



9mm carbon potentiometers with plastic housing and protection type IP 5 (dust-proof).

Standard tapers available include linear, log and antilog. ACP can also study special requests.

Terminals are manufactured in tinned brass to guarantee better soldering and higher resistance to corrosion. They can be provided straight or crimped (with “snap in”), recommended to hold the potentiometer to the board prior to the soldering operation. SMD configuration can be available on request.

Thumbwheels and shafts can be provided either separately or already inserted in the potentiometer.

ACP's potentiometers can be adjusted from either side, both in the horizontal and the vertical adjustment types. There is a guide on the housing to simplify the manual adjusting operations.

Our potentiometers can be manufactured in a wide range of possibilities regarding:

- Resistance value.
- Tolerance.
- Tapers / variation laws.
- Pitch.
- Positioning of the wiper (the standard is at 50%).
- Housing and rotor color.
- Mechanical life.
- Pause effect (up to 20 detents available).
- Self-extinguishable plastic parts according to UL 94 V-0.

Applications

- Electronic appliances: white goods, brown goods, small household appliances.
- Heating and air conditioning equipment and thermostats.
- Automotive: dimmers, climate controls, lighting regulation (position adjustment and sensing).
- Measurement and test equipment. Timers and relays.
- Multimedia.



9mm Cermet potentiometers with plastic housing and protection type IP 5 (dust-proof). Self-extinguishable according to UL 94 V-0.

Standard taper is linear. Log, Antilog and other tapers are available on request. Laser trimming equipment in-house, allowing for very low tolerances.

Terminals are manufactured in tinned brass to guarantee better soldering and higher resistance to corrosion. They can be provided straight or crimped (with “snap in”), recommended to hold the potentiometer to the board prior to the soldering operation. SMD configuration can be available on request.

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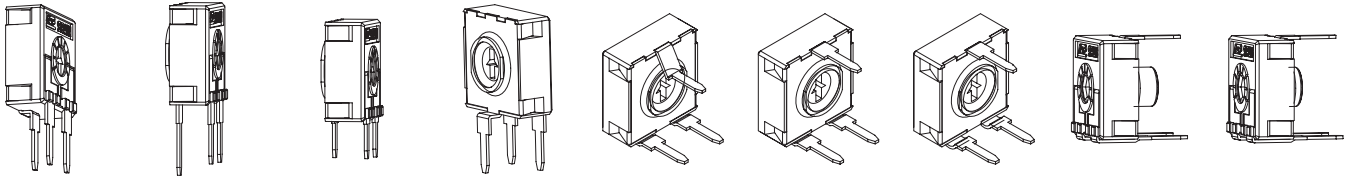
- Resistance value.
- Tolerance.
- Tapers / variation laws.
- Pitch.
- Positioning of the wiper (the standard is at 50%).
- Housing and rotor color.
- Mechanical life.
- Pause effect (up to 20 detents available).

Applications

- Electronic appliances: white goods, brown goods, small household appliances, boilers, water heaters, etc.
- Heating and air conditioning equipment and thermostats.
- Automotive: dimmers, climate controls, lighting sensors.
- Industrial electronics: multimeters, oscilloscopes, test equipment, time relay.

Models

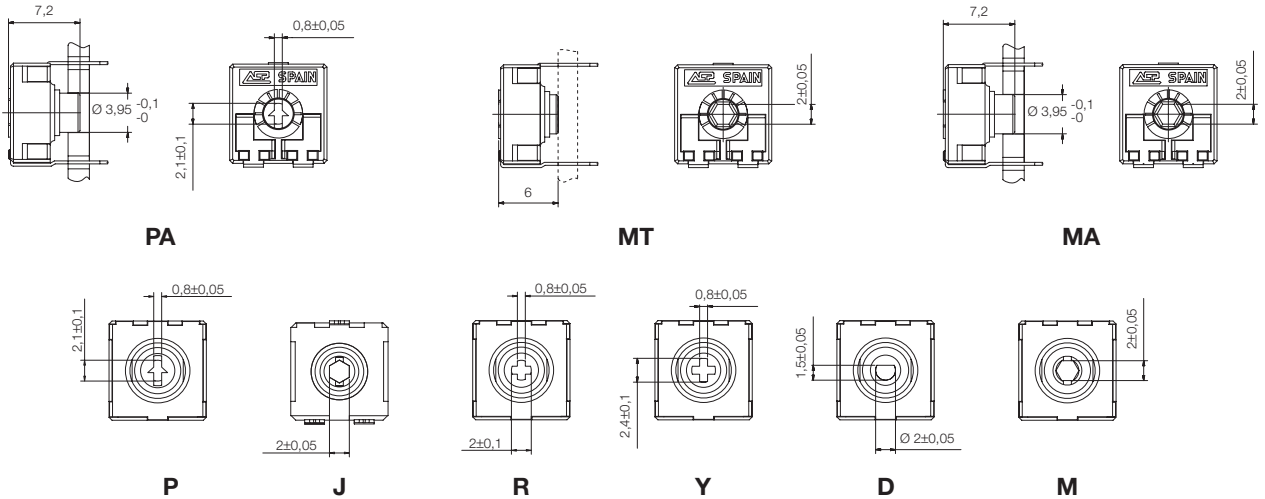
All models shown here have the standard rotor for the 9mm series, the arrow (P). Models can be manufactured with any of the rotors listed on the rotor menu. The color of the housing or rotor can also be modified. SMD configuration can be available on request.



CA9 H2,5 CE9 H2,5	CA9 H3,8 CE9 H3,8	CA9 HS3,8 CE9 HS3,8	CA9 H5 CE9 H5	CA9 V7,5 CE9 V7,5	CA9 V10 CE9 V10	CA9 VR10 CE9 VR10	CA9 MAV10 CE9 MAV10	CA9 MTV10 CE9 MTV10
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Rotors

