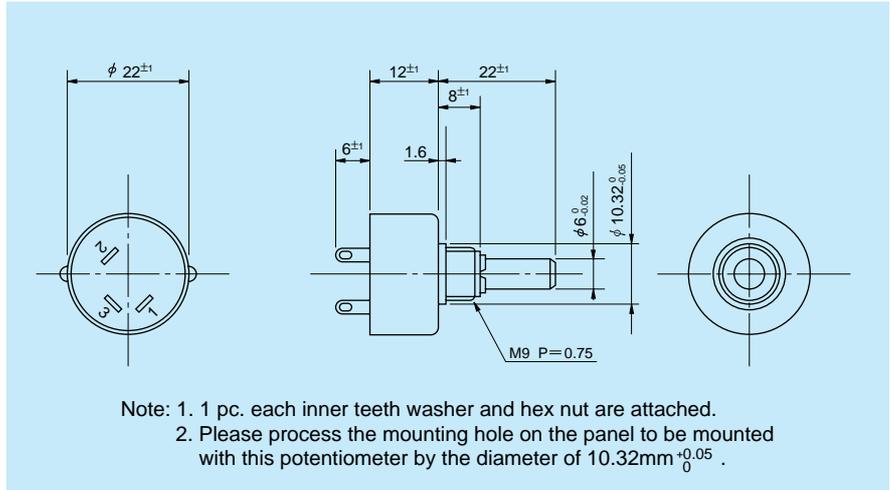
Note: 2. In case of the potentiometer with special resistance values and special specifications, the above performances may change and therefore, please consult us in advance, separately.

3. As for operating temperature range, we can not guarantee that all values of performances can satisfy within this operating temperature range. (Please see page 24 in this catalog for further details.)

4. The above values of performances based on each testings were measured after each testings completed, respectively, under standard conditions. As for the values during testings and other values not mentioning in the above table, please ask us separately.

5. In case of model LNB22, all values mentioned in the above table are reference only.

### ● Standard Dimensions



### ● General Specifications

<b>Standard Resistance Range:</b>	50Ω to 10kΩ	<b>Noise:</b>	Below 100Ω E.N.R.
<b>Max. Practical Resistance Value:</b>	20kΩ	<b>Electrical Travel:</b>	355° ±5°
<b>Total Resistance Tolerance:</b>	Standard Class ±3% (H) Precision Class ±1% (F)	<b>Mechanical Travel:</b>	360° (Endless)
<b>Independent Linearity Tolerance:</b>	Standard Class ±0.5% Precision Class ±0.25% (±0.35% in case of below 1kΩ)	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C. 1 minute at 1,000V.A.C.
<b>Power Rating:</b>	0.5W	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 5mN•m (50gf•cm)
		<b>Max. Working Voltage:</b>	250V
		<b>Resist. Temperature Coefficient of Wire:</b>	±20p.p.m./°C
		<b>Mass:</b>	Approx. 30g

### ● Standard Resistance Values ■ No. of Wire Turns ■ Resistance Wire Used

Resist. Value (Ω)	50	100	200	500	1k	2k	5k	10k	* 20k
No. of Wire Turns	300	370	470	450	570	740	1,000	1,270	1,670
Resist. Wire Used	Cu-Ni System				Ni-Cr System				

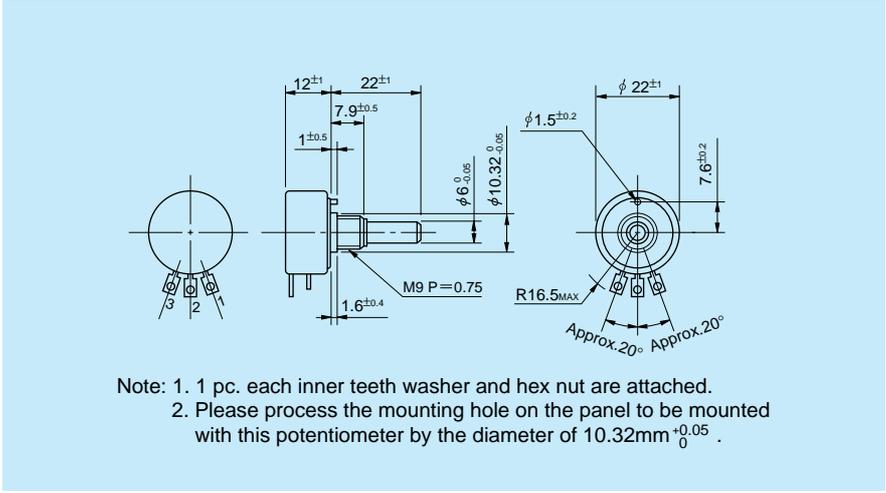
Note: Mark \* shows value at special higher practical resistance.

### ● Special Specifications Available

Lower resistance values (10Ω, 20Ω), Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 3mm dia. and 20mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. (Ø6.35mm)•bushing with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

<b>Standard Resistance Range:</b>	50Ω to 10kΩ	<b>Noise:</b>	Below 100Ω E.N.R.
<b>Max. Practical Resistance Value:</b>	20kΩ	<b>Electrical Travel:</b>	355° ±5°
<b>Total Resistance Tolerance:</b>	Standard Class ±3% (H) Precision Class ±1% (F)	<b>Mechanical Travel:</b>	360° (Endless)
<b>Independent Linearity Tolerance:</b>	Standard Class ±0.5% Precision Class ±0.25% (±0.35% in case of below 1kΩ)	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
<b>Power Rating:</b>	0.5W	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 5mN•m (50gf•cm)
		<b>Max. Working Voltage:</b>	250V
		<b>Resist. Temperature Coefficient of Wire:</b>	±20p.p.m./ °C
		<b>Mass:</b>	Approx. 20g

● Standard Resistance Values ■ No. of Wire Turns ■ Resistance Wire Used

Resist. Value (Ω)	50	100	200	500	1k	2k	5k	10k	* 20k
No. of Wire Turns	300	370	470	450	570	740	1,000	1,270	1,670
Resist. Wire Used	Cu-Ni System				Ni-Cr System				

