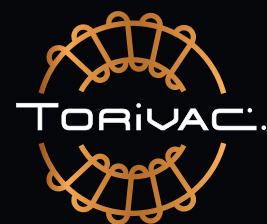
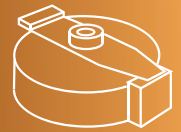


VARIABLE AUTOTRANSFORMERS



VARIABLE AUTOTRANSFORMERS



CHARACTERISTICS

The toroidal variable auto-transformer is an essential component if we wish to control a variable A.C. voltage, from zero to the maximum, with a constant degree of current.

The Torivac variable auto-transformers are characterised by their mechanical ruggedness, high resolution allowing very precise voltage adjustments and the high quality of the materials used in their manufacturing. These characteristics, together with the quality control of 100% of all our variators, allow us to offer a degree of reliability recognised by the most demanding customers.

PRODUCTION SERIES

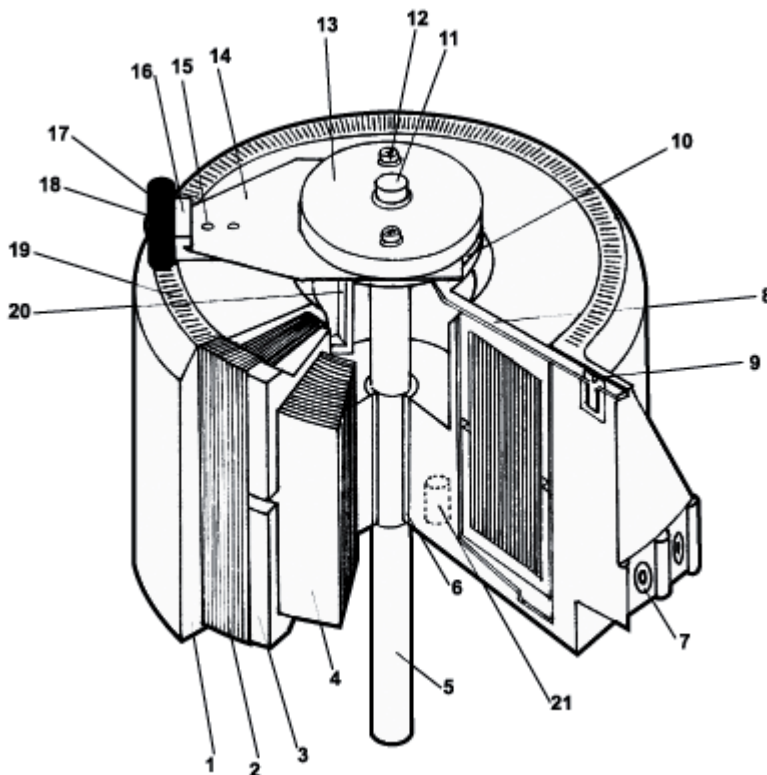
We have different models for each application:

Single, dual and triple-phase variable autotransformers (I, II, III). All models can be mounted in metal box and supply for manual regulation or motorized.

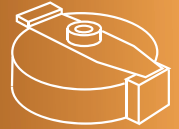


COMPONENTS OF THE VARIAC

The figure 1 shows clearly the parts of a variable auto-transformer, in which we differentiate the core, the electric wound coil, the insulation and the rest of the components that shape it.



- 1- Epoxy resin
- 2- Electric coil (Wound Cu)
- 3- Bakelite capsules
- 4- Magnetic core
- 5- Shaft
- 6- Brass bearing
- 7- Connection terminal
- 8- Contact strip
- 9- Fastening screw and contact strip connection
- 10- Brass contact collector ring
- 11- Brush press terminal
- 12- Brush fastening screws
- 13- Brush fastening bracket
- 14- Carbon brush holder strip
- 15- Carbon brush holder rivet
- 16- Carbon brush holder
- 17- Graphite roller
- 18- Carbon brush glover fastener
- 19- Contact guide
- 20- Mechanical stop
- 21- Fastening terminals