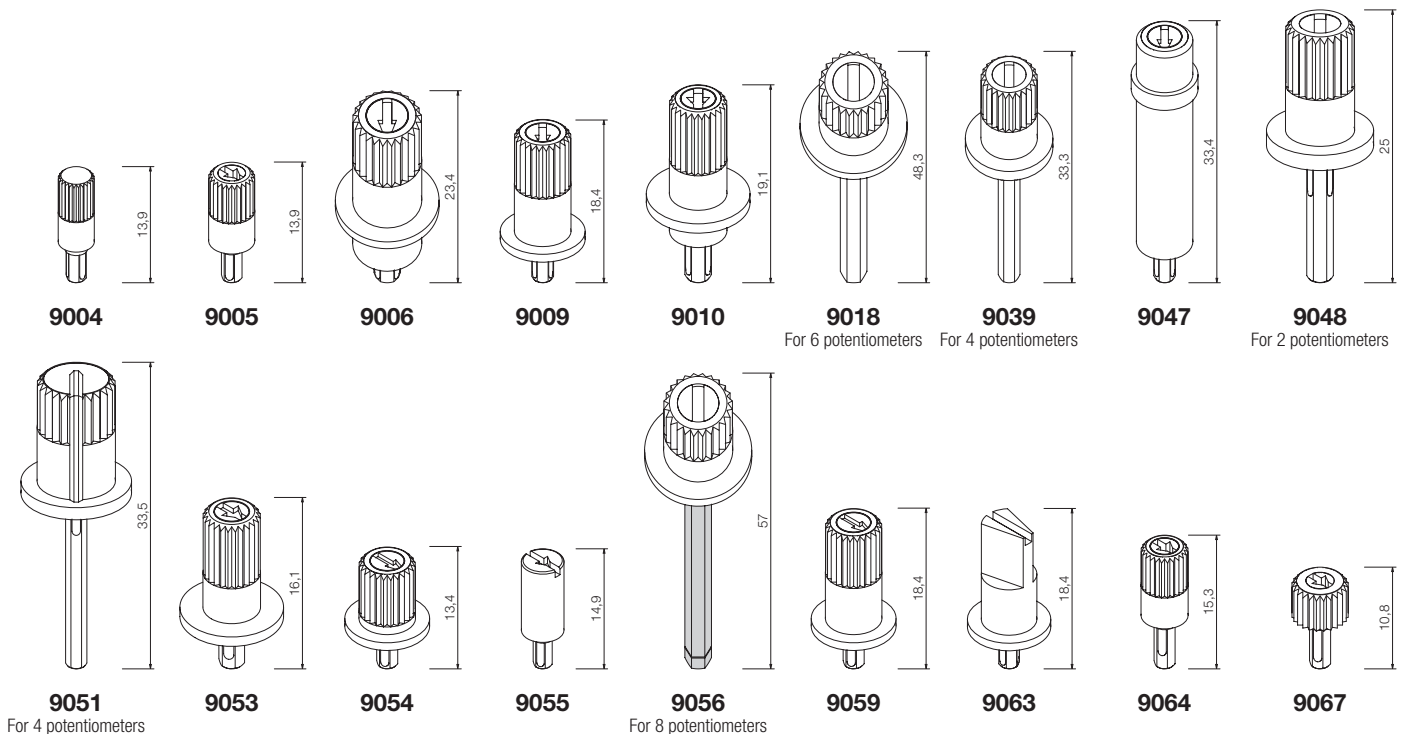
The rotor by default is the arrow (P). Accessories are designed for the M and J rotors, unless otherwise stated.



Shafts

• **CA9.** Shafts are available in different colors. On request, they can also be provided in accordance with UL 94 V-0. Potentiometers can be supplied with shafts already inserted in. ACP can also study special shafts.

• **CE9.** Shafts in accordance with UL 94 V-0 are available in different colors. Potentiometers can be supplied with shafts already inserted in. ACP can also study special shafts.



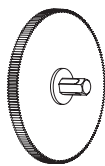
Thumbwheels

• **CA9.** Thumbwheels are available in different colors. On request, they can also be provided in accordance with UL 94 V-0. Potentiometers can be supplied with thumbwheels already inserted in. ACP can also study special requests for thumbwheels.

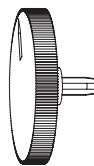
• **CE9.** Thumbwheels in accordance with UL 94 V-0 are available in different colors. Potentiometers can be supplied with thumbwheels already inserted in. ACP can also study special requests for thumbwheels.



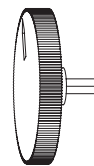
9002



9041



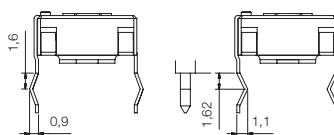
9060
For R rotor



9061

Terminals

By default, terminals are always straight for the 9mm size, as shown on the “models” menu. ACP can provide crimped terminals (with “snap in”), to better hold the component to the board prior to soldering.

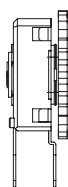


SNP

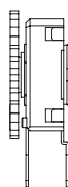
SNJ

Adjustment possibilities

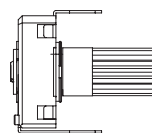
ACP's potentiometers can be adjusted through either the front side (WT) or the collector side (WTI):



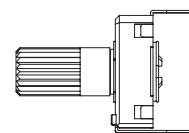
WTI
Collector side



WT
Front side



WTI
Collector side



WT
Front side

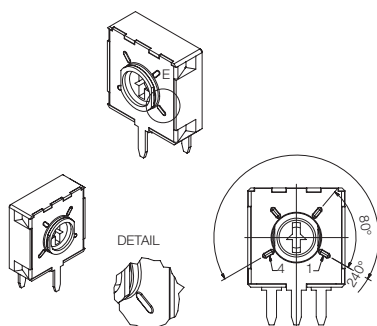
Potentiometers with detents

ACP's “detent” feature (DT) is specially suitable for control applications. Our patented design has improved the features of these potentiometers:

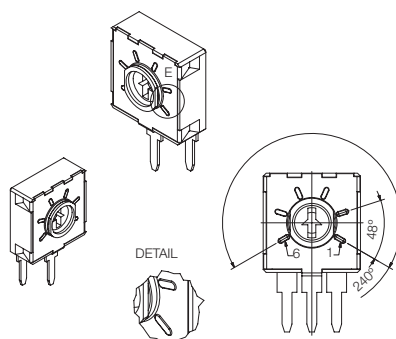
- Longer mechanical life: up to 10.000 cycles.
- More stable electrical parameters.
- Improved reliability and Contact Resistance Variation (CRV).
- Narrower tolerances for detent positioning.

Detents can be lighter or stronger, or even a combination of both feelings. Detents can be evenly distributed along the angle (standard), or tailored to match customers' request. They can also be combined with special tapers: constant value areas, different slopes, etc.

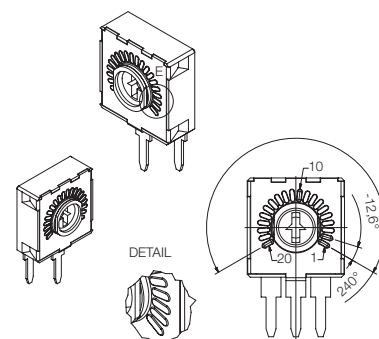
Examples: 4, 6 and 20 detents –evenly distributed–.