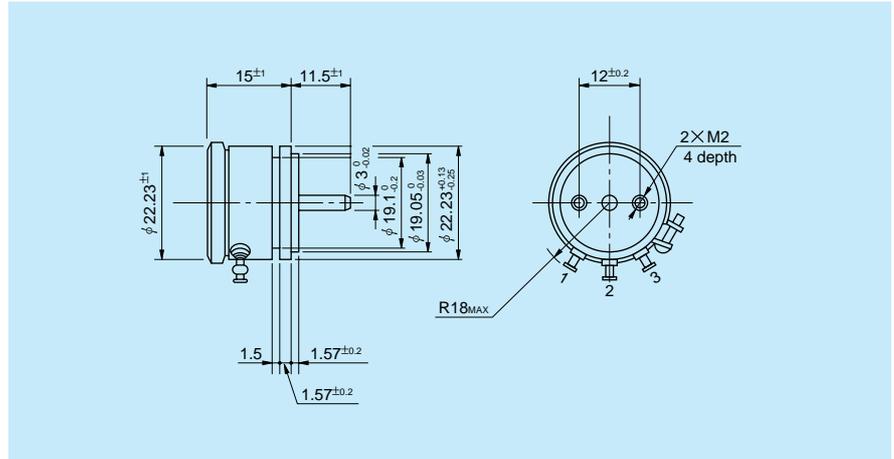
Note: Mark \* shows value at special higher practical resistance.

● **Special Specifications Available**

Lower resistance values (10Ω, 20Ω), Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 6mm dia. and 20mm length), Multi-ganged (Available up to 10 gangs), With stopper (Rotating angle becomes 320° and stopper strength is 0.6N•m [6kgf•cm]), Special electrical travel, Shaft dia. (∅6.35mm)•bushing with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

<b>Standard Resistance Range:</b>	50Ω to 10kΩ	<b>Noise:</b>	Below 100Ω E.N.R.
<b>Max. Practical Resistance Value:</b>	20kΩ	<b>Electrical Travel:</b>	355° ±5°
<b>Total Resistance Tolerance:</b>	Standard Class ±3% (H) Precision Class ±1% (F)	<b>Mechanical Travel:</b>	360° (Endless)
<b>Independent Linearity Tolerance:</b>	Standard Class ±0.5% Precision Class ±0.2% (±0.3% in case of below 1kΩ)	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
<b>Power Rating:</b>	0.5W	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 1.5mN•m (15gf•cm)
		<b>Max. Working Voltage:</b>	250V
		<b>Resist. Temperature Coefficient of Wire:</b>	±20p.p.m./°C
		<b>Mass:</b>	Approx. 15g

● Standard Resistance Values ■No. of Wire Turns ■Resistance Wire Used

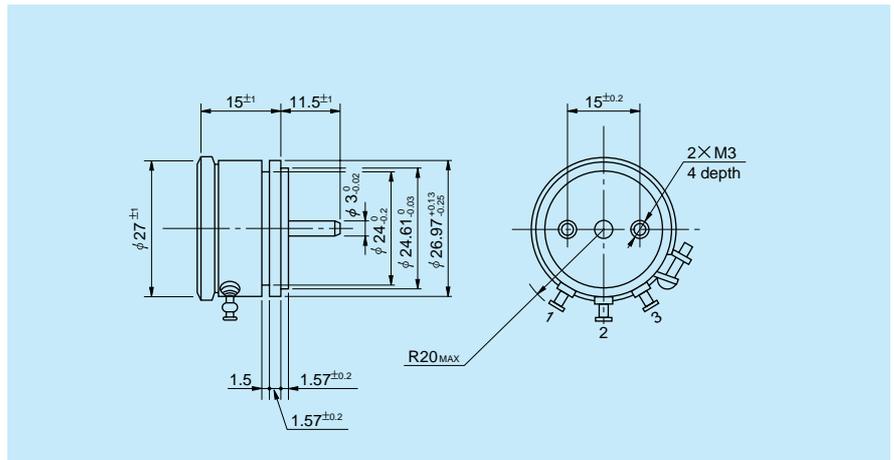
Resist. Value (Ω)	50	100	200	500	1k	2k	5k	10k	* 20k
No. of Wire Turns	300	370	470	450	570	740	1,000	1,270	1,670
Resist. Wire Used	Cu-Ni System			Ni-Cr System					

Note: Mark \* shows value at special higher practical resistance.

● Special Specifications Available

Lower resistance values (10Ω, 20Ω), Extra taps (Available up to 2 taps), Multi-ganged (Available up to 5 gangs. Housing length is extended by 8.5mm per gang), Shaft with front and rear extension (Rear shaft with 3mm dia. and 10mm length), With stopper (Rotating angle becomes 330° and stopper strength is 0.3N•m [3kgf•cm]), Special electrical travel, Shaft dia. (Ø3.175mm) with inch dimensions, Special machining on the shaft.

● Standard Dimensions



● General Specifications

<b>Standard Resistance Range:</b>	50Ω to 20kΩ	<b>Noise:</b>	Below 100Ω E.N.R.
<b>Max. Practical Resistance Value:</b>	50kΩ	<b>Electrical Travel:</b>	355° ±5°
<b>Total Resistance Tolerance:</b>	Standard Class ±3% (H) Precision Class ±1% (F)	<b>Mechanical Travel:</b>	360° (Endless)
<b>Independent Linearity Tolerance:</b>	Standard Class ±0.5% Precision Class ±0.15% (±0.2% in case of below 5kΩ)	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
<b>Power Rating:</b>	0.75W	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 2mN•m (20gf•cm)
		<b>Max. Working Voltage:</b>	250V
		<b>Resist. Temperature Coefficient of Wire:</b>	±20p.p.m./°C
		<b>Mass:</b>	Approx. 30g

● Standard Resistance Values ■ No. of Wire Turns ■ Resistance Wire Used

Resist. Value (Ω)	50	100	200	500	1k	2k	5k	10k	20k	※ 50k
No. of Wire Turns	310	390	500	420	600	770	1,090	1,400	1,800	2,670
Resist. Wire Used	Cu-Ni System				Ni-Cr System					

