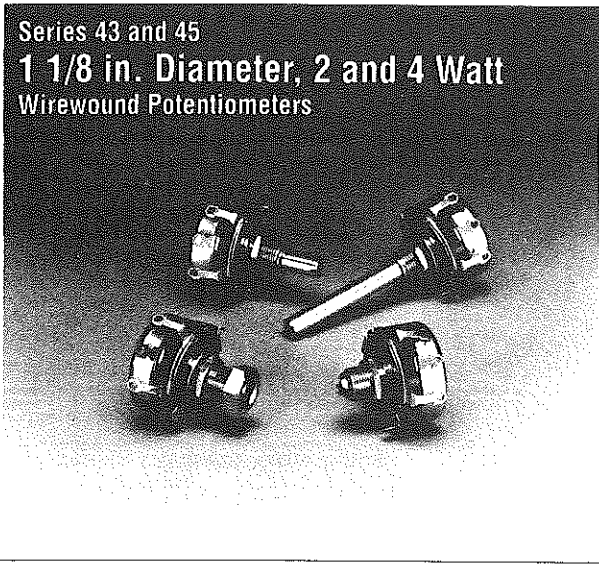


Series 43 and 45  
**1 1/8 in. Diameter, 2 and 4 Watt**  
 Wirewound Potentiometers



**Features**

- *Economical*
- *Versatile - various mounts, terminal & shaft configurations*
- *High torque available*
- *Shaft & mounting seals available*
- *Multiple gangs available*
- *Concentric shafts available*
- *Printed circuit terminals*
- *High voltage standoffs*
- *Non-metallic shaft*
- *Backlash construction (venier application)*

**Description**

**Series 43**

1 1/8 in. diameter, 2 watt, wirewound potentiometers

**Series A43**

Pick-A-Shaft version of the 43 series.

**Series 43M/RA20**

Military version of the 43 series meeting strict military standard MIL-R-19

**Series 45**

4 watt power rating version of the 43 series, all other specifications are identical.

**Series 43 Electrical Specifications**

**Series 45 Electrical Specifications**

<i>Resistance Range</i>	1Ω to 50KΩ linear; please consult Factory for non-linear.	1Ω to 10KΩ linear; please consult Factory for non-linear.
<i>Resistance Tolerance</i>	±10% standard; ±5% to ±1% special* (please consult Factory).	±10% standard; ±5% to ±1% special* (please consult Factory).
<i>Power Rating (Watts)</i>	Single section: 2 @ 40°C; 0 @ 105°C. Each additional section: 1.5 @ 40°C; 0 @ 105°C.	Single section: 4 @ 40°C; 0 @ 135°C. Each additional section: 3 @ 40°C; 0 @ 135°C.
<i>Watts/Degree</i>	.0071 watt per degree of effective rotation maximum	.014 watt per degree of effective rotation maximum
<i>Effective Rotation</i>	280° ±5° without switch; less than 280°, special; 260° ±5° with switch	280° ±5° without switch; less than 280°, special; 260° ±5° with switch
<i>Electrical Rotation</i>	300° ±5° with and without switch	300° ±5° with and without switch
<i>Tapers</i>	90Ω per degree maximum	36Ω per degree maximum
<i>Independent Linearity</i>	±5% standard; ±1% special*	±5% standard; ±1% special*

*Electrical specifications continued, next page*

*Electrical specifications continued*

<i>End Resistance</i>	1 to 50 $\Omega$ - 0.3 $\Omega$ ; 51 to 100 $\Omega$ - 0.5 $\Omega$ . Over 100 $\Omega$ - 0.2% of total or 1 $\Omega$ , whichever is greater.	1 to 50 $\Omega$ - 0.3 $\Omega$ ; 51 to 100 $\Omega$ - 0.5 $\Omega$ . Over 100 $\Omega$ - 0.2% of total or 1 $\Omega$ , whichever is greater.
<i>Dielectric Withstanding Voltage</i>	1000 Vac for 60 seconds @ ATM. 450 Vac for 60 seconds @ 3.4 in. Hg.	1000 Vac for 60 seconds @ ATM. 450 Vac for 60 seconds @ 3.4 in. Hg.
<i>Working Voltage</i>	310 volts maximum	350 volts maximum
<i>Switches</i>	S.P.S.T., S.P.D.T., D.P.S.T., See Figure 3, page 78 for switch characteristics.	S.P.S.T., S.P.D.T., D.P.S.T., See Figure 3, page 78 for switch characteristics.
<i>Location of Tap and Tolerance</i>	One available any position of effective rotation; tap tolerance $\pm 10\%$ of total resistance. Specify electrical or angular position and limits.	One available any position of effective rotation; tap tolerance $\pm 10\%$ of total resistance. Specify electrical or angular position and limits.
<i>Insulation Resistance</i>	100 Megohms minimum	100 Megohms minimum