4DT



6DT



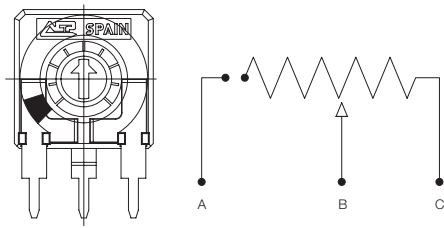
20DT

Potentiometers with cut track

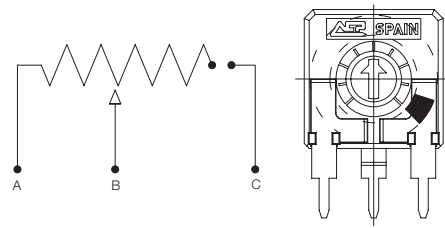
The resistive element in this potentiometer has an area with very high resistive values, resulting in an open circuit. Recommended for lighting regulation.

With cut at the beginning of the track CCW: Off-On.

With cut at the end of track CW: On-Off. Other positions available on request.



CCW: Off-On

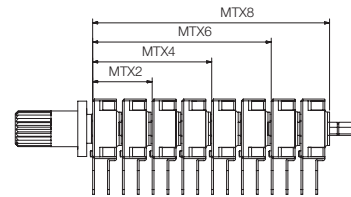
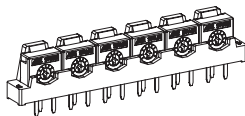
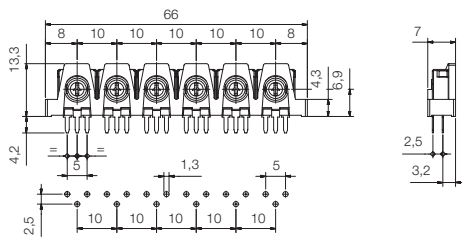


CW: On-Off

Assemblies of several potentiometers

STACKING: Set of 6 potentiometers in a plastic cover. It is used to speed up assembly and soldering process.

GANGED: Set of potentiometers in a row that allows for simultaneous adjustment of all of them through one shaft. Recommended potentiometer model is H2,5. MTX2 (2 potentiometers), MTX4 (4), MTX6 (6), MTX8 (8).



Packaging

Bulk packaging: Potentiometers are first bagged and then introduced in boxes:

Potentiometer model	+ Shaft or thumbwheel inserted	Pieces per box (130 x 60 x 90)
	- (only potentiometers)	500 (models with * : 450)
H2,5 - H3,8 - H5 - HS3,8 - V7,5 - V10 - VR10 MAV10* - MTV10*	9002	250
	9004, 9005, 9006, 9009, 9010, 9018, 9039, 9041, 9047, 9048, 9051, 9056, 9059, 9053, 9054, 9055, 9060, 9061, 9063, 9064, 9067	200
MTX2	9048	150
MTX4	9039, 9051	75
MTX6	9018	50
MTX8	9056	40
STACKING	-	50

Tape and reel (T&R) packaging will be available for SMD configurations, on request.



CA9. Electric Specifications

These are standard features; other specifications can always be studied on request.

Range of resistance values	
Lin (A)	$100\Omega \leq R_n \leq 5M\Omega$
Log (B) Antilog (C)	1 K Ω ... 2,2 M Ω

Tolerance	100 Ω ... 1M Ω $\pm 20\%$
Special tolerances available on request	>1M Ω ... 5M Ω $\pm 30\%$ Out of range: Rn> 5M Ω : +50%, -30%

Variation laws	Lin (A), Log (B), Antilog (C) Other tapers available on request
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Residual resistance	Lin (A), Log (B), Antilog (C) $\leq 5 \cdot 10^{-3} R_n$ Minimum value 2 Ω
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CRV - Contact Resistance Variation (dynamic)	$\leq 3\% R_n$
----------------------------------------------	----------------

CRV - Contact Resistance Variation (static)	$\leq 5\% R_n$
---------------------------------------------	----------------

Maximum power dissipation at 40° C.	
Lin (A)	0,15W
Non Lin (B, C)	0,10W

Maximum voltage at 40°C	
Lin (A)	200VDC
Non Lin (B, C)	150VDC

Operating temperature	-25°C ... +70°C
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Temperature coefficient	100 Ω - 10K Ω \rightarrow +200/ -300 ppm. >10K Ω - 5M Ω \rightarrow +200/ -500 ppm
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CA9. Mechanical Specifications

Resistive element	Carbon technology
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Angle of rotation (mechanical)	240° \pm 5°
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Wiper position	Middle position: 50% \pm 15°
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Angle of rotation (electrical)	220° \pm 20°
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Max. stop torque	5 Ncm
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Max. push/pull on rotor	40 N
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Wiper torque	< 2 Ncm (0,4 ... 3,5Ncm for pots. with detents)
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Mechanical life	1000 cycles (more available on request) (up to 10.000 cycles for pots. with detents)
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CA9. Test

Test // Conditions // Typical variation of Nominal Resistance

Damp heat // 500 h. at 40°C and 95% RH // +5%; -2%

Thermal cycles // 16h at 85°C, plus 2h at -25°C // $\pm 2,5\%$

Load life // 1.000 h. at 40°C // +0%; -5%

Mechanical life // 1000 cycles at 10 c.p.m. and at 23°C \pm 2°C // $\pm 3\%$

Soldering effect // 2 seconds at 350°C // $\pm 1\%$

Storage (3 years) // at 23°C \pm 2°C // $\pm 3\%$

For further information on tests, go to TESTS AND RELIABILITY on pages 10-11.



CE9. Electric Specifications

These are standard features; other specifications can always be studied on request.

Range of resistance values	
Lin (A)	$100\Omega \leq R_n \leq 5M\Omega$
Log (B) Antilog (C)	1 K Ω ... 2,2 M Ω

Tolerance	100 Ω ... 1M Ω $\pm 20\%$
Special tolerances available on request	>1M Ω ... 5M Ω $\pm 30\%$ Out of range: Rn> 5M Ω : +50%, -30%

Variation laws	Lin (A) Log (B), Antilog (C) and other tapers available on request
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Residual resistance	Lin (A), Log (B), Antilog (C) $\leq 5 \cdot 10^{-3} R_n$ Minimum value 2 Ω
---------------------	--------------------------------------------------------------------------------------

CRV - Contact Resistance Variation (dynamic)	$\leq 3\% R_n$
----------------------------------------------	----------------

CRV - Contact Resistance Variation (static)	$\leq 5\% R_n$
---------------------------------------------	----------------

Maximum power dissipation at 40° C.	
Lin (A)	0,5W
Non Lin (B, C)	See note 1

Maximum voltage at 40°C	
Lin (A)	200VDC
Non Lin (B, C)	See note 1

Operating temperature	-40°C ... +125°C
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Temperature coefficient	± 100 ppm.
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Note 1: Value depends on taper, please, inquire.



