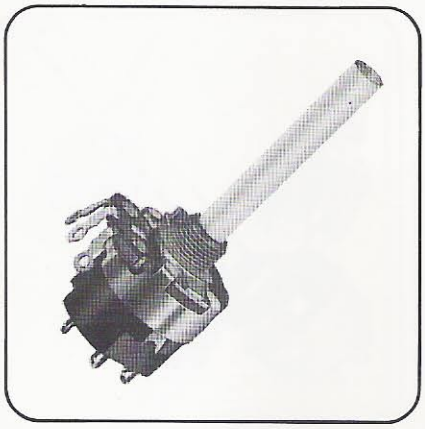
Series 45 Carbon Composition Potentiometers



The Series 45 Carbon Composition Potentiometer is established in all aspects of the electronics industry as one of the most versatile general purpose potentiometers available.

Potentiometers are available with single, dual, tandem or triple units, together with a Double Pole, Single Throw Mains Switch; spindles in metal or insulating material with plain, splined, tapped or flatted shafts in lengths and diameters to suit most requirements; assorted bushes for front or rear mounting with solder lugs, pcb tags or twist tabs and bracket fixing for direct printed circuit board mounting, elements with a choice of Laws of Linear and Logarithmic as standard stocked and other types of law to specification.

MECHANICAL SPECIFICATION

Mechanical Rotation
300° ±5° without switch,
320° ±5° with switch
Operating Torque
0,7 – 3,6 Ncm
End Stop Torque
113 Ncm. minimum
Resistor Adjustment
Integral moulded spindle
Plug in metal spindle
Integral metal spindles (outer and inner)
Integral metal spindle (outer) integral moulded spindle (inner)
Lengths, diameters and end configurations as shown on spindle illustrations.

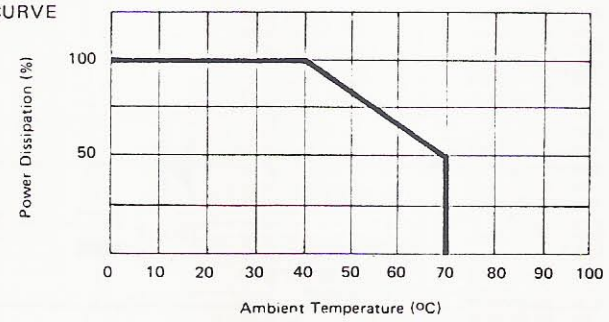
Terminals
Wirewrap, solder lug, printed circuit.

Mounting Details
Bush 9,5mm diameter diecast bush, 32 TPI Whitworth form (BS.84) medium fit, 7,9mm long. Locating key left (terminals down viewed from spindle end) fits into a 3,2mm diameter hole on a 11,1mm radius. Each control can be supplied with one hexagonal fixing nut and one internal toothed lockwasher.
High Voltage Bush: Bush and operating spindle isolated from all parts of the main control.
Bush: M10 x 0,75 x 8 mm long diecast bush with standard or DIN locating key: bushes of other lengths and in other materials can be made available.

STANDARD RESISTANCE ELEMENT DATA

Standard resistance values (Ω)	Maximum power (W)	Maximum working voltage (V)	Max.current through element at 40°C (mA)	Standard resistance values (Ω)	Maximum power (W)	Maximum working voltage (V)	Max.current through element at 40°C (mA)
500	0.5	15.8	31.6	100K	0.5	224	2.2
1K	0.5	22.4	22	250K	0.5	353	1.4
2.5K	0.5	35.3	14	500K	0.5	500	1.0
5K	0.5	50	10	1M	0.5	500	0.05
10K	0.5	70.7	7.1	2.5M	0.5	500	0.02
25K	0.5	111.8	4.5	5M	0.5	500	0.01
50K	0.5	158	3.2	10M	0.5	500	0.005