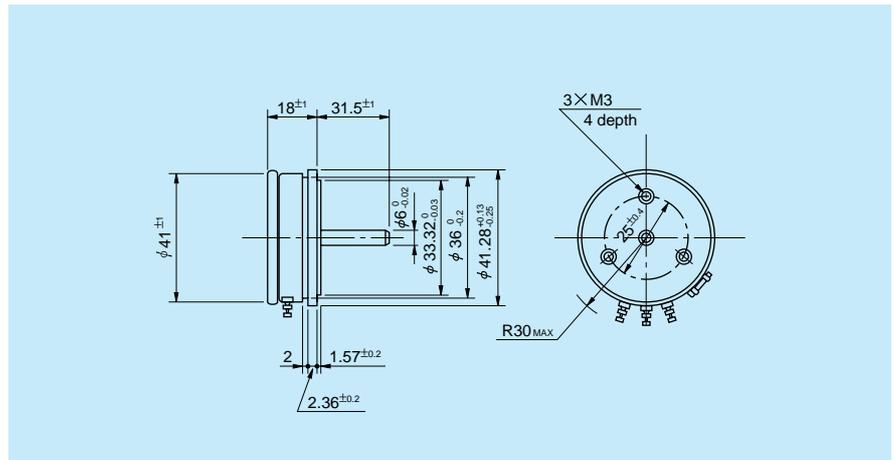
Note: Mark ※ shows value at special higher practical resistance.

● Special Specifications Available

Lower resistance values (10Ω, 20Ω), Extra taps (Available up to 3 taps), Multi-ganged (Available up to 5 gangs. Housing length is extended by 8.5mm per gang), Shaft with front and rear extension (Rear shaft with 3mm dia. and 10mm length), With stopper (Rotating angle becomes 330° and stopper strength is 0.3N•m [3kgf•cm]), Special electrical travel, Shaft dia. (∅3.175mm) with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

<b>Standard Resistance Range:</b>	50Ω to 20kΩ	<b>Noise:</b>	Below 100Ω E.N.R.
<b>Max. Practical Resistance Value:</b>	50kΩ	<b>Electrical Travel:</b>	355° ±3°
<b>Total Resistance Tolerance:</b>	Standard Class ±3% (H) Precision Class ±1% (F)	<b>Mechanical Travel:</b>	360° (Endless)
<b>Independent Linearity Tolerance:</b>	Standard Class ±0.5% Precision Class ±0.1% (±0.2% in case of below 2kΩ)	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
<b>Power Rating:</b>	1.0W	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 4mN•m (40gf•cm)
		<b>Max. Working Voltage:</b>	250V
		<b>Resist. Temperature Coefficient of Wire:</b>	±20p.p.m./°C
		<b>Mass:</b>	Approx. 90g

● Standard Resistance Values ■No. of Wire Turns ■Resistance Wire Used

Resist. Value (Ω)	50	100	200	500	1k	2k	5k	10k	20k	* 50k
No. of Wire Turns	450	570	720	950	820	1,040	1,430	1,790	2,280	3,100
Resist. Wire Used	Cu-Ni System					Ni-Cr System				

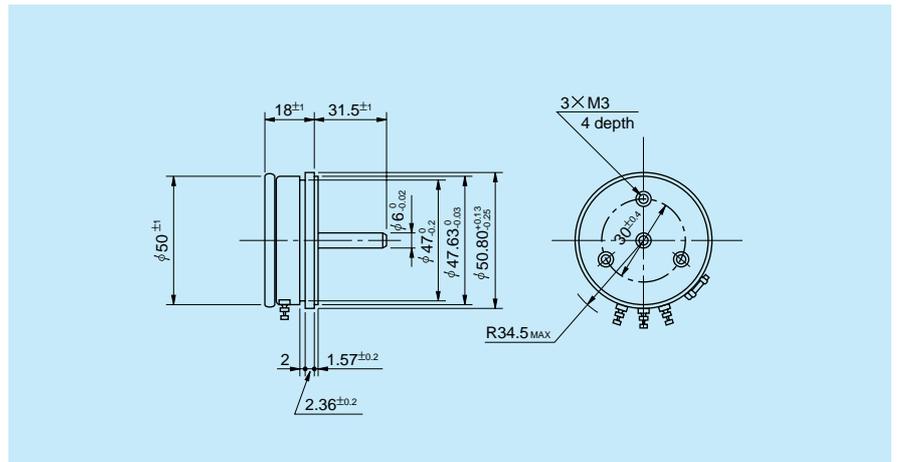
Note: Mark \* shows value at special higher practical resistance.

● Special Specifications Available

Lower resistance values (10Ω, 20Ω), Extra taps (Available up to 5 taps), Multi-ganged (Available up to 7 gangs. Housing length is extended by 12mm per 1 gang), Shaft with front and rear extension (Rear shaft with 6mm dia. and 15mm length), Bushingmount type, With stopper (Rotating angle becomes 330° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. (Ø6.35mm) with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

Standard Resistance

Range: 50Ω to 20kΩ

Max. Practical

Resistance Value: 50kΩ

Total Resistance

Tolerance: Standard Class ±3% (H)  
Precision Class ±1% (F)

Independent Linearity

Tolerance: Standard Class ±0.5%  
Precision Class ±0.1%  
(±0.2% in case of below 2kΩ)

Power Rating: 1.5W

Noise:

Below 100Ω E.N.R.

Electrical Travel:

355° ±3°

Mechanical Travel:

360° (Endless)

Insulation Resistance:

Over 1,000MΩ at 1,000V.D.C.

Dielectric Strength:

1 minute at 1,000V.A.C.

Starting Torque:

Below 5mN•m (50gf•cm)

Max. Working Voltage:

250V

Resist. Temperature

Coefficient of Wire:

±20p.p.m./°C

Mass:

Approx. 120g

● Standard Resistance Values ■ No. of Wire Turns ■ Resistance Wire Used

Resist. Value (Ω)	50	100	200	500	1k	2k	5k	10k	20k	* 50k
No. of Wire Turns	500	650	800	1,100	1,000	1,250	1,810	2,180	2,780	3,500
Resist. Wire Used	Cu-Ni System					Ni-Cr System				

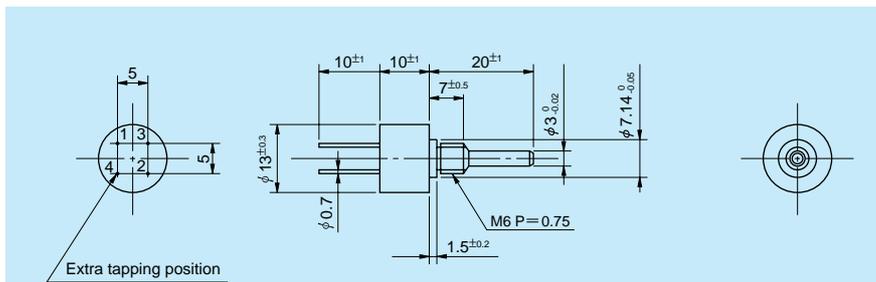
Note: Mark \* shows value at special higher practical resistance.