CE9. Mechanical Specifications

Resistive element	Cermet technology
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Angle of rotation (mechanical)	240° \pm 5°
--------------------------------	---------------

Wiper position	Middle position: 50% \pm 15°
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Angle of rotation (electrical)	220° \pm 20°
--------------------------------	----------------

Max. stop torque	5 Ncm
------------------	-------

Max. push/pull on rotor	40 N
-------------------------	------

Wiper torque	< 2 Ncm (0,4 ... 3,5Ncm for pots. with detents)
--------------	----------------------------------------------------

Mechanical life	1000 cycles (more available on request) (up to 10.000 cycles for pots. with detents)
-----------------	-----------------------------------------------------------------------------------------



CE9. Test

Test // Conditions // Typical variation of Nominal Resistance

Damp heat // 500 h. at 40°C and 95% RH // $\pm 2\%$

Thermal cycles // 16h at 90°C, plus 2h at -40°C // $\pm 2\%$

Load life // 1.000 h. at 70°C // $\pm 2\%$

Mechanical life // 1000 cycles at 10 c.p.m. and at 23°C \pm 2°C // $\pm 2\%$

Soldering effect // 2 seconds at 350°C // $\pm 1\%$

Storage (3 years) // at 23°C \pm 2°C // $\pm 3\%$

For further information on tests, go to TESTS AND RELIABILITY on pages 10-11.

- **EXAMPLE: CA9MH2,5-10KA2020 SNP PI WT9005-BA-V0**
- **EXAMPLE: CE9MH2,5-10KA2020 SNP PI WT9005-BA-V0**

Standard features								Extra features							Assembled accessory			
Series	Rotor	Model	Packg	Ohm value	Taper	Tol	Life	Track	Detents	Snap in	Housing	Rotor	Wiper	Lin	Assembly	Ref #	Color	Flam.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16		17
CA9/CE9	M	H2,5		-10K	A	2020				SNP			PI		WT	9005	-BA	-V0

Standard configuration		Customized products	
Dimensions:	9mm	A drawing is requested to order a customized product. The code assigned will include all special specifications.	
Protection:	<ul style="list-style-type: none"> • CA9: IP 5 (dust-proof) • CE9: IP-5 (dust-proof) Self-extinguishable, to meet UL 94 V-0 	Series, rotor, model and total resistive value are given before the special code: CA9PH2,5 10K CODE C00111.	
Substrate:	<ul style="list-style-type: none"> • CA9: Carbon technology • CE9: Cermet 		
Color:	<ul style="list-style-type: none"> • CA9: Blue housing with white rotor • CE9: Brown housing with white rotor 		
Packaging:	Bulk		
Wiper position:	at 50% ±15°		
Terminals:	Straight, without SNAP IN		
Marking:	Resistive value marked on housing. Others on request		

1 - Series

- CA9
- CE9

3 - Model and pitch

H2,5	H3,8	H5	HS3,8	V7,5
V10	VR10	MAV10	MTV10	

HSMD and VSMD models can be available on request.

5 - Resistance value

Taper:	Lin (A)	Log (B), Antilog (C)
Value Rn	100 Ω / 100 ... / ... 5 MΩ / 5M	1KΩ / 1K ... / ... 2,2 MΩ / 2M2

Other resistive values available on request.

7 - Tolerance

100 Ω ≤ Rn ≤ 1MΩ: ±20%	2020
1 MΩ ≤ Rn ≤ 5MΩ: ±30%	3030
For out of range values: Rn > 5MΩ, tol : +50% - 30%	5030
Special tolerances available: <5% ... 10%, etc.	

9 - Cut track

At beginning of track, CCW: Off - On	PCI
At end of track, CW: On - Off	PCF

11 - Crimped terminals (SNAP IN)

SNAP IN P	SNP
SNAP IN J	SNJ

2 - Rotors

P (standard)	PA	R	Y	D	M	MA	MT	J
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4 - Packaging

	Through-hole	SMD models
Bulk	(blank)... ⁽¹⁾	On request
T&R (Tape and reel)	(N.A.) ⁽²⁾	On request

⁽¹⁾ If blank, bulk packaging is implied.

⁽²⁾ N.A. - Not Available: Tape and Reel packaging is only available for SMD terminals.

6 - Resistance law / taper

Lin - Linear	A
Log - Logarithmic	B (on request for CE)
Antilog - Antilogarithmic	C (on request for CE)
- Special tapers have codes assigned:	CODE YXXXXX

Please, indicate terminal position when ordering a special taper.

8 - Operating life (cycles)

Standard (1000cycles)	(leave blank)
Long life: LV + the number of cycles. ex: LV10 for 10000 cycles ⁽¹⁾	LVXX: ex: LV10

⁽¹⁾ Others on request.

10 - Detents (DT)

One detent at the beginning: CCW	DTI
One detent at the end: CW	DTF
X number of detents. Ex., 10	XDT: 10DT

Detents readily available: 3, 4, 6, 7, 9, 10, up to 20 -evenly distributed along 240°±5°. Others on request.

12 - Housing color

- **CA9:** standard is blue
- **CE9:** standard is brown

With other colors -see color chart below-, for example, red CJ-color, ex: CJ-RO

13 - Rotor color

Standard is white	
With other colors -see color chart below-, for example, red	RT-color; ex: RT-RO

15 - Linearity

Independent linearity controlled & below x%, for example, 3%: LN3%	LNx%; ex: LN3%
Absolute linearity controlled & below x%	LAx%

17 - Flammability (according to UL 94 V-0)

• CA9: Not self-extinguishable	(leave blank)
Self-extinguishable according to standard UL 94 (including all plastic parts of the potentiometer: rotor, housing and accessory. If only one part needs to be V0, please, inform)	-V0
• CE9: All accessories assembled with cermet potentiometers will have the self-extinguishable property according to standard UL 94	-V0

For ordering spare accessories

Accessory reference - color- flammability. Ex. 9005-AZ-V0 is a blue self-extinguishable 9005 thumbwheel

XXXX-YY-__

For ordering special sets of potentiometers

STACKING STK + ... (POTENTIOMETER CODE)

Example: STK+CA9MH2,5-10KA2020 ⁽¹⁾

GANGED MTX + (number of potentiometers: 2, 4, 6, 8) + ... (POT. CODE + ASSEMBLED SHAFT CODE)

Example: MTX4+CA9PH2,5-10KA2020 WT9051-BA ⁽¹⁾

⁽¹⁾ Note: If not all potentiometers in the set are identical, please, order potentiometers separately and indicate assembly order.