DERATING CURVE



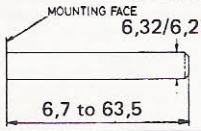
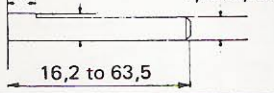
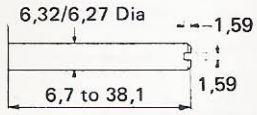
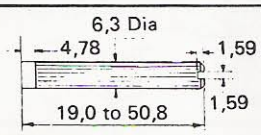
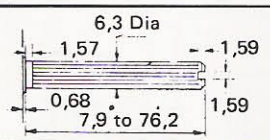
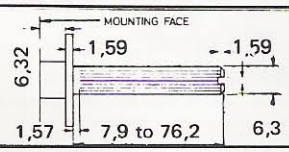
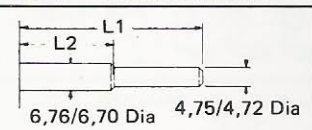
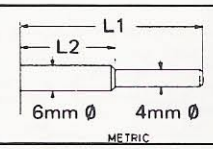
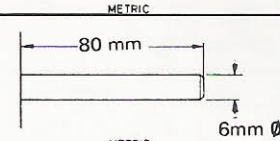
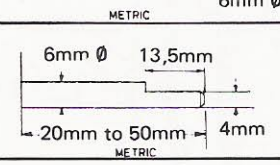
ELECTRICAL SPECIFICATION

Effective Rotation
270° ±5°
Resistance Range
500Ω to 10MΩ linear
1KΩ to 10MΩ log
Lower resistance values to special order
Resistance Tolerance
Standard ± 20% for values to 1MΩ
± 30% above 1MΩ
Special ± 10%
Laws
Linear, log, semi-log, reverse log
Other special laws available on application, including diode law.
Insulation Resistance
> 5000 MΩ
Voltage Rating
500V d.c. maximum
Terminal Resistance
Linear: .....0.5% R_N
Log: Low slope end 0.5% R_N
High slope end 2.0% R_N
Standard minimum resistance value 5Ω.
Lower terminal resistance down 1Ω can be supplied.
Continental requirements to DIN41450 can be supplied.
Hop On Resistance
Linear: Not greater than 0.5%.
Non-linear: Low slope end of taper - Not greater than 0.1%
High slope end of taper - Not greater than 2.0%

Noise
Rotational noise per volt d.c. applied across the control, when measured in accordance with para. 3.11 of BS.2122 is typically 0,75 mV r.m.s. and will not exceed 2 mV r m.s.
On linear controls hop on and hop off areas will be discounted.
On non linear controls the high end hop off area will be discounted.
Voltage Proof:
1.5 kV peak minimum
Taps
Single intermediate tap at 40%, 50% or 60% effective rotation.
Double taps at 35% and 65% effective rotation.
Tap Resistance Tolerance
Standard ± 30%
N.B. It is important that customers specify tap parameters in terms of:—
(a) Value and tolerance at tap
(b) Function whether specific resistance or output ratio.
(c) Maximum and minimum values of minimum contactor to tap resistance
Temperature Range
–25°C to 70°C
Temperature Coefficient
Typically ± 500 p.p.m.
Power Rating at 40°C Ambient Temperature
0.5 Watts linear
0.25 Watts log
Matching
Controls can be supplied matched to the following limits:
Standard A: Linear law 3dB matching from 20dB attenuation
Log law 3dB matching from 32dB attenuation
Standard B: Linear law 2dB matching from 20dB attenuation
Log law 2dB matching from 32dB attenuation
Standard C: Linear law 2dB matching from 30dB attenuation
Linear tapped (no minimum tapped resistance specified)
2dB matching from a point equivalent to 30dB attenuation on a non-tapped control; specified as an attenuation point when taking into account external resistors, the values of which are advised by the customer.
Log law 2dB matching from 46dB
Specials: Continental requirements:
Linear law 3 or 2dB matching from 30° rotation (nominal 25dB attenuation)
Log law 3dB matching from 30° rotation (nominal 36dB attenuation)

Mains Switch – Type AR
Each control is supplied with a double pole, single throw mains switch operating in 25° rotation of the control spindle.
In the standard construction the switch is 'OFF' in the fully anti-clockwise position of the spindle.
The switch is rated at 2 Amps/250V a.c., with a surge rating of 64 Amps.
Clearance and creepage distances conform to BS.415.
Approvals to SEMKO, DEMKO, NEMKO, C.S.A.