● Special Specifications Available

Lower resistance values (10Ω, 20Ω), Extra taps (Available up to 10 taps), Multi-ganged (Available up to 7 gangs. Housing length is extended by 12mm per 1 gang), Bushingmount type, Shaft with front and rear extension (Rear shaft with 6mm dia. and 15mm length), Spring return device incorporated (Automatically returning to the zero position), With stopper (Rotating angle becomes 330° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. (Ø6.35mm) with inch dimensions, Special machining on the shaft.



● Standard Dimensions



Note: 1. 1 pc. each inner teeth washer and hex nut are attached.  
 2. Please process the mounting hole on the panel to be mounted with this potentiometer by the diameter of 7.14mm<sup>+0.05</sup>.

● General Specifications

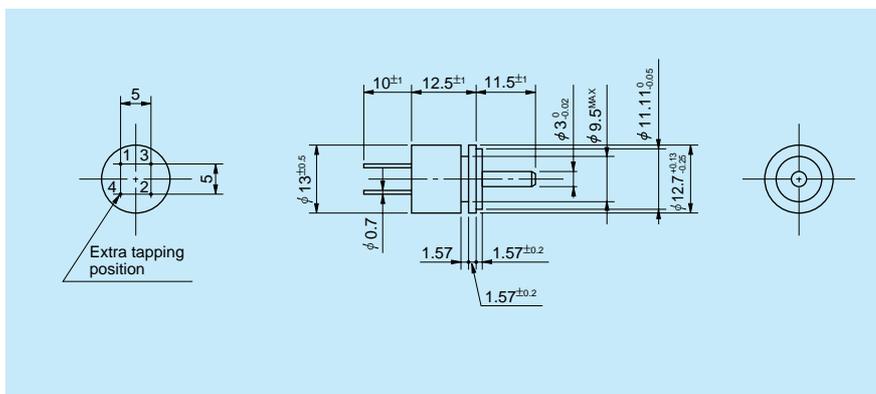
<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k (Ω)	<b>Contact Resistance Variation:</b>	Below 3% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k (Ω)	<b>Power Rating:</b>	0.2W
<b>Total Resistance Tolerance:</b>	Standard Class ±15% (L) Precision Class ±10% (K)	<b>Electrical Travel:</b>	300° ±5°
<b>Independent Linearity Tolerance:</b>	Standard Class ±2.0% Precision Class ±1.0%	<b>Mechanical Travel:</b>	360° (Endless)
<b>Resolution:</b>	Essentially infinite	<b>Insulation Resistance:</b>	Over 1,000MΩ at 500V.D.C.
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Dielectric Strength:</b>	1 minute at 500V.A.C.
		<b>Starting Torque:</b>	Below 2mN•m (20gf•cm)
		<b>Resistance Temperature Coefficient:</b>	±400p.p.m./°C
		<b>Mass:</b>	Approx. 8g

● Special Specifications Available

Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 1mm dia. and 10mm length), With stopper (Rotating angle becomes 310° and stopper strength is 0.3N•m [3kgf•cm]), Special electrical travel, Shaft dia. (Ø3.175mm)•bushing with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k (Ω)	<b>Contact Resistance Variation:</b>	Below 3% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k (Ω)	<b>Power Rating:</b>	0.2W
<b>Total Resistance Tolerance:</b>	Standard Class ±15% (L) Precision Class ±10% (K)	<b>Electrical Travel:</b>	300° ±5°
<b>Independent Linearity Tolerance:</b>	Standard Class ±2.0% Precision Class ±1.0%	<b>Mechanical Travel:</b>	360° (Endless)
<b>Resolution:</b>	Essentially infinite	<b>Insulation Resistance:</b>	Over 1,000MΩ at 500V.D.C.
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Dielectric Strength:</b>	1 minute at 500V.A.C.
		<b>Starting Torque:</b>	Below 1mN•m (10gf•cm)
		<b>Resistance Temperature Coefficient:</b>	±400p.p.m./ °C
		<b>Mass:</b>	Approx. 5g

● Special Specifications Available

Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 1mm dia. and 10mm length), With stopper (Rotating angle becomes 310° and stopper strength is 0.3N•m [3kgf•cm]), Special electrical travel, Shaft dia. (Ø3.175mm)•with inch dimensions, Special machining on the shaft.

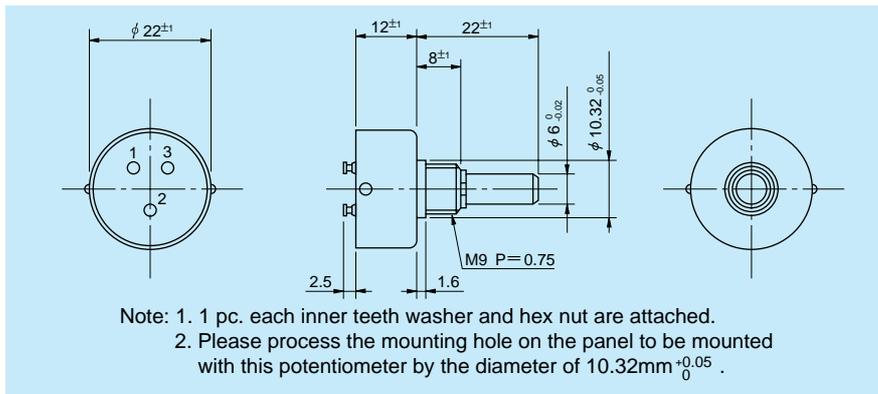
LOW-COST ITEM

Conductive Plastic

MODEL FCP22AC

(Bushingmount)

