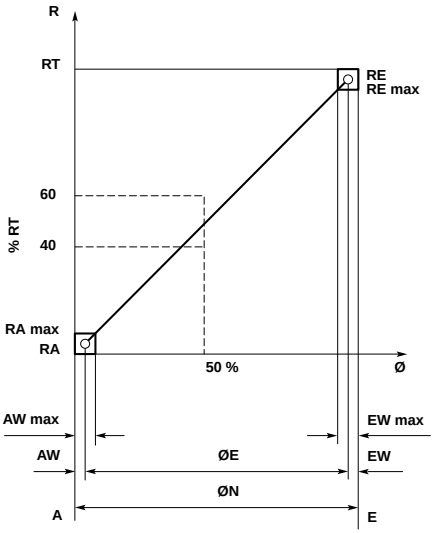
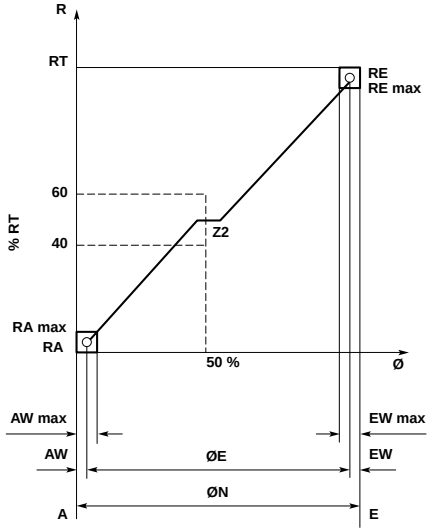
Resistance Law
Loi de variation de la résistance

Law type A



Law type A2



Rotary types: clockwise rotation.

Slider types: travel from A towards E termination.

Law	Ra	Re	RA	RE	AW max	EW max
Carbon preset types						
A	≤ 2.10^{-3} RN (*)	≤ 2.10^{-3} RN (*)	≤ 5.10^{-2} RN	≤ 5.10^{-2} RN	15% ØN	
Other types						
A	≤ 1.10^{-3} RN (*)	≤ 1.10^{-3} RN (*)	≤ 2.10^{-2} RN	≤ 2.10^{-2} RN	7% ØN (1)	
A2						

(*) Minimum value: 2Ω

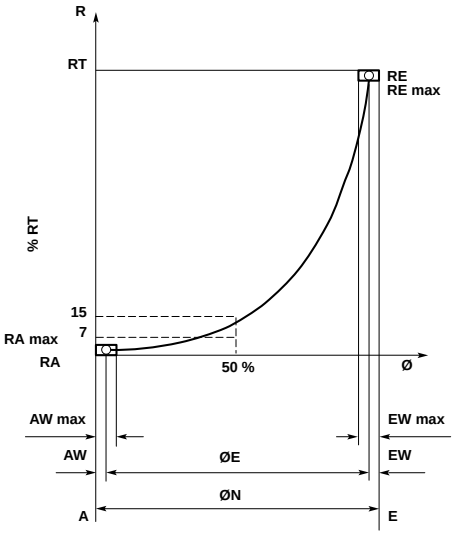
(1) 20 mm Rotary types: AW max = 12% ØN; EW max = 10% ØN

Law	Tap	Ø Z	RZ (nom.)	Contact resistance
A2	Z2	50% Ø N ± 5% 20 mm Rotary with switch types = 52% Ø N ± 5%	50% RT	≤ 1.10^{-2} RZ2*

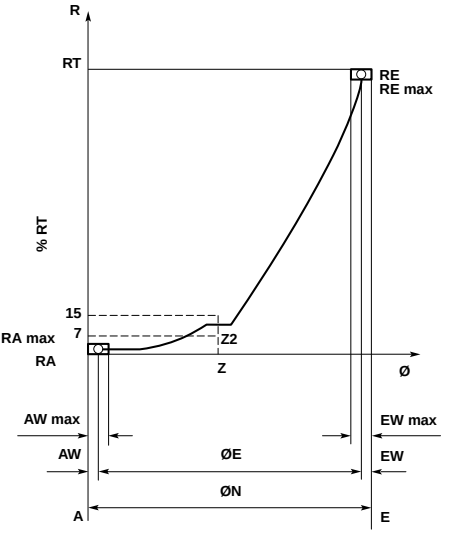
* Minimum value: 10Ω

Obtainable resistance laws are specified on the pages describing each potentiometer type.

Law type B



Law type B2



Rotary types: clockwise rotation.

Slider types: travel from A towards E termination.