SPINDLE VARIATIONS

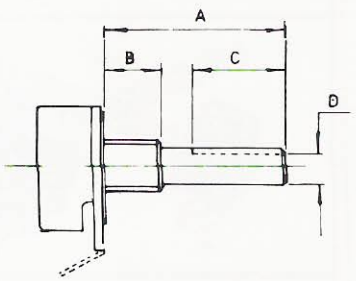
			MOULDED	METAL
			INTEGRAL	PLUG-IN
		FULLY ANTICLOCKWISE	INTEGRAL	PLUG-IN
			INTEGRAL	PLUG-IN
			INTEGRAL	—
*			PLUG-IN	—
*			PLUG-IN	
*			PLUG-IN	
			INNER —	OUTER INNER AND OUTER
			—	BOTH INNER AND OUTER
			INTEGRAL	PLUG-IN
		HORIZONTAL FLAT FACING UP OR DOWN) VERTICAL FLAT (FACING RIGHT OR LEFT)	INTEGRAL	PLUG-IN

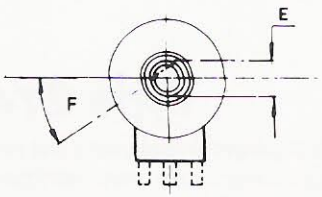
*Spindles marked thus are for use on Type FS45 controls only.

ORDERING CODE

All custom and standard devices are strictly assembled to meet full performance specifications. To ensure these parameters are met it is essential that a detailed description of the potentiometer required is given at the time of placing the order. The part or type number should be quoted if this is an established approved device previously ordered directly from AB Controls (formerly the manufacturer of this Series prior to 1989).

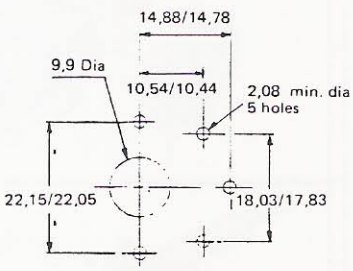
With these details and in combination with the wide stocks of piece parts, our special purpose assembly facility is able to provide a service for virtually any configuration of Model 45, either to a recognised standard or as a special requirement.



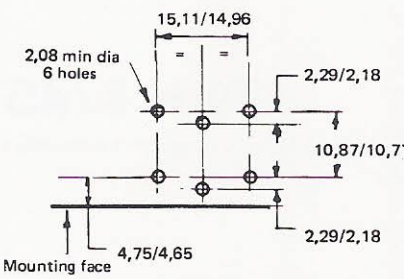


A – SPINDLE LENGTH FMF
B – BUSH LENGTH
C – FLAT LENGTH
D – FLAT THICKNESS
E – SPINDLE DIAMETER
F – ANGLE OF FLAT SPECIFIED WITH SPINDLE IN FULLY A/C POSITION