Color chart for rotor, housing and accessories

Black ⁽¹⁾	NE
White	BA
Neutral	IN
Transparent	TA
Red	RO
Green	VE
Yellow	AM
Blue	AZ
Grey	GS
Brown	MR

⁽¹⁾ Black is not an option for housings.

14 - Wiper

Wiper position (Standard is at 50% ± 15°)	(leave blank)
Initial or CCW	PI
Final or CW	PF
Others: following clock positions; at 3hours: P3H	PXH, ex: P3H
Wiper torque (Standard: <2 Ncm)	(leave blank)
Low torque (< 1.5Ncm)	PGB

16 - Potentiometers with assembled accessories

Assembled from front side	WT
Assembled from collector side	WTI
Accessory Reference See list of shafts and thumbwheels available	XXXX Example: 9005
Color of shaft or thumbwheel	-YY Example, white: BA

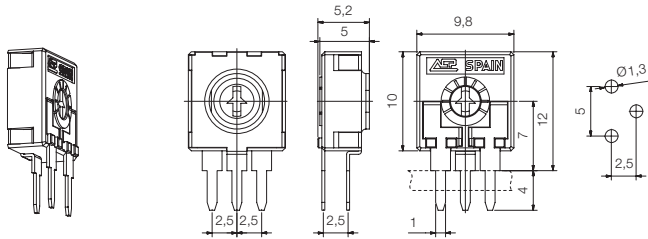
DRAWINGS CA9 // CE9

Tolerances 9 mm (in mm.):

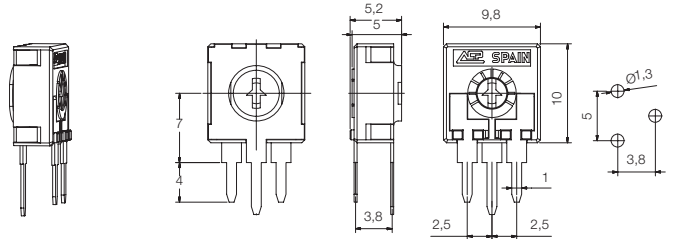
<1	±0,1
1...<5	±0,3
5...	±0,5

Model types. CA9 // CE9

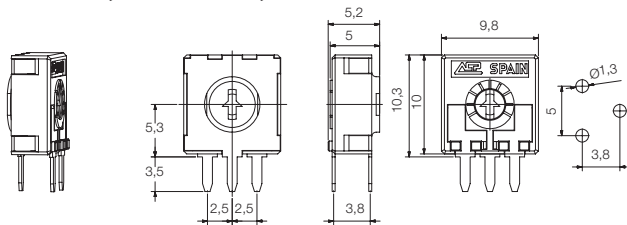
CA9 H2,5 // CE9 H2,5



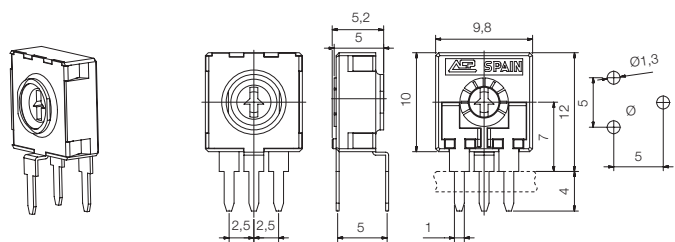
CA9 H3,8 // CE9 H3,8



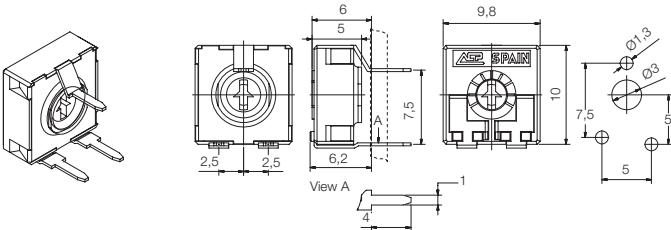
CA9 HS3,8 // CE9 HS3,8



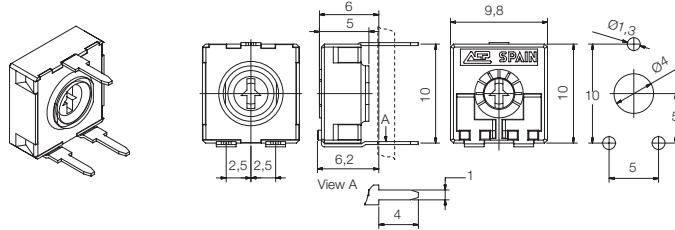
CA9 H5 // CE9 H5



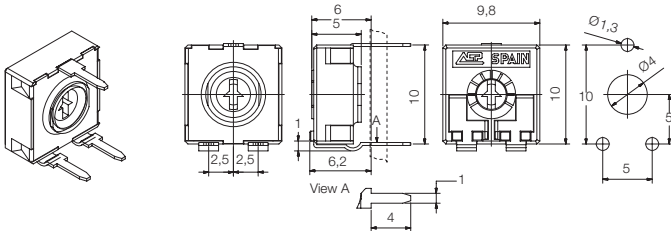
CA9 V7,5 // CE9 V7,5



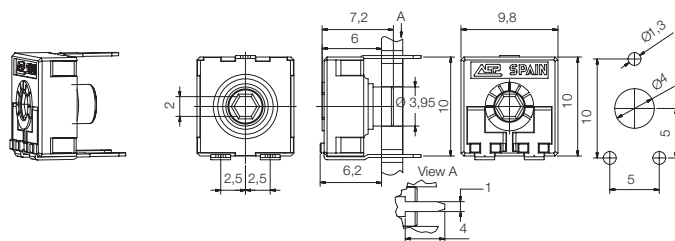
CA9 V10 // CE9 V10



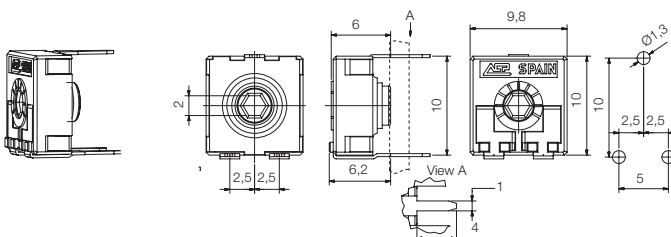
CA9 VR10 // CE9 VR10



CA9 MAV10 // CE9 MAV10



CA9 MTV10 // CE9 MTV10



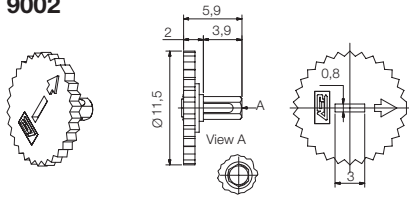
DRAWINGS CA9 // CE9

Tolerances 9 mm (in mm.):