**Series 43 and 45 Mechanical Specifications**

*Mechanical Rotation*  
300°  $\pm 5^\circ$  with and without switch; 360° special

*Stop Torque*  
8 lbs. in. maximum

*Torque Range*  
0.5 to 6 oz. in.; 15 oz. in. increase for switch actuation.  
Locking type bushing: 25 oz. in. minimum with jam nut  
tightened to 10 lb. in.

*Maximum Number of Sections*  
Two recommended, three available

*Weight*  
Single .077 lb. without switch.  
Additional section 0.041 lb.; .087 lb. with switch.

*Hardware*  
Must be ordered separately.

(a) Hex mounting nut, 3/8 in. (9.53mm) x 32 thread 1/2 in. (12.7mm) across flats, 3/32 in. (2.38mm) thick.

(b) Internal tooth lockwasher 11/16 in. (17.46mm) O.D. x .022 in. (0.56mm) thick.

(c) Jam hex nut 1/2 in. (12.7mm) across flats, 7/32 in. (5.56mm) thick, supplied on locking type bushing.

*Marking*  
Will appear on rear surface without switch. On periphery when switch is used. Unless otherwise specified, marking will consist of

(a) Customer part number or Clarostat part number,  
(b) EIA source and date code.

**Series 43 and 45 Operational Specifications**

Potentiometers per MIL-R-19 specifications, Style RA20 (43 series only)

*Resistance Range*  
3 $\Omega$  to 15K $\Omega$  A taper. For C and E tapers, please consult Factory.

*Operating Temperature Range*  
-55°C to 105°C

\*Dependent on design parameters.

NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

*Figure 1*  
**Resolution Graph**

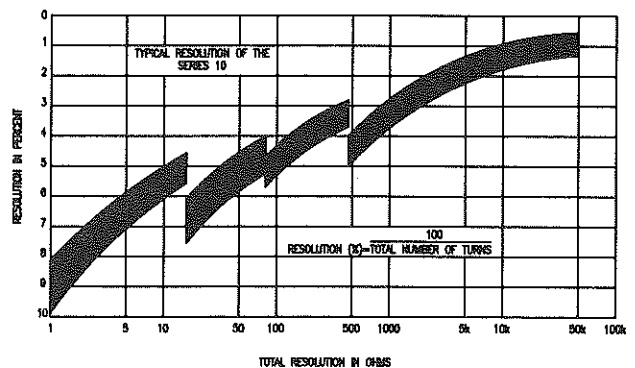


Figure 2  
Chart A

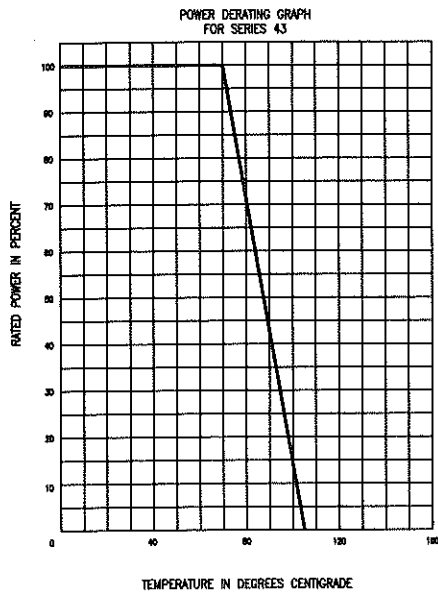
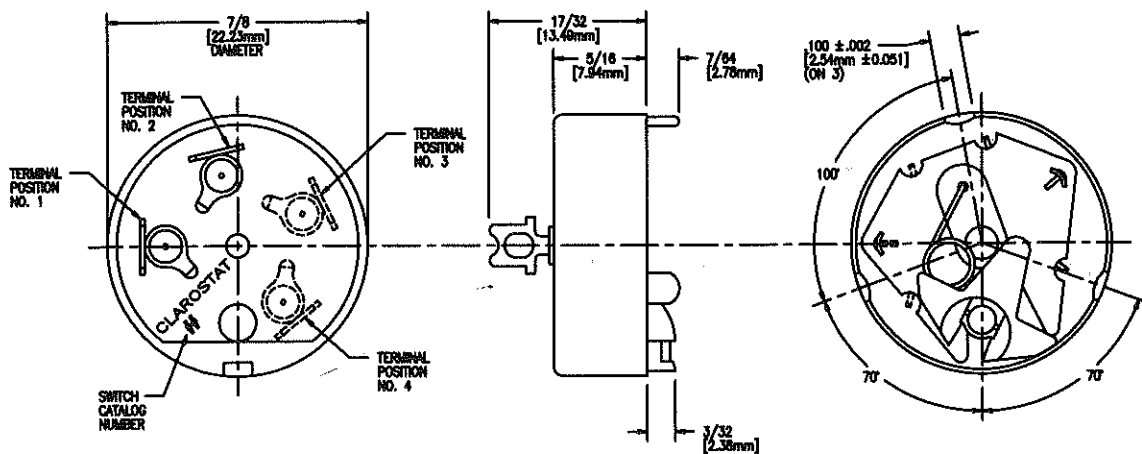