Law	Ra	Re	RA	RE	AW max	EW max
B	RN ≤ 10K ≤ 1.10^{-3} RN*	RN ≤ 100K ≤ 2.10^{-2} RN	RN < 10K ≤ 5.10^{-3} RN*	≤ 5.10^{-2} RN	7% Ø N (1)	
B2	RN > 10K ≤ 2.10^{-4} RN*	RN > 100K ≤ 1.10^{-2} RN	RN ≥ 10K ≤ 1.10^{-3} RN*			

* Minimum values: RN ≤ 10K = 2Ω; RN >10K = 10Ω

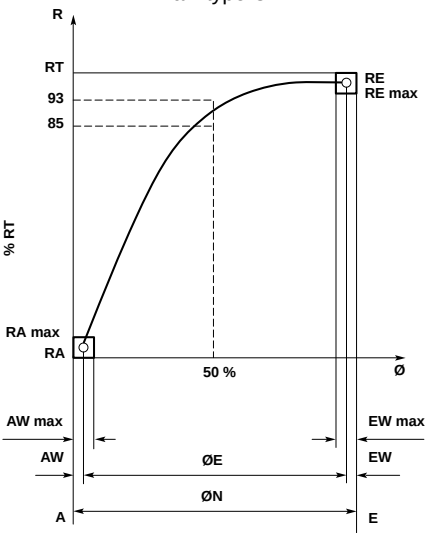
(1) 20 mm Rotary types: 10% ØN

Law	Tap	Ø Z	RZ (nom.)	Contact resistance
B2	Z2	50% Ø N ± 5%	10% RT	≤ 1.10^{-2} RZ2*
		20 mm Rotary without switch types = 57% Ø N ± 5% with switch types = 52% Ø N ± 5%		

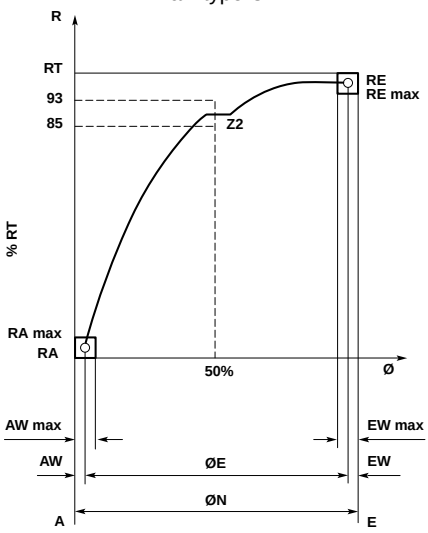
* Minimum value: 10Ω

Obtainable resistance laws are specified on the pages describing each potentiometer type.

Law type C



Law type C2



Rotary types: clockwise rotation.
Slider types: travel from A towards E termination.

Law	Ra	Re	RA	RE	AW max	EW max
C	RN ≤ 100K ≤ 2.10^{-2} RN	RN ≤ 10K ≤ 1.10^{-3} RN*	≤ 5.10^{-2} RN	RN < 10K ≤ 5.10^{-3} RN	7% Ø N (1)	
C2	RN > 100K ≤ 1.10^{-2} RN	RN > 10K ≤ 2.10^{-4} RN*		RN ≥ 10K ≤ 1.10^{-3} RN		

* Minimum values: RN ≤ 10K = 2Ω; RN >10K = 10Ω

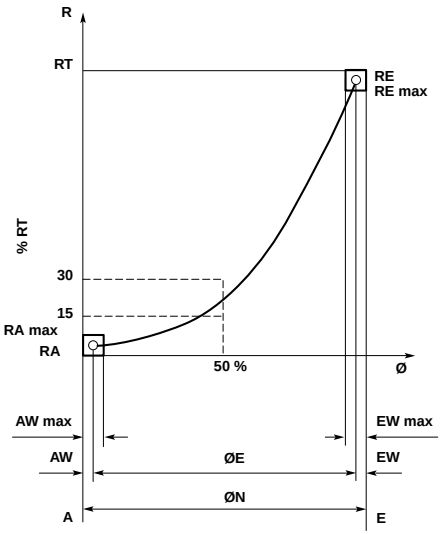
(1) 20 mm Rotary types: 10% ØN

Law	Tap	Ø Z	RZ (nom.)	Contact resistance
C2	Z2	50% Ø N ± 5%	90% RT	≤ 1.10^{-2} RZ2*