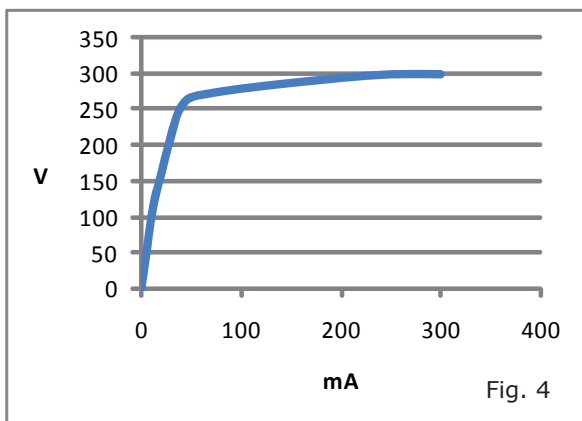
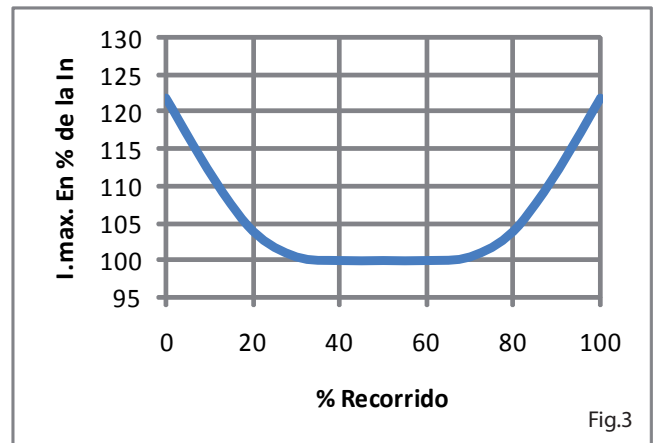
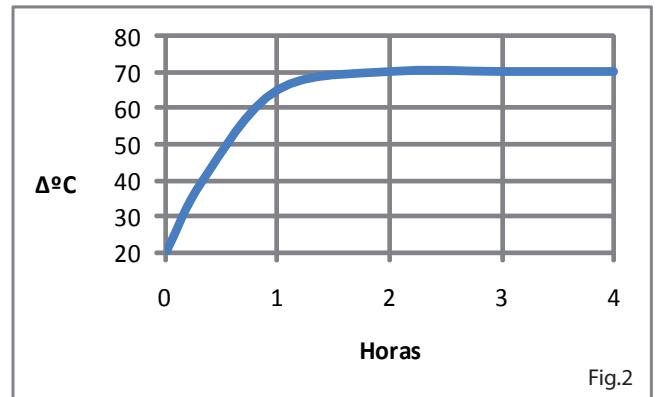


TECHNICAL SPECIFICATIONS

The variable autotransformer is mainly comprised of a toroidal core manufactured using magnetic sheeting with very low loss and high permeability, wound at an angle of approx. 340°. The contact track is comprised of an evenly wound coil, that is trued up, polished and treated with a silver bath to improve the contact with the graphite brush. This treatment allows the reduction of the contact resistance and the rusting of the copper which leads to a longer useful life of the variable autotransformer.

The following factors work towards our variable autotransformer operating with an optimal degree of effectiveness and durability:

- * A high number of turns per volt, which allow us to set extremely precise voltage values.
- * The epoxy resin encapsulation packing allows for an improved dissipation of heat, avoiding the concentration of this at the contact point of the brush (as occurs with the air-wound variable autotransf.) and in addition it protects the variable autotransformer from the harsh environmental factors of certain harmful surroundings.
- * The inside and outside friction contacts are generously designed to dissipate the maximum possible amount of heat with the minimum of wear.
- * Both the motorisations and the mechanical stops have been subjected to mechanical resistance tests, which guarantee their effectiveness in the different applications they are used for.
- * The toroidal voltage variable autotransformer do not distort the sine-wave signal.
- * The increase in the external non-metallic parts varies between 45°C and 60°C, above the environmental temperature at full load (Fig. 2), nevertheless, there are many means to reduce this temperature, such as an oil bath, fan cooling, although these systems are usually used in high-power variators.
- * The variable autotransformers allows the adjustment of the voltage without surpassing the nominal current, except at the beginning and the end of the range which may be surpassed by up to 22%, as shown in the graph in figure 3.