Figure 3  
AE Switch Dimensions



Type Number	Switch	Variations	Terminal Positions	Max. Operating Torque-Oz.In.
AE-10	S.P.S.T.	1a, 250V; 3a, 125V (ac or dc)	1-2	12
AE-11	S.P.S.T.	1a, 250V; 3a, 125V with bussing terminal (ac or dc)	1-2-4	12
AE-13	S.P.S.T.	15a, 10V (dc only)	1-4	16
*AE-20	D.P.S.T.	1a, 250V; 3a, 125V (ac or dc)	1-2-3-4	16
AE-21	D.P.	1 pole on, 1 pole off-1a, 250V; 3a, 125V (ac or dc)	1-2-3-4	16
AE-23	D.P.S.T.	15a, 10V (dc only)	1-2-3-4	16
*AE-24	D.P.S.T.	1a, 250V; 3a, 125V (ac or dc) Reverse action	1-2-3-4	16
AE-25	D.P.S.T.	250 ma. 24 Vdc (dry circuit)	1-2-3-4	12
AE-30	S.P.D.T.	1a, 250V; 3a, 125V (ac or dc)	2-3-4	16

\*May be employed as a single pole, single throw, two circuit switch.  
To designate this application add an "A" to the end of switch type.

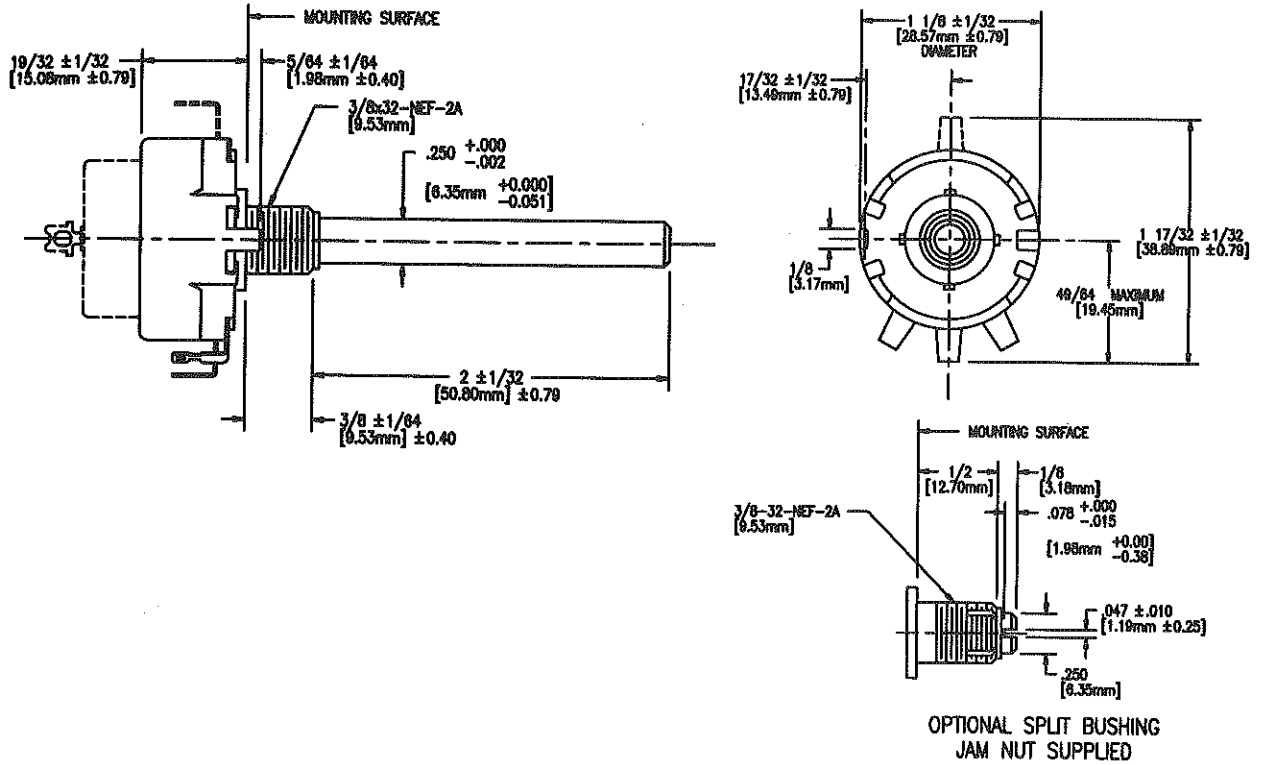
Example: AE-20A.