● Standard Dimensions



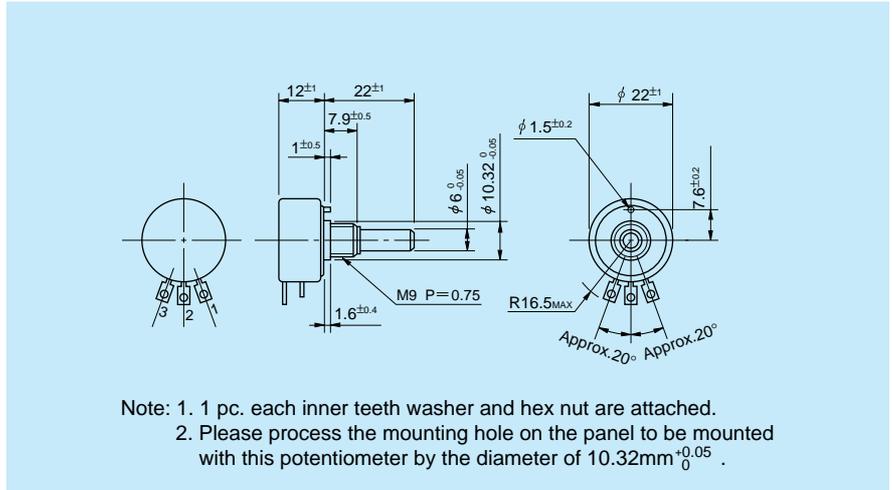
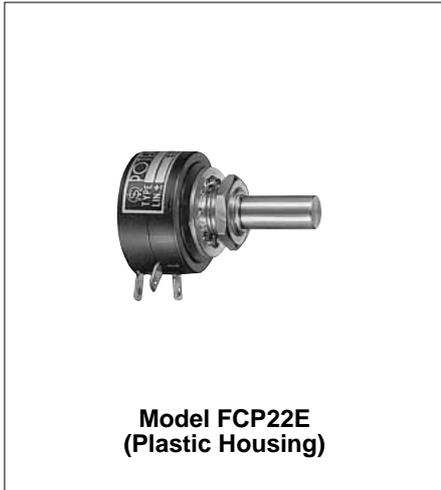
● General Specifications

<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k (Ω)	<b>Contact Resistance Variation:</b>	Below 2% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k (Ω)	<b>Power Rating:</b>	1.0W
<b>Total Resistance Tolerance:</b>	Standard Class ±15% (L) Precision Class ±10% (K)	<b>Electrical Travel:</b>	320° ±5°
<b>Independent Linearity Tolerance:</b>	Standard Class ±1.5% Precision Class ±1.0%	<b>Mechanical Travel:</b>	360° (Endless)
<b>Resolution:</b>	Essentially infinite	<b>Insulation Resistance:</b>	Over 1,000MΩ at 500V.D.C.
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Dielectric Strength:</b>	1 minute at 500V.A.C.
		<b>Starting Torque:</b>	Below 5mN•m (50gf•cm)
		<b>Resistance Temperature Coefficient:</b>	±400p.p.m./ °C
		<b>Mass:</b>	Approx. 30g

● Special Specifications Available

Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 3mm dia. and 20mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. (Ø6.35mm)•bushing with inch dimensions, Special machining on the shaft.

● Standard Dimensions



● General Specifications

**Standard Resistance**

<b>Values:</b>	1k, 2k, 5k, 10k (Ω)
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k (Ω)
<b>Total Resistance Tolerance:</b>	Standard Class ±15% (L) Precision Class ±10% (K)
<b>Independent Linearity Tolerance:</b>	Standard Class ±1.5% Precision Class ±1.0%
<b>Resolution:</b>	Essentially infinite
<b>Output Smoothness:</b>	Below 0.1% against input voltage

**Contact Resistance**

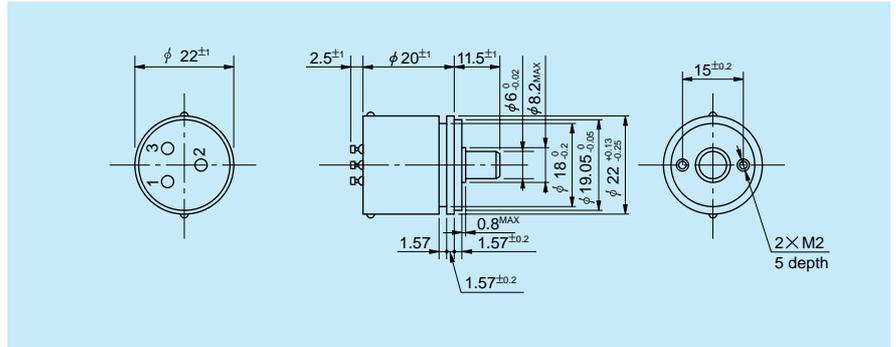
<b>Variation:</b>	Below 2% C.R.V.
<b>Power Rating:</b>	1.0W
<b>Electrical Travel:</b>	320° ±5°
<b>Mechanical Travel:</b>	360° (Endless)
<b>Insulation Resistance:</b>	Over 1,000MΩ at 500V.D.C.
<b>Dielectric Strength:</b>	1 minute at 500V.A.C.
<b>Starting Torque:</b>	Below 5mN•m (50gf•cm)
<b>Resistance Temperature Coefficient:</b>	±400p.p.m./°C
<b>Mass:</b>	Approx. 20g

● Special Specifications Available

Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 6mm dia. and 20mm length), Multi-ganged (Available up to 10 gangs), With stopper (Rotating angle becomes 320° and stopper strength is 0.6N•m [6kgf•cm]), Special electrical travel, Shaft dia. (∅6.35mm)•bushing with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

Standard Resistance

Values:	1k, 2k, 5k, 10k (Ω)
Special Practical Resistance Values:	500, 20k, 50k, 100k (Ω)
Total Resistance Tolerance:	Standard Class ±15% (L) Precision Class ±10% (K)
Independent Linearity Tolerance:	Standard Class ±1.0% Precision Class ±0.5%
Resolution:	Essentially infinite
Output Smoothness:	Below 0.1% against input voltage