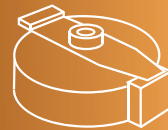
MAGNETIC CHARACTERISTICS

The toroidal core is manufactured using top quality, of very low loss and high yield magnetic sheeting, and is subjected to a heat treatment in order to achieve an induction capacity of between 15.000 - 16,000 Gauss.

In figure 4 we can observe that the saturation curve of a variable autotransformer, is at approximately 15% of the nominal voltage rating of the transformer, assuming an input voltage of 230V.

In the toroidal variable autotransformer the magnetic flow is concentrated within the core in an uniform manner, and as there are no intermediate metal parts, vibrations are eliminated. In addition, as the wire wind is spread over the entire surface of the core, the noise caused by magnetostriction practically disappears and the dissipation of heat is favoured, improving the yield.

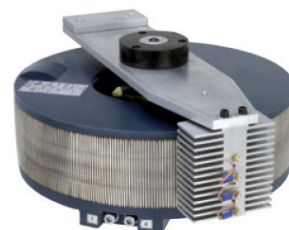
The variable autotransformers manufactured by Torivac are designed to operate at 50/60 Hz., even though the quality of the magnetic sheeting and the heat treatment we subject it to allow it to operate at frequencies close to 400Hz, taking into account that the hysteresis losses increase considerably.



FIELDS OF APPLICATION

The variable autotransformers are used to adjust the voltage from 0 volts up to the maximum voltage for which they have been designed and among the most usual applications, there are the following:

- * Laboratory control equipment.
- * Lighting equipment.
- * Dielectric rigidity equipment.
- * Temperature controls.
- * Galvanic control process.
- * Power-assisted equipment for remote control.
- * Motor speed control.
- * Control of voltage stabilisers.
- * Control of other fixed transformers.



TYPES OF CONTROL

Manual control

By means of a control button on the shaft of the variator which allows to act on the brush and achieve the desired voltage. We have a wide range of available buttons and dials calibrated in % or in volts, applicable to the different power ratings.

Power-assisted control

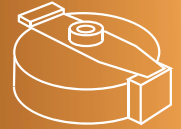
Is mainly used to remotely control equipment or for stabiliser equipments.

The high-powered voltage variators are also usually power-assisted, due to the greater comfort they offer in use. In this type of control the variator shaft is activated by a motor by using a manual switch, which allows increasing or reducing the output voltage. The power assisted control that Torivac installs in the variable Autotransformers stop without inertia; therefore they are ideal for remote control.

By order, we can make them stabilized and controlled by means of an electronic card, with a precision of about 2%. This electronic card allows to regulate the variable autotransformer by means of a potentiometer or by a continuous signal of 0-10Vcc.



VARIABLE AUTOTRANSFORMERS

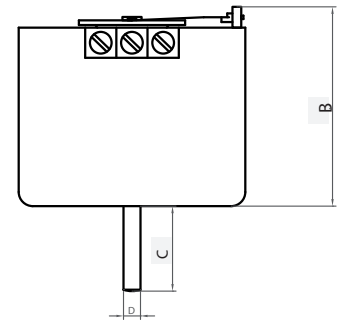
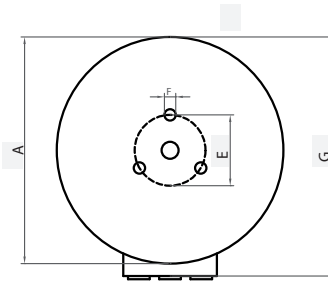


SIZE & WEIGHT

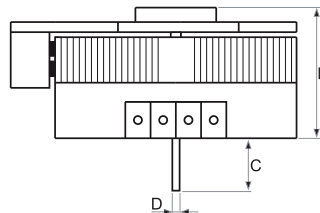
Single-Phase Variable Autotransformer (Manual Control)

