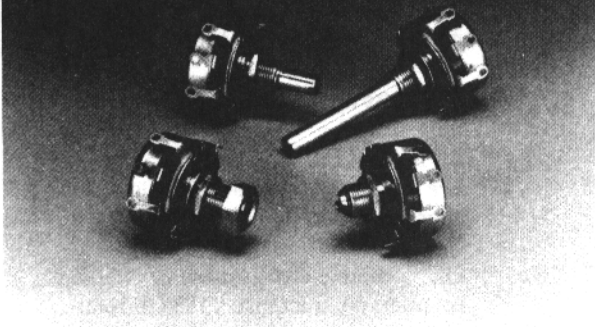


Series 43 and ~~45~~
1 1/8 in. Diameter, 2 and 4 Watt
 Wirewound Potentiometers



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 43M/RA20
 Military version of the 43 series meeting strict military standard MIL-R-19

Series A43
 Pick-A-Shaft version of the 43 series.

~~**Series 45**
 4 watt power rating version of the 43 series, all other specifications as standard.~~

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

| | | |
|--|---|---|
| End Resistance | 1 to 50 Ω - 0.3 Ω ; 51 to 100 Ω - 0.5 Ω . Over 100 Ω - 0.2% of total or 1 Ω , whichever is greater. | 1 to 50 Ω - 0.3 Ω ; 51 to 100 Ω - 0.5 Ω . Over 100 Ω - 0.2% of total or 1 Ω , whichever is greater. |
| Dielectric Withstanding Voltage | 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. |
| Working Voltage | 310 volts maximum | 350 volts maximum |
| Switches | 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. |
| Location of Tap and Tolerance | 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. |
| Insulation Resistance | 100 Megohms minimum | 100 Megohms minimum |

Series 43 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 Operational Specifications

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

Resistance Range
3 Ω to 15K Ω 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

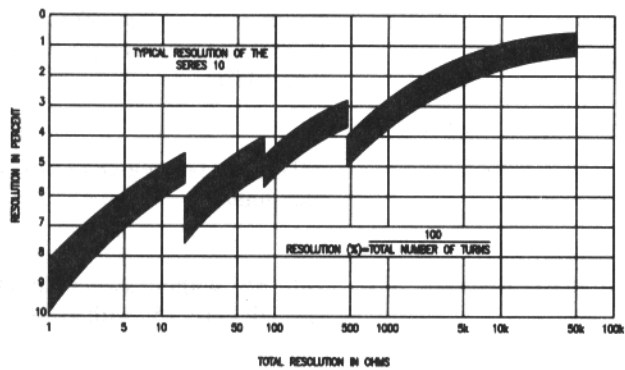


Figure 2
Chart A

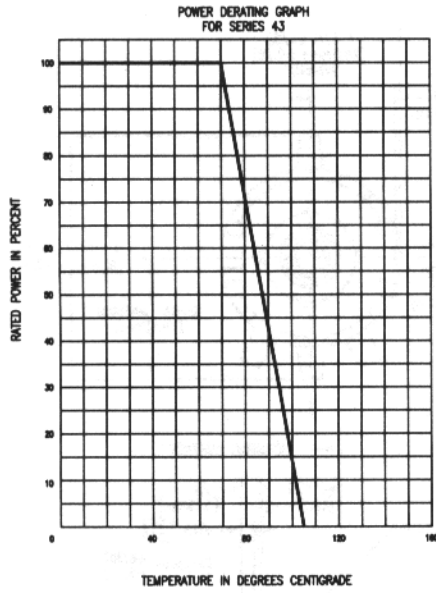
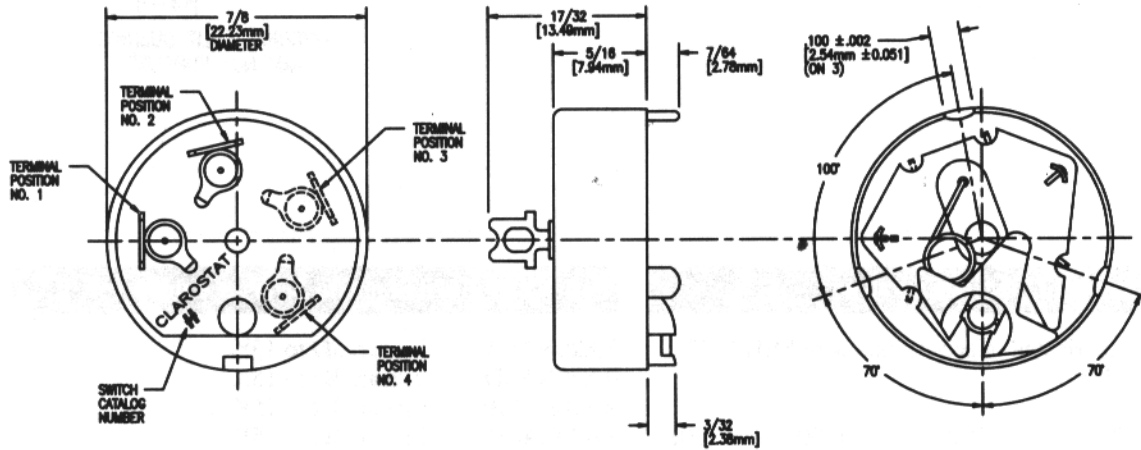