* Minimum value: 10Ω

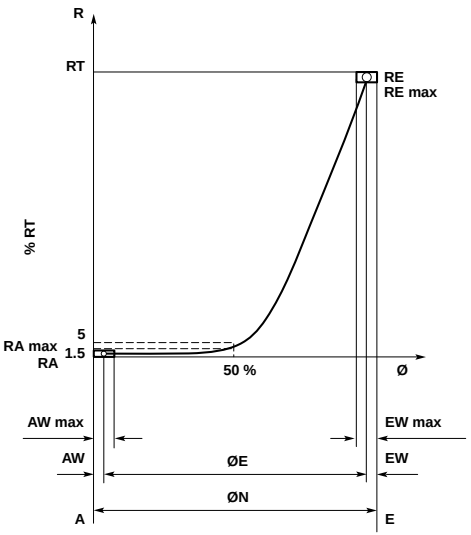
Obtainable resistance laws are specified on the pages describing each potentiometer type.

Law type F



Rotary types: clockwise rotation.
Slider types: travel from A towards E termination.

Law type T



2K2 to 100K for 16 mm Rotary types
10K to 1M0 for other type

Law	Ra	Re	RA	RE	AW max	EW max
F	RN ≤ 10K ≤ 1.10^{-3} RN* RN > 10K ≤ 2.10^{-4} RN*	RN ≤ 100K ≤ 2.10^{-2} RN	RN < 10K ≤ 5.10^{-3} RN RN ≥ 10K ≤ 1.10^{-3} RN	≤ 5.10^{-2} RN	7% Ø N (1)	
T	≤ 2.10^{-4} RN*	RN > 100K ≤ 1.10^{-2} RN	≤ 1.10^{-3} RN			

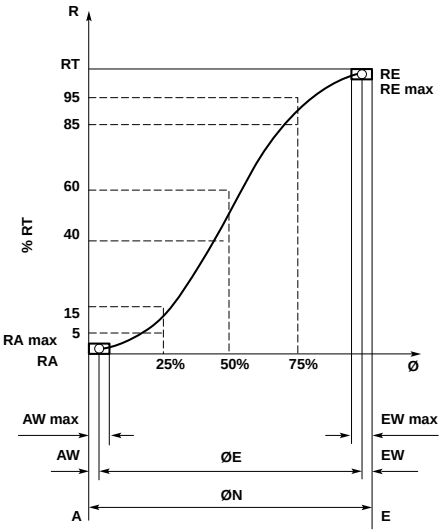
* Minimum values: RN ≤ 10K = 2Ω; RN >10K = 10Ω

(1) 20 mm Rotary types: 10% ØN

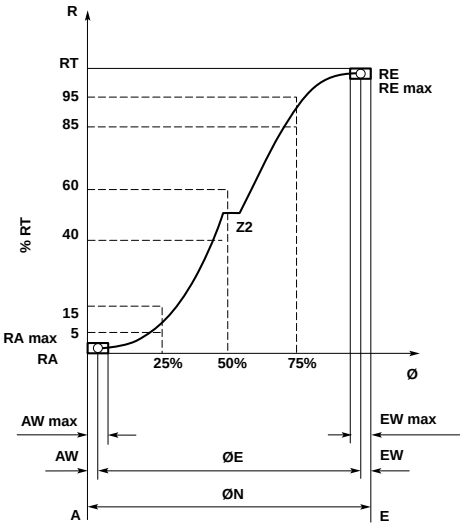
Obtainable resistance laws are specified on the pages describing each potentiometer type.

Resistance Law
Loi de variation de la résistance

Law type S



Law type S2



Rotary types: clockwise rotation.

Slider types: travel from A towards E termination.

Law	Ra	Re	RA	RE	AW max	EW max
S	≤ 1.10⁻³ RN*	≤ 1.10⁻³ RN*	≤ 1.10⁻² RN	≤ 1.10⁻² RN	7% Ø N (1)	
S2						

* Minimum values: 2Ω

(1) 20 mm Rotary types: AW max = 12% ØN; EW max = 10% ØN

Law	Tap	Ø Z	RZ (nom.)	Contact resistance
S2	Z2	50% Ø N ± 5%	50% RT	≤ 1.10⁻² RZ2*

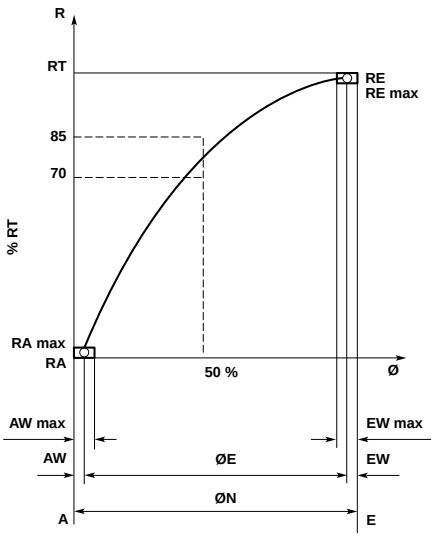
* Minimum value: 10Ω

Obtainable resistance laws are specified on the pages describing each potentiometer type.