160 VA – 4000 VA		Input 230V Output 230/250V								
VA	In 230 (A)	In 250 (A)	A	B	C	D	E	F	G	Kg
160	0.7	0.64	80	63	30	6	25	M-4	88	0.8
220	0.95	0.88	87	67	30	6	25	M-4	99	1.2
350	1.52	1.4	110	75	30	6	26	M-4	125	2.5
350*	1.52	1.4	88	85	30	6	25	M-4	99	1.9
500	2.17	2	110	80	30	6	26	M-4	125	2.8
500*	2.17	2	88	103	30	6	25	M-4	99	2.4
750	3.26	3	120	90	30	6	33.5	M-6	130	3.2
1000	4.34	4	120	105	30	6	33.5	M-6	130	4
1250	5.43	5	130	105	30	6	33.5	M-6	142	4.6
1500	6.52	6	160	95	35	8	40	M-6	172	5.7
2000	8.69	8	160	107	35	8	40	M-6	172	6.8
2500	10.86	10	196	117	40	8	60	M-6	206	10
3000	13.04	12	226	120	40	8	60	M-6	238	13.4
4000	17.39	16	250	127	40	8	74	M-8	275	17

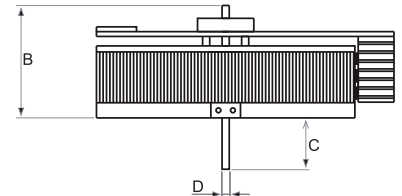
* Limited dimensions
In it refers to the nominal current of the variable autotransformers.



5000 VA

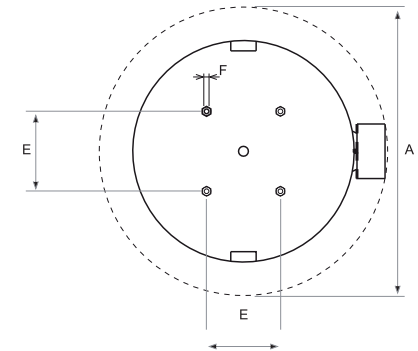
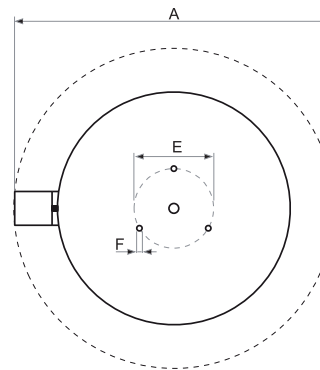


6000 VA - 11000 VA



5000 VA – 11000 VA		Input 230V Output 230/250V								
VA	In 230 (A)	In 250 (A)	A	B	C	D	E	F	Kg	
5000	21.73	20	320	140	60	10	74	M-8	19	
6000	26.01	24	425	170	100	12	80	M-10	32	
7000	30.43	28	445	170	100	12	80	M-10	37	
8000	34.78	32	490	170	100	12	100	M-10	46	
9000	39.13	36	520	170	100	12	100	M-10	55	
10000	43.47	40	570	170	100	15	150	M-12	71	
11000	47.85	44	610	180	100	15	150	M-12	86	

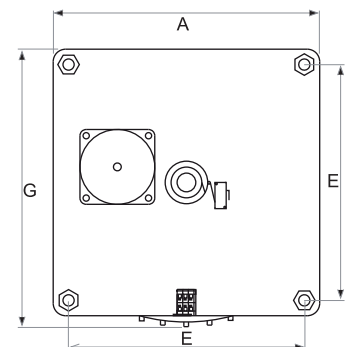
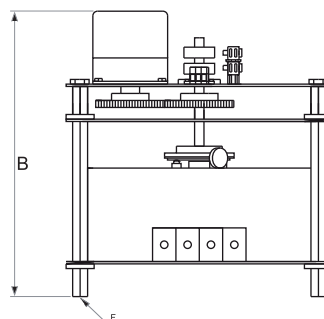
In it refers to the nominal current of the variable autotransformers.