Figure 3
AE Switch Dimensions



| 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.

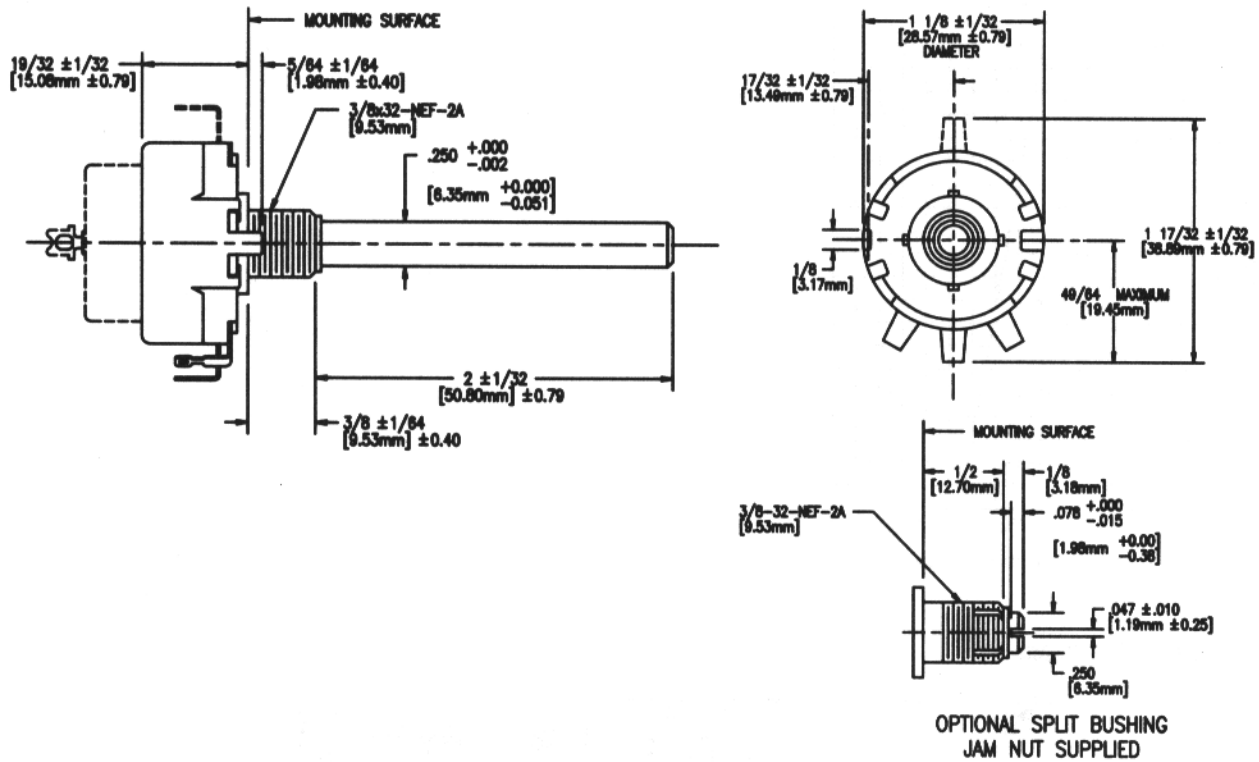
Example: AE-20A.