Resistance Law
Loi de variation de la resistance

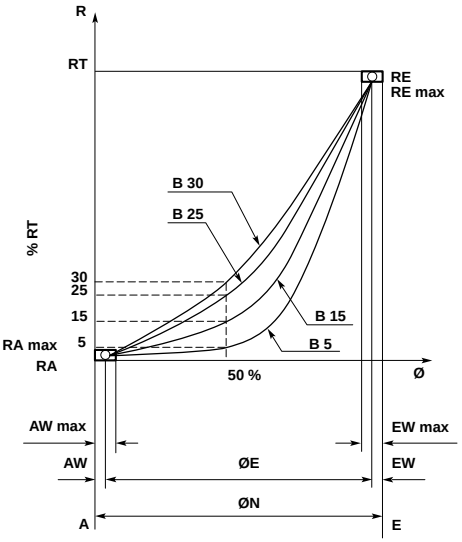
NEW

Law type X



Rotary types: clockwise rotation.
Slider types: travel from A towards E termination.

Law types B5 - B15 - B25 - B30



Only for potentiometer types:
CIP162 - P162 - EP162 - SP162

Law	Ra	Re	RA	RE	AW max	EW max
X	RN ≤ 100K ≤ 2.10^{-2} RN RN > 100K ≤ 1.10^{-2} RN	RN ≤ 10K ≤ 1.10^{-3} RN* RN > 10K ≤ 2.10^{-4} RN*	≤ 5.10^{-2} RN	RN < 10K ≤ 5.10^{-3} RN RN ≥ 10K ≤ 1.10^{-3} RN	7% Ø N (1)	

* Minimum values: RN ≤ 10K = 2Ω; RN >10K = 10Ω
(1) 20 mm Rotary types: 10% ØN

Law	Ra	Re	RA	RE	AW max	EW max
B5 - B15 B25-B30	RN ≤ 10K ≤ 1.10^{-3} RN* RN > 10K ≤ 2.10^{-4} RN*	RN ≤ 100K ≤ 2.10^{-2} RN RN > 100K ≤ 1.10^{-2} RN	RN < 10K ≤ 5.10^{-3} RN* RN ≥ 10K ≤ 1.10^{-3} RN*	≤ 5.10^{-2} RN	7% Ø N	

* Minimum values: RN ≤ 10K = 2Ω; RN >10K = 10Ω
Obtainable resistance laws are specified on the pages describing each potentiometer type.

Circuit

Normally a potentiometer is utilized in the voltage-divider circuit arrangement A. The current-regulation configuration B is for use in special cases only, because contact resistance between resistance element and sliding arm could pose a problem.

Circuit

Un potentiomètre est utilisé normalement comme diviseur de tension (fig. A).
Le montage en régulateur de courant (fig. B) doit être utilisé que dans des cas particuliers, car la résistance de contact entre la piste résistive et le curseur peut dans cette application poser un problème.

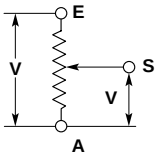


Fig. A
Voltage divider type

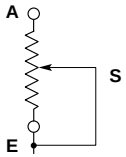


Fig. B
Current regulator type

Terminations connecting

In applying DC current to potentiometer, the circuit configuration shows in C is recommended.
Circuit configuration in D should be avoided because it will cause abnormal variations in resistance.

Connexion des cosses

En cas d'utilisation du potentiomètre en courant continu, il est recommandé d'utiliser le circuit fig. C.
Le circuit fig. D doit être évité car il peut causer des variations irrégulieres de la résistance.

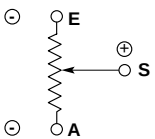


Fig. C
Right

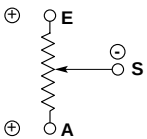


Fig. D
Wrong

Terminations soldering

It is important that terminations soldering be done carefully at a solder temperature of 350°C, within a period of 3 seconds.

Soudure des cosses

Il est important que la soudure des cosses soit faite avec soin à la température de 350°C pendant un temps de 3 secondes.