Contact Resistance

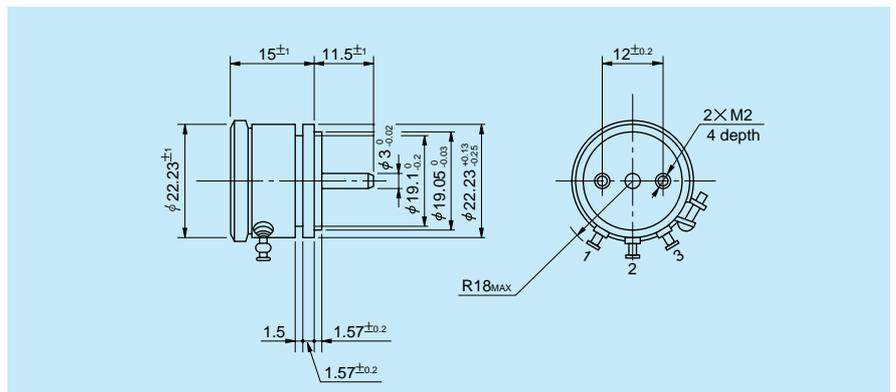
Variation:	Below 2% C.R.V.
Power Rating:	1.0W
Electrical Travel:	320° ±5°
Mechanical Travel:	360° (Endless)
Insulation Resistance:	Over 1,000MΩ at 500V.D.C.
Dielectric Strength:	1 minute at 500V.A.C.
Starting Torque:	Below 5mN•m (50gf•cm)
Resistance Temperature Coefficient:	±400p.p.m./ °C
Mass:	Approx. 30g

● Special Specifications Available

Extra taps (Available up to 1 tap), Shaft with front and rear extension (Rear shaft with 3mm dia. and 20mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. (Ø6.35mm), Special machining on the shaft, With ball bearings incorporated.



● Standard Dimensions



● General Specifications

<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k (Ω)	<b>Contact Resistance Variation:</b>	Below 2% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k (Ω)	<b>Power Rating:</b>	1.0W
<b>Total Resistance Tolerance:</b>	Standard Class ±10% (K)	<b>Electrical Travel:</b>	320° ±5°
<b>Independent Linearity Tolerance:</b>	Standard Class ±1.0%	<b>Mechanical Travel:</b>	360° (Endless)
	Precision Class ±0.5%	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
	Super Precision Class ±0.25%	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
<b>Resolution:</b>	Essentially infinite	<b>Starting Torque:</b>	Below 1.5mN•m (15gf•cm)
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Resistance Temperature Coefficient:</b>	±400p.p.m./°C
		<b>Mass:</b>	Approx. 20g

● Special Specifications Available

Extra taps (Available up to 1 tap), Multi-ganged (Available up to 5 gangs, Housing length is extended by 8.5mm per 1 gang), Shaft with front and rear extension (Rear shaft with 3mm dia. and 10mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.3N•m [3kgf•cm]), Special electrical travel, Shaft dia. (∅3.175mm) with inch dimensions, Special machining on the shaft.

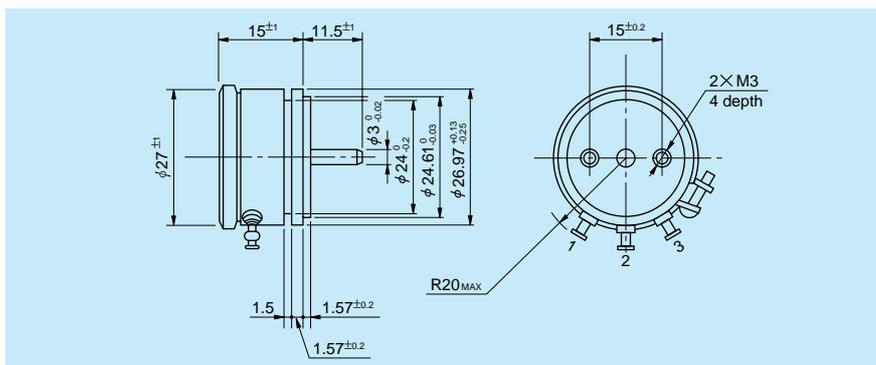
Conductive Plastic

MODEL FCP30A

(Servomount)



● Standard Dimensions



● General Specifications

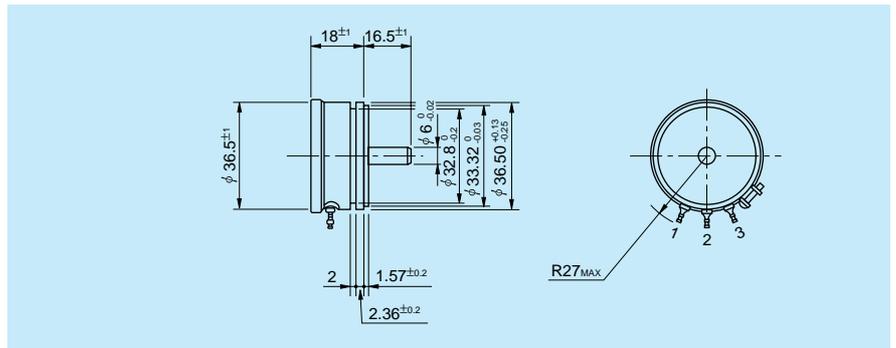
<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k (Ω)	<b>Contact Resistance Variation:</b>	Below 2% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k (Ω)	<b>Power Rating:</b>	1.5W
<b>Total Resistance Tolerance:</b>	Standard Class ±10% (K)	<b>Electrical Travel:</b>	340° ±5°
<b>Independent Linearity Tolerance:</b>	Standard Class ±1.0%	<b>Mechanical Travel:</b>	360° (Endless)
	Precision Class ±0.5%	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
	Super Precision Class ±0.2%	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
<b>Resolution:</b>	Essentially infinite	<b>Starting Torque:</b>	Below 2mN•m (20gf•cm)
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Resistance Temperature Coefficient:</b>	±400p.p.m./°C
		<b>Mass:</b>	Approx. 25g

● Special Specifications Available

Extra taps (Available up to 1 tap), Multi-ganged (Available up to 5 gangs, Housing length is extended by 8.5mm per 1 gang), Shaft with front and rear extension (Rear shaft with 3mm dia. and 10mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.3N•m [3kgf•cm]), Special electrical travel, Shaft dia. (∅3.175mm) with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