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

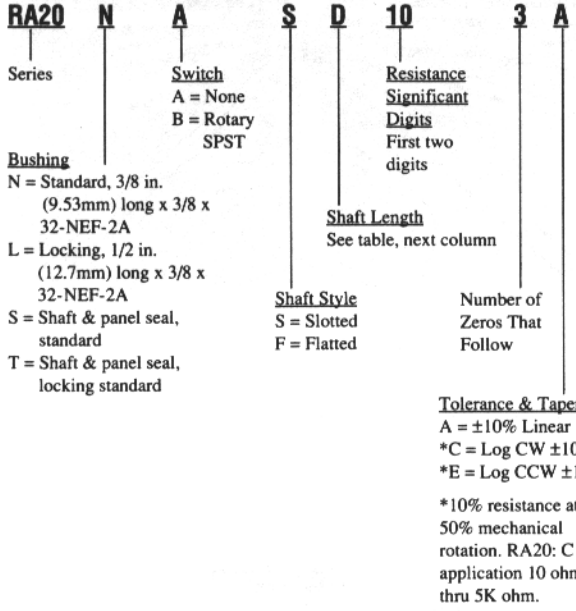
- RA20NASA: Linear, 3Ω to 15K
- RA20NASD: Linear, 3Ω to 15K
- RA20LASB: Linear, 3Ω to 15K
- RA20LASD: Linear, 3Ω to 15K

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**



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.

Series A43/A43S

2 Watt

Pick-A-Shaft, Wirewound Potentiometer

Description

“Pick-A-Shaft” controls take any shaft listed on the next page including high voltage coupler and insulated shaft. Your choice of one of the 13 shafts listed (this does not include insulated shaft) with each control. If shaft is not specified, it will be supplied with RS-2. “A-43” is without switch while “A43S” has factory attached SPST switch. Tolerance $\pm 10\%$ all values. All controls linear. Items not listed are special; prices and information on request. Controls with other than SPST switches are special; prices and information supplied upon request.

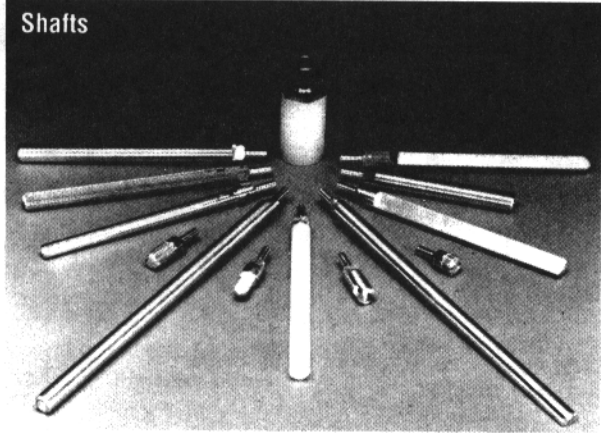
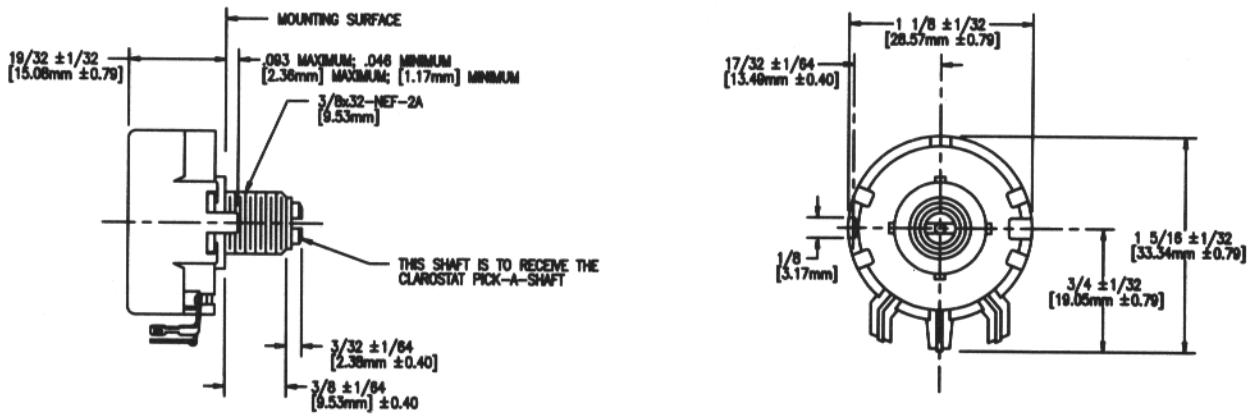