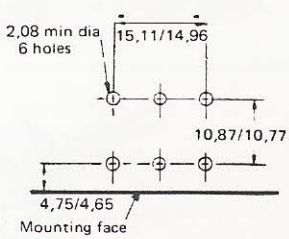
RECOMMENDED PANEL PIERCING



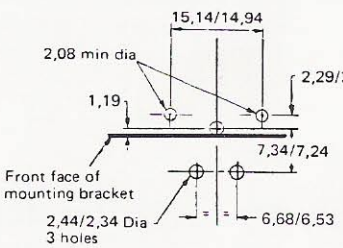
For Type FS45



For Type H with pc terminations



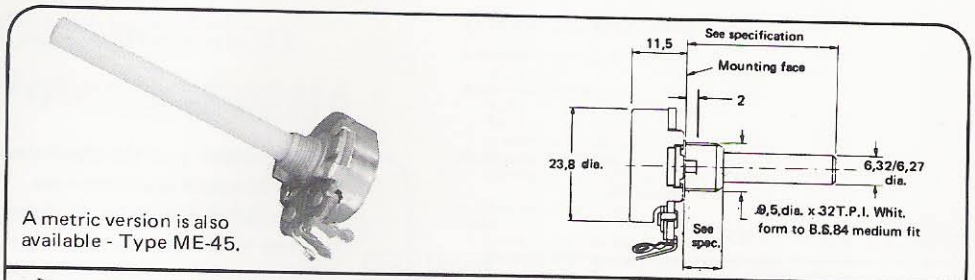
For Type UH with pc terminations



For Type HB45

Type 45

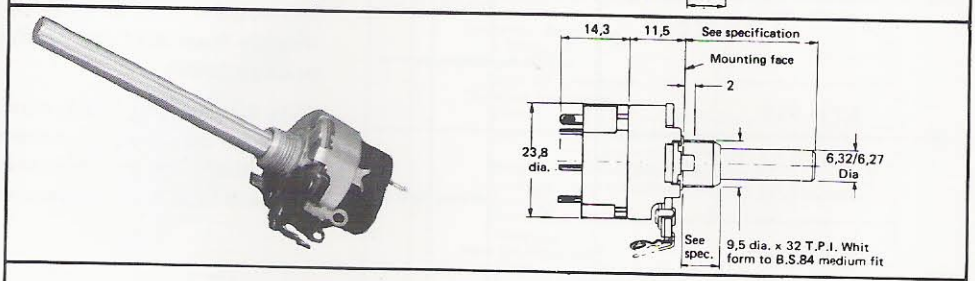
The Standard Type 45 is supplied with a stock 2" Delrin spindle and a ⅜"dia x ¼" bush. A locating key is at 9 oclock and the solder tags in the down position.



A metric version is also available - Type ME-45.

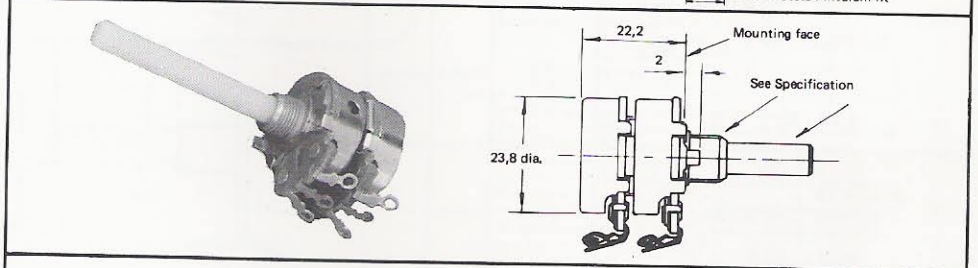
Type 45 AR

The basic type with a flame retardant double pole, single throw mains switch.



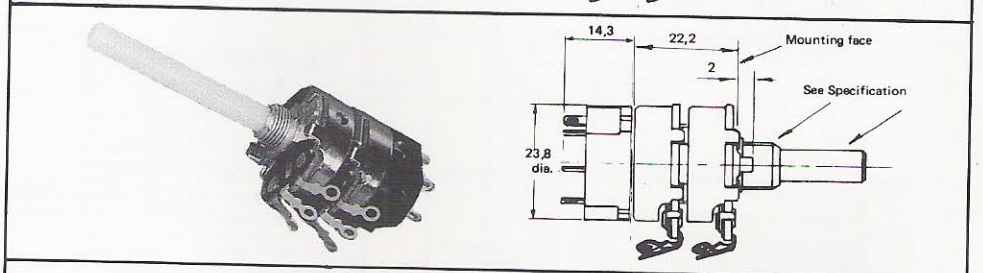
Type 2/45

A dual ganged arrangement and can be supplied electrically matched (optional).