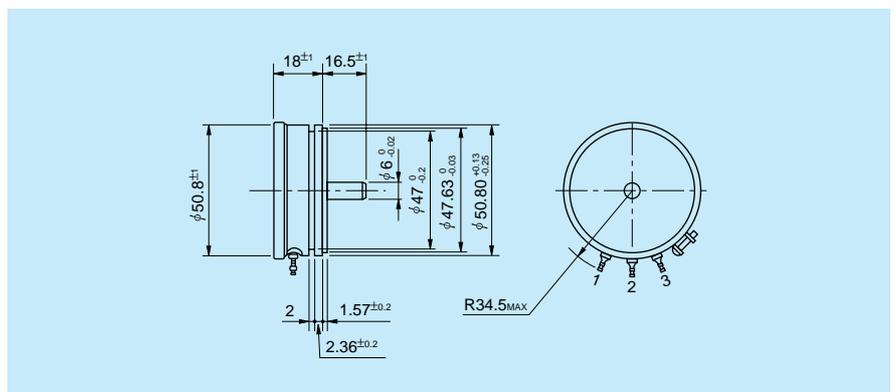
<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k ( $\Omega$ )	<b>Contact Resistance Variation:</b>	Below 2% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k, 200k ( $\Omega$ )	<b>Power Rating:</b>	2.0W
<b>Total Resistance Tolerance:</b>	Standard Class $\pm 10\%$ (K)	<b>Electrical Travel:</b>	340° $\pm 5^\circ$
<b>Independent Linearity Tolerance:</b>	Standard Class $\pm 0.5\%$ Precision Class $\pm 0.25\%$ Super Precision Class $\pm 0.1\%$	<b>Mechanical Travel:</b>	360° (Endless)
<b>Resolution:</b>	Essentially infinite	<b>Insulation Resistance:</b>	Over 1,000M $\Omega$ at 1,000V.D.C.
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 3mN•m (30gf•cm)
		<b>Resistance Temperature Coefficient:</b>	$\pm 400$ p.p.m./ $^\circ\text{C}$
		<b>Mass:</b>	Approx. 60g

● Special Specifications Available

Extra taps (Available up to 3 taps), Multi-ganged (Available up to 7 gangs, Housing length is extended by 12mm per 1 gang), Shaft with front and rear extension (Rear shaft with 6mm dia. and 15mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. ( $\phi 6.35$ mm) with inch dimensions, Special machining on the shaft.



● Standard Dimensions



● General Specifications

<b>Standard Resistance Values:</b>	1k, 2k, 5k, 10k (Ω)	<b>Contact Resistance Variation:</b>	Below 2% C.R.V.
<b>Special Practical Resistance Values:</b>	500, 20k, 50k, 100k, 200k, 500k (Ω)	<b>Power Rating:</b>	3.0W
<b>Total Resistance Tolerance:</b>	Standard Class ±10% (K)	<b>Electrical Travel:</b>	350° ±5°
<b>Independent Linearity Tolerance:</b>	Standard Class ±0.5% Precision Class ±0.2%Super Precision Class ±0.05%	<b>Mechanical Travel:</b>	360° (Endless)
<b>Resolution:</b>	Essentially infinite	<b>Insulation Resistance:</b>	Over 1,000MΩ at 1,000V.D.C.
<b>Output Smoothness:</b>	Below 0.1% against input voltage	<b>Dielectric Strength:</b>	1 minute at 1,000V.A.C.
		<b>Starting Torque:</b>	Below 4mN•m (40gf•cm)
		<b>Resistance Temperature Coefficient:</b>	±400p.p.m./°C
		<b>Mass:</b>	Approx. 80g

● Special Specifications Available

Extra taps (Available up to 3 taps), Multi-ganged (Available up to 7 gangs, Housing length is extended by 12mm per 1 gang), Shaft with front and rear extension (Rear shaft with 6mm dia. and 15mm length), With stopper (Rotating angle becomes 320° and stopper strength is 0.9N•m [9kgf•cm]), Special electrical travel, Shaft dia. (∅6.35mm) with inch dimensions, Special machining on the shaft.

**SPECIALLY ORDERED ITEM**

This is a see-saw-motion potentiometer incorporating conductive plastic resistive element.

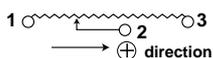
**Model SFCP30A**



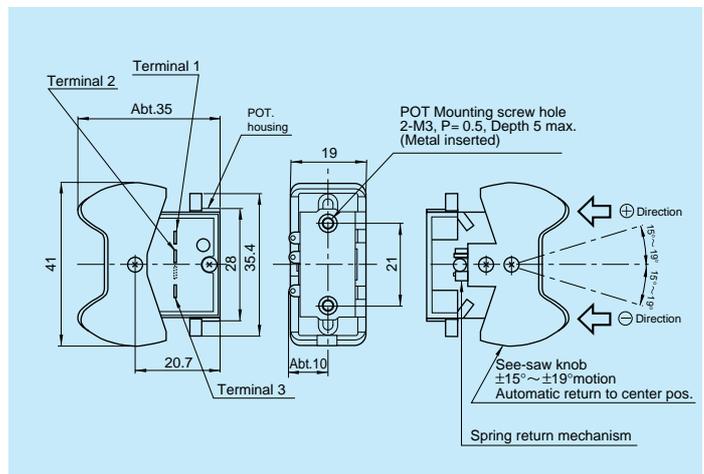
● Specifications

Total Resistance Value	: 10KΩ±15%
Independent Linearity Tolerance	: ±3%
Electrical Travel	: 30° ±5°
Power Rating	: 0.1W
Center Returning Accuracy	: 50%±3%
Output Smoothness	: Below 0.2% against input voltage
Resolution	: Essentially infinite
Dielectric Strength	: 1 minute at 500V.A.C.
Insulation Resistance	: Below 1,000MΩ at 500V.D.C.
Operating Force	: Approx. 24mN•m ~ Approx. 30mN•m