Figure 5

Series A43 Dimensions



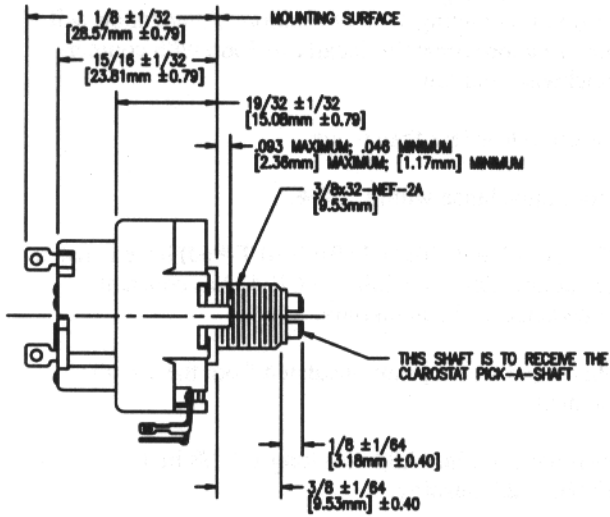
Series A43 Standard Resistance Values

Stock Values

| | | |
|---------|----------|----------|
| A43-5 | A43-200 | A43-4000 |
| A43-10 | A43-250 | A43-5000 |
| A43-20 | A43-300 | A43-7500 |
| A43-25 | A43-400 | A43-10K |
| A43-30 | A43-500 | A43-15K |
| A43-40 | A43-750 | A43-20K |
| A43-50 | A43-1000 | A43-25K |
| A43-75 | A43-1500 | A43-30K |
| A43-100 | A43-2000 | A43-40K |
| A43-150 | A43-3000 | A43-50K |

Figure 6

Series A43S Dimensions



Series A43S Standard Resistance Values

Stock Values

| | | |
|---------|-----------|-----------|
| A43S-5 | A43S-100 | A43S-1500 |
| A43S-10 | A43S-150 | A43S-2000 |
| A43S-20 | A43S-200 | A43S-2500 |
| A43S-25 | A43S-300 | A43S-3000 |
| A43S-30 | A43S-400 | A43S-4000 |
| A43S-40 | A43S-500 | A43S-5000 |
| A43S-50 | A43S-750 | A43S-7500 |
| A43S-75 | A43S-1000 | A43S-10K |

For use with all Clarostat "Pick-A-Shaft" controls either conductive plastic, or wirewound resistive element. Your choice of shaft furnished, at no extra charge, with each "Pick-A-Shaft" control.

Shafts

| Catalog Number | Description |
|----------------|---|
| (1) SS-3/8 | 3/8 in. (9.53mm) long (Male) to take female fitting |
| (2) RS-2 | Round shaft, 2 in. (50.8mm) long |
| (3) RS-3/16 | Round slotted shaft 3/16 in. (4.76mm) diameter, 3 in. (76.2mm) long |
| (4) KSS-3 | Knurled, split shaft, 3 in. (76.2mm) long |
| (5) RS-5 | Round shaft, 5 in. (127mm) long |
| (6) FS-5 | Flatted shaft, 5 in. (127mm) long |
| (7) KSS-5 | Knurled, split shaft, 5 in. (127mm) long |
| (8) FS-3 | Flatted shaft, 3 in. (76.2mm) long |
| (9) RS-3 | Round shaft, 3 in. (76.2mm) long |
| (10) DFS-1/2 | Double-flatted, Philco-type, 1/2 in. (12.7mm) long |
| (11) FKS-1/4 | Fine-knurled, slotted shaft, 1/4 in. (6.35mm) long |
| (12) KFS-3 | Knurled, flatted shaft, 3 in. (76.2mm) long |
| (13) FKS-1/2 | Fine-knurled, slotted shaft, 1/2 in. (12.7mm) long |

Catalog Number 59-186 — Spacer and Bushing Assemble. Catalog Number RN-3 — Non-Metallic Shaft Round 3 in. (76.2mm) long. High voltage shaft for operation up to 10K volts. Attaches to any Clarostat "Pick-A-Shaft" control.

Series A43/A43S How To Order

Series + Resistance value

Example: **A43-100**

A43
Series 43 Pick-A-Shaft
A43 = Without switch
A43S = With SPST switch

100
Resistance Value
(Ohms)

How To Order/Shafts

Example: **RS-2**

RS
Catalog Number
See: Shafts (above)

2
Length of Shaft
Inches