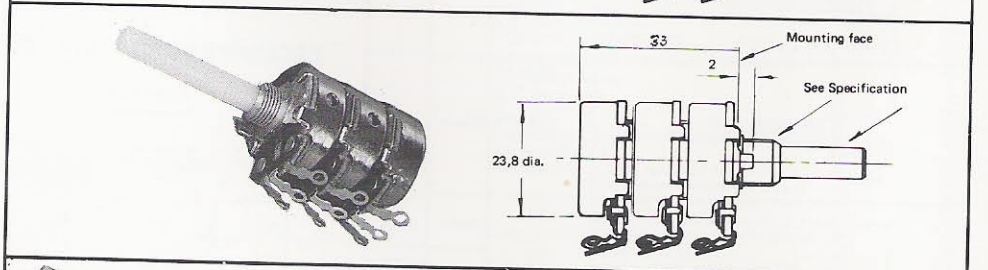
Type 2/45 AR

A dual ganged arrangement fitted with a flame retardant double pole, single throw mains switch.



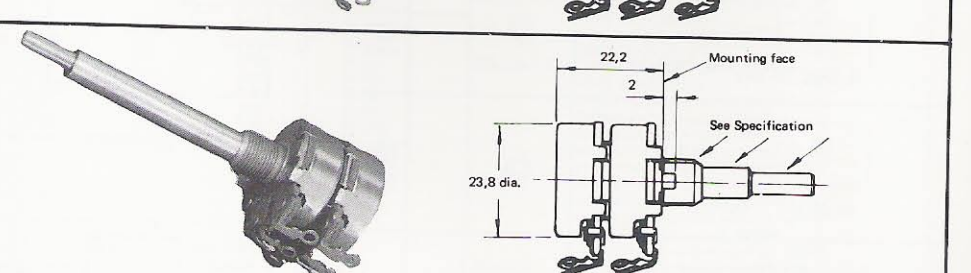
Type 3/45

A triple control arrangement with single shaft.



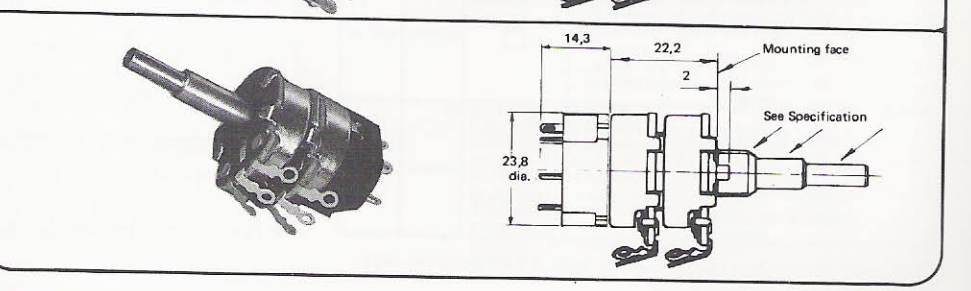
Type C2/45

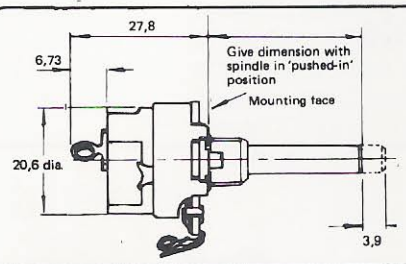
A dual concentric arrangement available with various spindle lengths and end configurations.

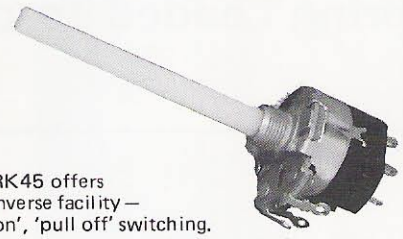


Type C2/45 AR

A dual concentric arrangement fitted with a flame retardant double pole, single throw mains switch.