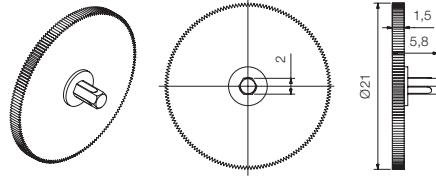
<1	±0,1
1...<5	±0,3
5...	±0,5

Thumbwheels. CA9 // CE9

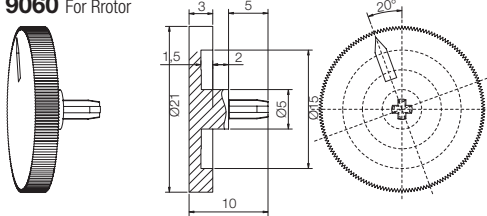
9002



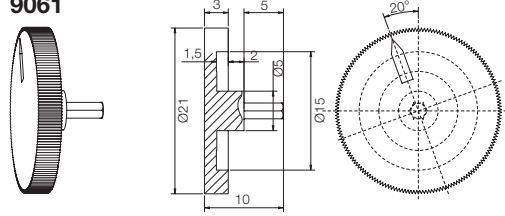
9041



9060 For Rrotor

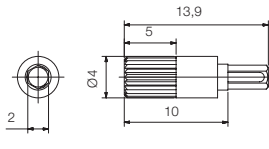


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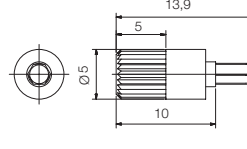


Shafts. CA9 // CE9

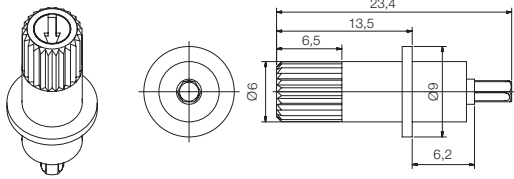
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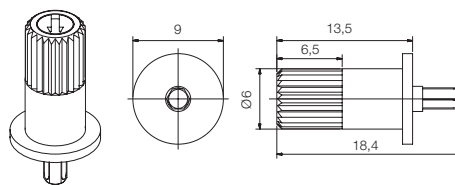
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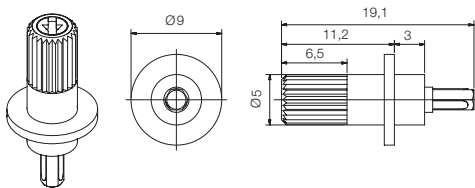
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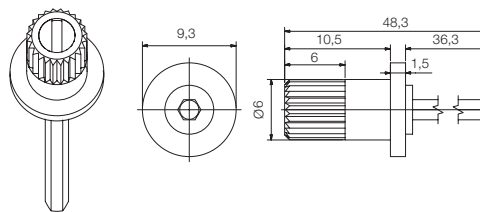
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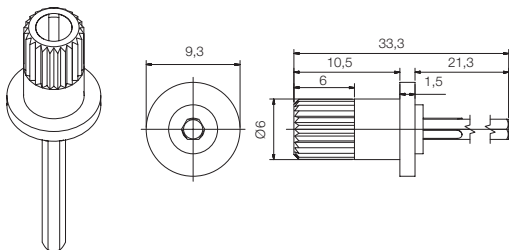
9010



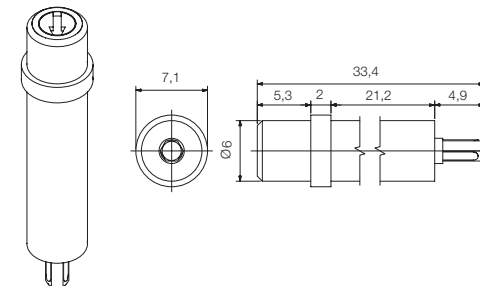
9018 For 6 potentiometers



9039 For 4 potentiometers



9047



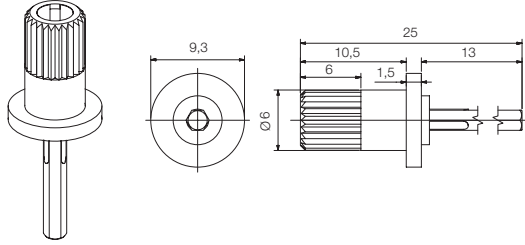
DRAWINGS CA9 // CE9

Tolerances 9 mm (in mm.):

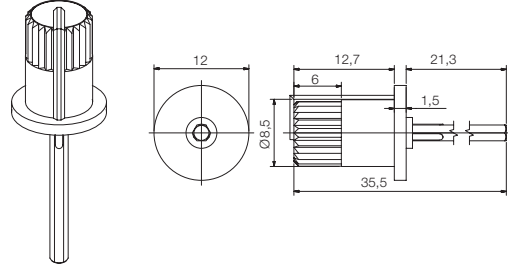
<1	±0,1
1...<5	±0,3
5...	±0,5

Shafts. CA9 // CE9

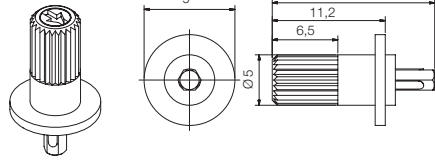
9048 For 2 potentiometers



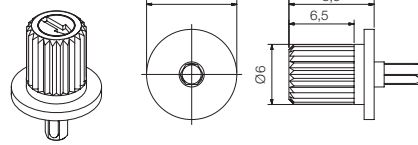
9051 For 4 potentiometers



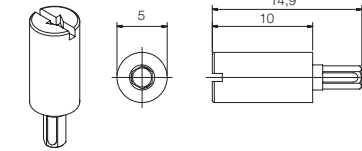
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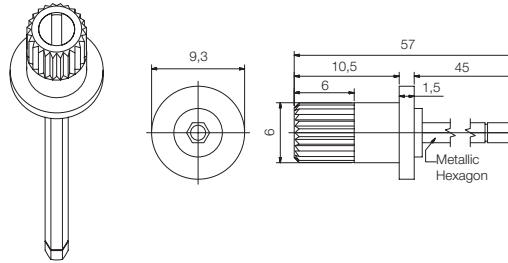
9054