● Terminal Connection Diagram



● Dimensions





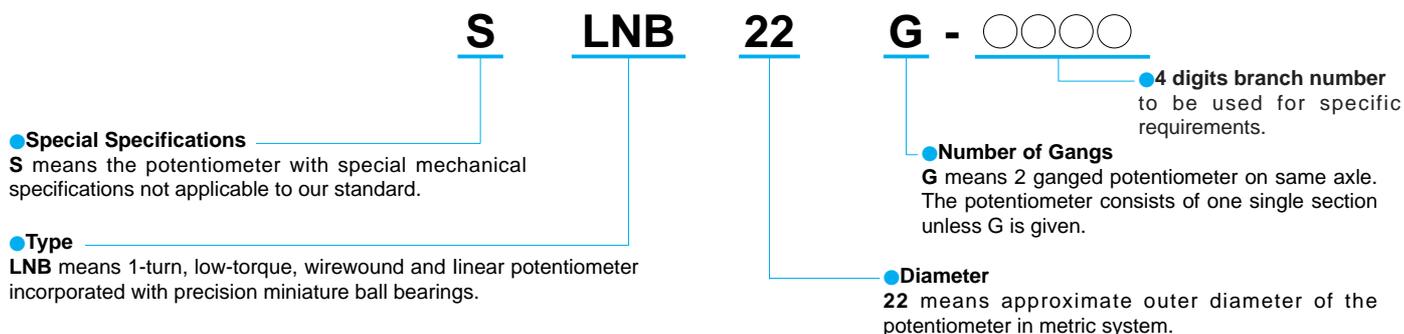
# LOW-TORQUE POTENTIOMETER

(Precision 1-turn, Low-torque, Wirewound Element)

**SAKAE Low-torque Potentiometers** with a wirewound resistive element are very small in size and light in weight, It offers a very low starting torque of below 0.1mN•m (1gf•cm) in Model LNB22. Electrical detection of

inclination, vibration, etc. is easily possible by installing these potentiometers on float, bellows, etc. These models are only available with wirewound resistive element as standard version.

## THE NOMENCLATURE OF SAKAE LOW TORQUE POT.



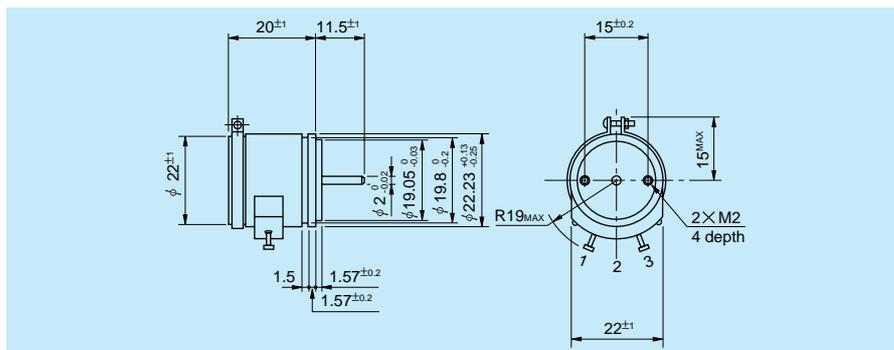
Wirewound

## MODEL LNB22

(Servomount)



### Standard Dimensions



### General Specifications

<b>Standard Resistance Range:</b>	100Ω to 20kΩ	$\geq 2k\Omega$
<b>Total Resistance Tolerance:</b>	Standard Class $\pm 3\%$ (H) Precision Class $\pm 1\%$ (F)	Below 0.1mN•m (1.0gf•cm) (within electrical travel)
<b>Independent Linearity Tolerance:</b>	Standard Class $\pm 0.5\%$ Precision Class $\pm 0.25\%$	<b>Max. Working Voltage:</b> 80V
<b>Power Rating:</b> 0.3W		<b>Resist. Temperature Coefficient of Wire:</b> $\pm 20$ p.p.m./°C
<b>Noise:</b> Below 100Ω E.N.R.		<b>Operating Temperature Range:</b> -30°C ~ +85°C
<b>Electrical Travel:</b> 355° $\pm 5^\circ$		<b>Life Expectancy, Shaft Revolutions:</b> 100,000
<b>Mechanical Travel:</b> 360° (Endless)		<b>Mass:</b> Approx. 20g
<b>Insulation Resistance:</b> Over 100MΩ at 1,000V.D.C.		
<b>Dielectric Strength:</b> 1 minute at 1,000V.A.C.		
<b>Starting Torque:</b> <2kΩ Below 0.15mN•m (1.5gf•cm) (within electrical travel)		

### Environmental Performances:

Please see the table on page 62.

● Standard Resistance Values ■ No. of Wire Turns ■ Resistance Wire Used

Resist. Value (Ω)	100	200	500	1k	2k	5k	10k	20k
No. of Wire Turns	370	470	450	570	740	1,000	1,270	1,670
Resist. Wire Used	Cu-Ni System			Ni-Cr System				

● Special Specifications Available

Extra taps (Available up to 1 tap), 2 ganged, Shaft with front and rear extension (Rear shaft with 2mm dia. and 10mm length), Special electrical travel, Special machining on the shaft.

## SPECIALY ORDERED ITEMS

**Model SFCP18A-2172F**



(1-turn Pot. with special housing case and completely sealed -IP65-.)

**Model SLNB30-2546B**



(1-turn Pot. with low-torque and special housing case.)

The following items discontinue to manufacture as our standard items and however, we can manufacture them as specially ordered items.

**Model CP33 (Wirewound)**  
(1-turn Pot.)



Standard Resistance Range : 500Ω ~ 20kΩ  
 Total Resistance Tolerance : ±3% (H)  
 Independent Linearity Tolerance : ±0.5%  
 Power Rating : 1W  
 Noise : Below 100Ω E.N.R.  
 Electrical Travel : 355° ±5°  
 Mechanical Travel : 360° (Endless)  
 Mass : Approx. 60g

**Model CP70 (Wirewound)**  
(1-turn Pot.)



Standard Resistance Range : 50Ω ~ 100kΩ  
 Total Resistance Tolerance : ±3% (H)  
 Independent Linearity Tolerance : ±0.4%  
 Power Rating : 2W  
 Noise : Below 100Ω E.N.R.  
 Electrical travel : 355° ±3°  
 Mechanical travel : 360° (Endless)  
 Mass : Approx. 170g

# SPECIALY ORDERED ITEMS

**Model SENP50-3081**



(1-turn Pot. with an encoder.)

**Special Film Resistive Elements**



(Direct coating of conductive plastic paste was made on the flexible sheet.)

**Model SFCP50A**



(1-turn Pot. with a winder of a wire.)

**Model SFCP12A-1780A**



(1-turn Pot. with a switch and leadwire terminals.)

**Model SCP45**



(1-turn Pot. with a reduction gear.)

**Model SCP50A**



(1-turn Pot. with sealed housing -IP54- , a connector terminal and cable.)