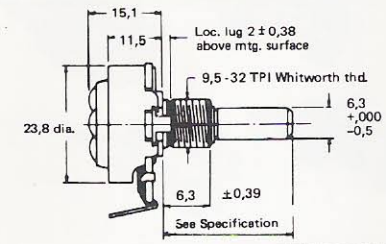


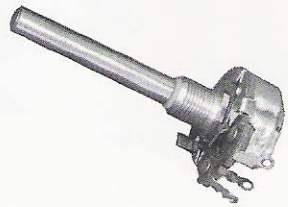


Type RK45 offers the converse facility – 'push on', 'pull off' switching.

Type K45

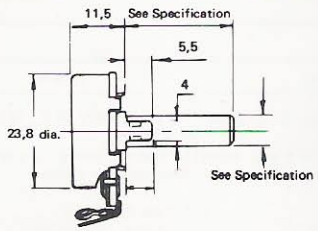
The basic type supplied with a 'pu 'push off', single pole, single throw mains switch.

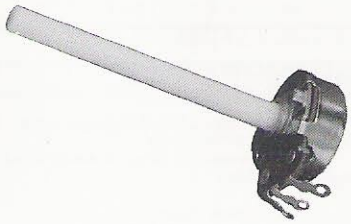




Type VA45

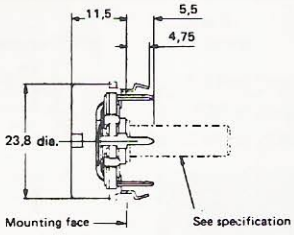
Available in 5 or 10 turn vernier acti versions to give extreme accuracy movement over full electrical rota

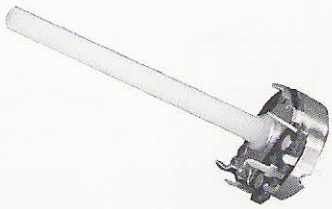




Type P45

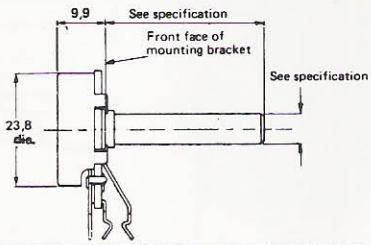
The basic type which features twist mounting.

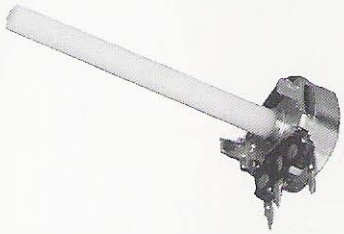




Type FS45

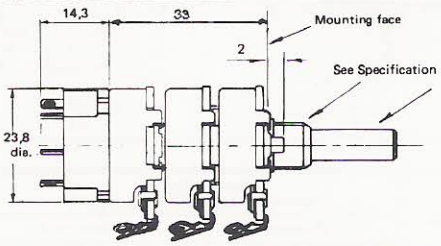
Features snap-in flush panel moun and printed circuit terminations.

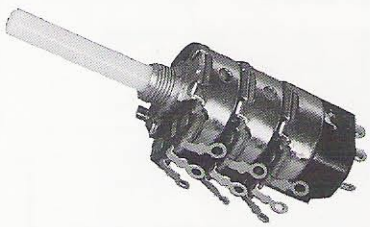




Type HB45

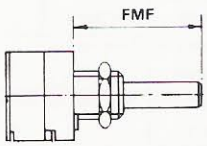
Features bracket or bush mountin printed circuit terminations.





Type 3/45 AR

A triple control arrangement with f retardant double pole, single throw switch.



Potentiometers are supplied with a stock spindle length. However, we can turn spindles down to specific dimensions providing we stock a length in excess of the final size. A drilling and slotting service is also available.
All spindle lengths are measured FMF (from mounting face).