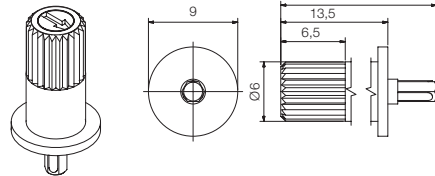
9055



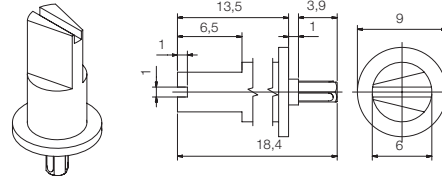
9056 For 8 potentiometers



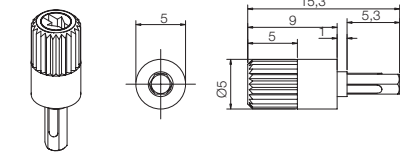
9059



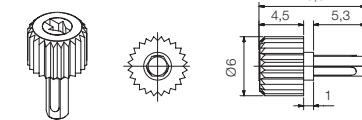
9063



9064

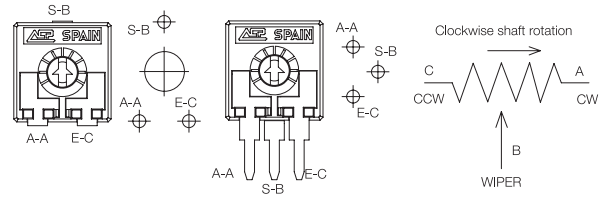


9067

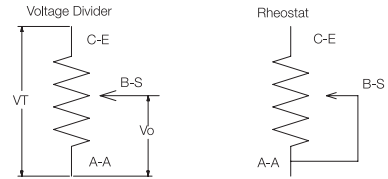


General concepts

Potentiometer configuration:



Electric use:



Resistance

Total Resistance: R_T

The DC resistance between the input terminal and the wiper when the latter is positioned so as to give a maximum resistance value.

Electric Noise (Contact Resistance)

Noise is any variation in the output signal that does not correspond to a similar variation in the input signal. It appears in the contact point between the resistive element and the wiper and it is measured in Ohms.

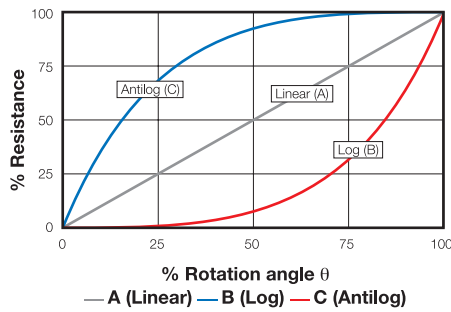
This noise can also be measured as "Contact Resistance Variation" (CRV); it does not depend on the position of the wiper on the resistive element and it is expressed in percentage of change between the initial resistance and the value of the resistance after the test. It is measured statically and dynamically.

ACP's potentiometers have less than 5% CRV.

ACP's standard resistance values:

100 Ω	100
200 Ω	200
220 Ω	220
250 Ω	250
470 Ω	470
500 Ω	500
1k Ω	1K
2 k Ω	2K
2,2k Ω	2K2
2,5 k Ω	2K5
4,7k Ω	4K7
5k Ω	5K
10 k Ω	10K
20 k Ω	20 K
22 k Ω	22 K
25 k Ω	25 K
47 k Ω	47 K
50 k Ω	50 K
100 k Ω	100 K
200 k Ω	200 K
...	...
1 M Ω	1M
2M Ω	2M
2,5M Ω	2M5
4,7M Ω	4M7
5M Ω	5M

Variation Laws -Tapers-

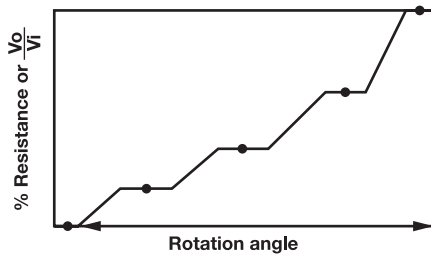


A potentiometer follows a linear variation law (A) when a certain movement of the wiper results in a certain change of the value of the resistance, no matter the position of the wiper relative to the resistive element. The resistance of the element is evenly distributed along the mechanical travel.

In case the movement of the wiper over the resistive element produces a change in the resistive value as B on the figure, we say the potentiometer follows a logarithmic law -Log-; the resistive value changes along the travel so that in the last section the value approaches the total resistance faster.

If the curve is like C on the figure, then we say it is an Antilogarithmic -antilog- law.

Special Tapers



We can provide with tapers with different slopes, areas with constant value or jumps, etc. Tolerances can be very low thanks to our laser trimming capability.

Special tapers can be combined with physical detents to match the areas where the customer wants to guarantee a constant value (the flat areas in the example). This is particularly suitable in applications which can benefit from a feeling of control over the position: automotive or household electronics. These detents can also be customized to match a customer's design.

Recommended soldering process:

Manual soldering

Soldering tools of 20W max.
 Maximum temperature of soldering tools: 280°C
 Time: 3 s. max.

Reflow soldering SMD (lead-free)

Solder temperature: 240°C for 5 ± 1 s.
 Over 220°C: <40 s.
 Preheating temperature: Max 150°C; 60-90 s
 Temperature Ramp-up: 2-3°C / s.

Flow

Solder temperature: max. 245 °C; 4 s
 Preheating temperature: Max 100 °C; 30-60s

Linearity

It is the specified maximum deviation of the actual variation law compared to a straight reference line.

Independent Linearity (LN)

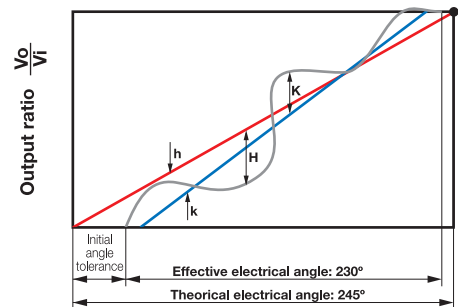
It is the maximum vertical deviation of the actual law from a straight reference line with the slope and position chosen to minimize deviation over the effective electrical travel or any specified portion thereof. It is expressed as a percentage of the total voltage applied. This is the definition used in ACP by default.

Absolute Linearity (LA)

It is the maximum vertical deviation of the actual law from the straight reference line, "Theoretical Law", that runs through the specified minimum and maximum output ratios along the theoretical angle of electrical travel. Unless otherwise specified, the minimum and maximum output ratios are respectively zero and 100% of the total applied voltage.

The main difference between the two definitions is the reference line chosen to measure the deviations:

- Independent linearity takes the line that best minimizes the deviation between the real law and this line.
- Absolute linearity uses a straight line that runs through the points of minimum and maximum output ratios considered over the theoretical electrical travel. As a result, the angular tolerance of the theoretical electrical travel has a direct influence in absolute linearity.