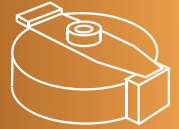
Single-Phase Variable Autotransformer (Power-Assisted Control)

160 VA – 4000 VA		Input 230V Output 230/250V								
VA	In 230 (A)	In 250 (A)	A	B	E	F	G	Kg		
160	0.7	0.64	90	211	75	M-5	92	1.8		
220	0.95	0.88	90	211	75	M-5	100	2.2		
350	1.52	1.4	155	185	100	M-6	130	4.5		
350*	1.52	1.4	90	211	75	M-5	100	2.9		
500	2.17	2	155	190	100	M-6	130	4.8		
500*	2.17	2	90	211	75	M-5	100	3.4		
750	3.26	3	155	200	100	M-6	130	5		
1000	4.34	4	155	210	100	M-6	130	6		
1250	5.43	5	135	210	112	M-6	140	6.7		
1500	6.52	6	165	205	135	M-6	175	8.6		
2000	8.69	8	165	215	135	M-6	175	9.5		
2500	10.86	10	220	235	170	M-8	230	14.5		
3000	13.04	12	235	245	195	M-8	242	18.5		
4000	17.39	16	285	300	255	M-8	295	25		

* Limited dimensions
In it refers to the nominal current of the variable autotransformers.

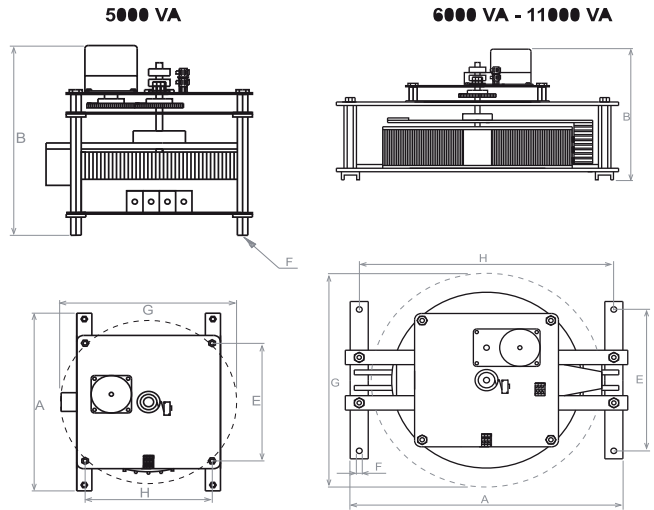


VARIABLE AUTOTRANSFORMERS



5000 VA – 11000 VA									
Entrada/Input 230V Salida/Output 230/250V									
VA	In 230 (A)	In 250 (A)	A	B	E	F	G	H	Kg
5000	21.73	20	380	300	255	M-8	320	255	27
6000	26.01	24	520	350	380	M-12	430	470	48
7000	30.43	28	540	350	380	M-12	445	490	56
8000	34.78	32	585	350	380	M-12	490	235	64
9000	39.13	36	615	360	420	M-12	520	565	75
10000	43.47	40	665	360	420	M-12	570	615	91
11000	47.85	44	685	360	420	M-12	610	635	106

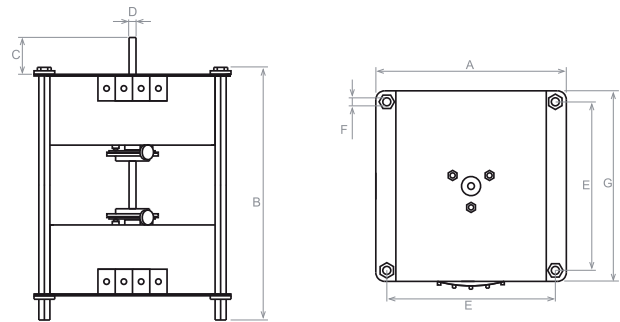
In it refers to the nominal current of the variable autotransformers



Double Variable Autotransformers (Manual Control)