Design details may change without notice; certified drawing available on request.

\*Unless Otherwise Specified

Figure 4

Series 43 Dimensions



Series 43 Standard Resistance Values

Stock values fabricated in accordance with MIL-R-19 where applicable.

5	75	500	4000	30K
10	100	750	5000	40K
20	150	1000	7500	50K
25	200	1500	10K	
30	250	2000	15K	
40	300	2500	20K	
50	400	3000	25K	

Series 43 How To Order

Example: **43C1-5000**

**43C1**

Series Catalog Number

43C1 = 2 in. (50.8mm) round shaft FMS;  
3/8 in. (9.53mm) long bushing  
with 3/8-32-NEF-2A thread.

43C2 = 5/8 in. (15.88mm) screwdriver slotted shaft FMS;  
with a 1/2 in. (12.7mm) split locking bushing  
with 3/8 in. (9.53mm)-32-NEF-2A thread.

**5000**

Resistance Value  
(Ohms)

Series 43M/RA20 Standard Styles & Values

- RA20NASA: Linear, 3Ω to 15K
- RA20NASD: Linear, 3Ω to 15K
- RA20LASB: Linear, 3Ω to 15K
- RA20LASD: Linear, 3Ω to 15K

Ordering Codes

30A	151A	351A
60A	152A	352A
80A	153A	500A
100A	200A	501A
101A	201A	502A
102A	202A	750A
103A	250A	751A
150A	350A	752A

## Series 43M/RA20 How To Order

Example: **RA20-N-A-S-D-10-3-A**

**RA20**   **N**   **A**   **S**   **D**   **10**   **3**   **A**

Series

Switch

A = None  
B = Rotary  
SPST

Resistance  
Significant  
Digits  
First two  
digits

Bushing

N = Standard, 3/8 in.  
(9.53mm) long x 3/8 x  
32-NEF-2A

L = Locking, 1/2 in.  
(12.7mm) long x 3/8 x  
32-NEF-2A

S = Shaft & panel seal,  
standard

T = Shaft & panel seal,  
locking standard

Shaft Length  
See table, next column

Shaft Style

S = Slotted  
F = Flatted

Number of  
Zeros That  
Follow

Tolerance & Taper

A = ±10% Linear

\*C = Log CW ±10%

\*E = Log CCW ±10%

\*10% resistance at  
50% mechanical  
rotation. RA20: C & E  
application 10 ohm  
thru 5K ohm.

## Shaft Length from Mounting Surface

Shaft Length Code	Bushing N & S	Bushings L & T
A	1/2 in. (12.7mm)	N/A
B	N/A	5/8 in. (15.88mm)
D	7/8 in. (22.23mm)	7/8 in. (22.23mm)
G	1 1/4 in. (31.75mm)	1 1/4 in. (31.75mm)
K	2 1/2 in. (63.5mm)	N/A

N/A = Not available

## Series 45 How To Order

Series 45 available as special order only. Consult Factory for pricing, delivery and minimums.