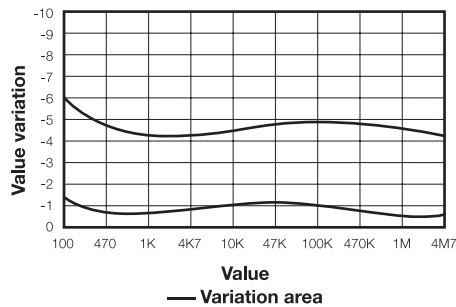
— H: absolute linearity, theoretical line: line h is the reference for absolute linearity
 — K: independent linearity, Line k is chosen to minimize deviation
 — Real law

Tests and reliability. Carbon test

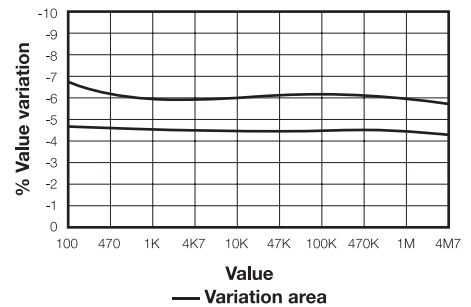
Carbon test

Test	Conditions	Typical variation of Nominal Resistance
Damp heat	500 h. at 40°C and 95% RH	+5%; -2%
Thermal cycles	16h at 85°C, plus 2h at -25°C	±2,5%
Temperature coefficient	-25°C / +70°C	100Ω - 10KΩ +200/ -300 ppm, >10KΩ - 5MΩ +200/ -500 ppm
Load life	1.000 h. at 40°C	+0%; -5%
Mechanical life	1000 cycles at 10 c.p.m.	±3%
Soldering effect	2 seconds at 350°C	±1%
Storage (3 years)	at 23°C ± 2°C	±3%

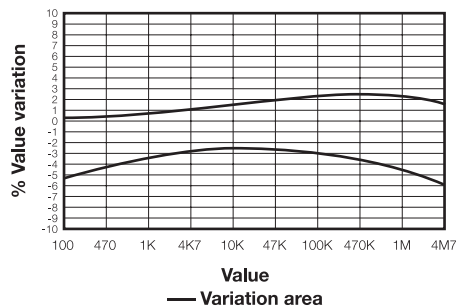
Load life



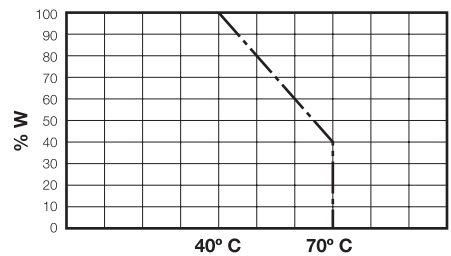
Mechanical life



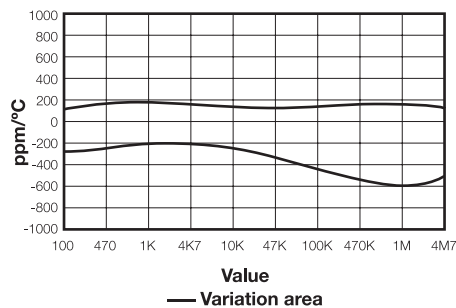
Damp heat



Power derating curve



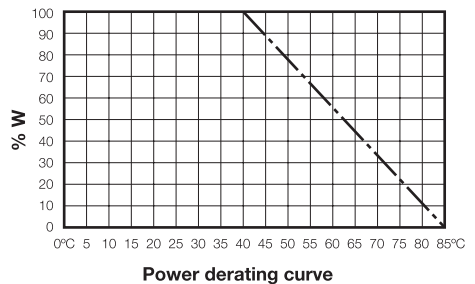
Temperature coefficient



Temperatures out of range:

The normal operation temperature range for an ACP carbon potentiometer is -25° ... +70°. When used at up to 85°C (at higher temperatures) the following variations should be observed:

Load Life	1.000 h. at 40°C	+0%; -5%
	1.000 h. at 85°C	+0%; -15%



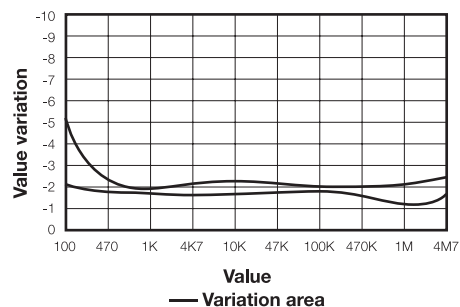
Power derating curve

Tests and reliability. Cermet test

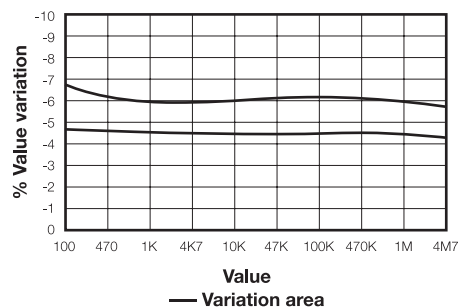
Cermet test

Test	Conditions	Typical variation of Nominal Resistance
Damp heat	500 h. at 40°C and 95% RH	±2%
Thermal cycles	16h at 90°C, plus 2h at -40°C	±2%
Temperature coefficient	-40°C/+90°C	±100ppm
Load life	1.000 h. at 70°C	±2%
Mechanical life	1000 cycles at 10 c.p.m.	±2%
Soldering effect	2 seconds at 350°C	±1%
Storage (3 years)	at 23°C ± 2°C	±3%

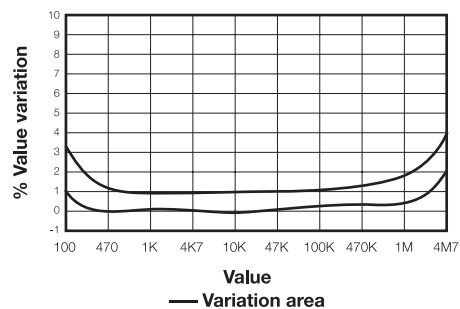
Load life



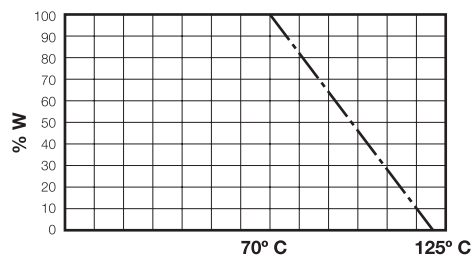
Mechanical life



Damp heat



Power derating curve



Temperature coefficient