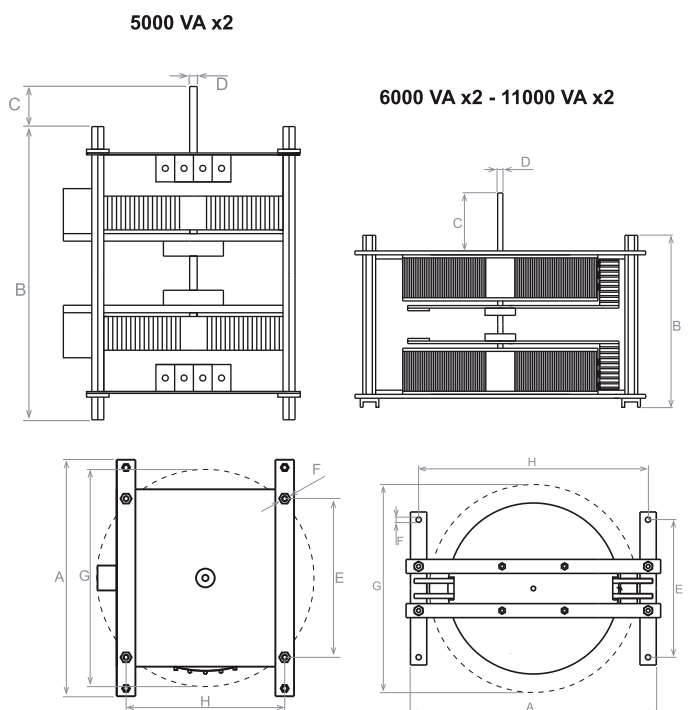
160 VA x 2 – 4000 VA x 2										
Entrada/Input 230V Salida/Output 230/250V										
VA	In 230 (A)	In 250 (A)	A	B	C	D	E	F	G	Kg
160x2	0.7x2	0.64x2	90	180	50	6	75	M-5	92	2.9
220x2	0.9x2	0.88x2	90	180	50	6	75	M-5	100	3.7
350x2	1.52x2	1.4x2	120	215	70	6	100	M-6	130	6.3
350*x2	1.52x2	1.4x2	90	180	50	6	75	M-5	92	4
500x2	2.17x2	2x2	120	220	70	6	100	M-6	130	6.9
500*x2	2.17x2	2x2	90	180	50	6	75	M-5	92	4.5
750x2	3.26x2	3x2	120	240	70	6	100	M-6	130	7.7
1000x2	4.34x2	4x2	120	260	70	6	100	M-6	130	9
1250x2	5.43x2	5x2	135	215	70	6	112	M-6	140	10.7
1500x2	6.52x2	6x2	165	245	70	8	135	M-6	175	13.7
2000x2	8.69x2	8x2	165	25	70	8	135	M-6	175	15.6
2500x2	10.86x2	10x2	200	312	70	8	170	M-8	230	23.3
3000x2	13.04x2	12x2	235	335	70	8	195	M-8	242	30
4000x2	17.39x2	16x2	285	365	90	8	255	M-8	295	41

*Limited dimensions In it refers to the nominal current of the variable autotransformers.

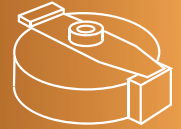


5000 VA x 2 – 11000 VA x 2											
Input 230V Output 230/250V											
VA	In 230 (A)	In 250 (A)	A	B	C	D	E	F	G	H	Kg
5000x2	21.73x2	20x2	380	365	90	10	255	M-8	320	255	50
6000x2	26.01x2	24x2	520	460	155	12	380	M-10	430	470	80
7000x2	30.43x2	28x2	540	460	155	12	380	M-10	445	490	102
8000x2	34.78x2	32x2	585	460	155	12	380	M-10	490	535	115
9000x2	39.13x2	36x2	615	480	165	12	420	M-10	520	565	140
10000x2	43.47x2	40x2	665	480	165	15	420	M-12	570	615	182
11000x2	47.85x2	44x2	685	480	165	15	420	M-12	610	635	212

In it refers to the nominal current of the variable autotransformers.



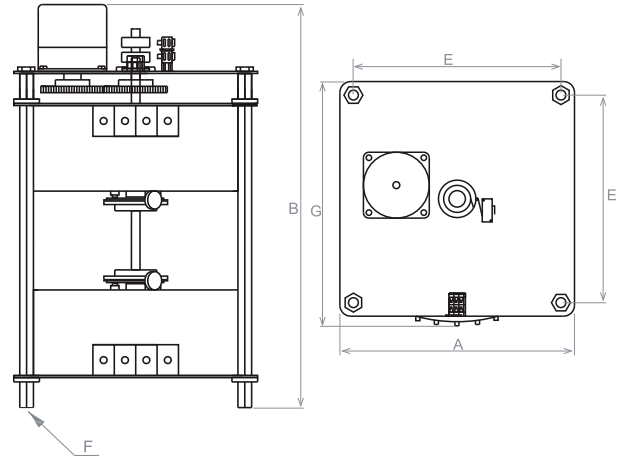
VARIABLE AUTOTRANSFORMERS



Double Variable Autotransformer (Power-Assisted Control)

160 VA x 2 – 4000 VA x 2		Input 230V Output 230/250V						
VA	In 230 (A)	In 250 (A)	A	B	E	F	G	Kg
160x2	0.7x2	0.64x2	90	290	75	M-5	92	3.4
220x2	0.9 x2	0.88x2	90	290	75	M-5	100	4.2
350x2	1.52x2	1.4x2	120	275	100	M-6	130	8.6
350*x2	1.52x2	1.4x2	90	290	75	M-5	92	4.5
500x2	2.17x2	2x2	120	280	100	M-6	130	9.1
500*x2	2.17x2	2x2	90	290	75	M-5	92	5
750x2	3.26x2	3x2	120	300	100	M-6	130	9.2
1000x2	4.34x2	4x2	120	320	100	M-6	130	10.1
1250x2	5.43x2	5x2	135	285	112	M-6	140	11.7
1500x2	6.52x2	6x2	165	315	135	M-6	175	14.4
2000x2	8.69x2	8x2	165	335	135	M-6	175	17.1
2500x2	10.86x2	10x2	200	375	170	M-8	230	25.3
3000x2	13.04x2	12x2	235	395	195	M-8	242	33.5
4000x2	17.39x2	16x2	285	445	255	M-8	295	43.7

*Limited dimensions In it refers to the nominal current of the variable autotransformers

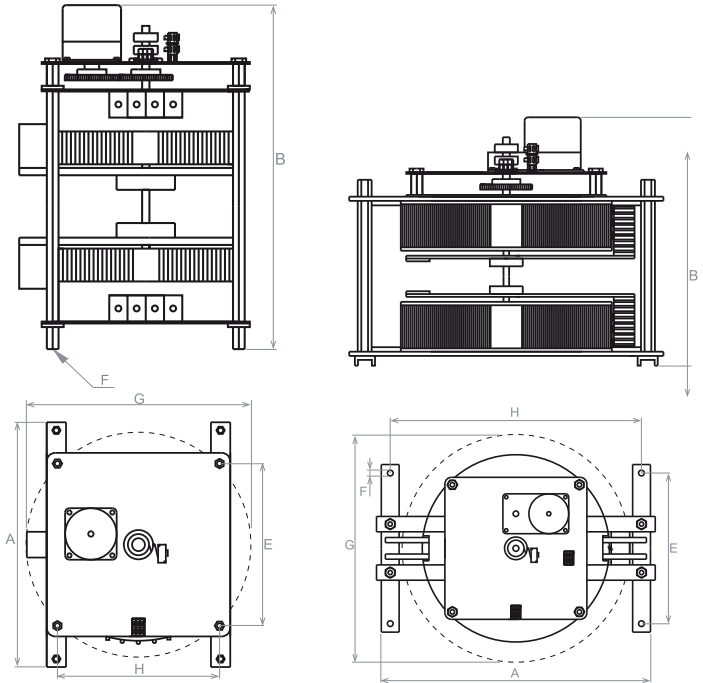


5000 VA x 2

6000 VA x 2 - 11000 VA x 2

5000 VA x 2 – 11000 VA x 2		Input 230V Output 230/250V							
VA	In 230 (A)	In 250 (A)	A	B	E	F	G	H	Kg
5000x2	21.73x2	20x2	380	445	255	M-8	320	255	57
6000x2	26.01x2	24x2	520	575	380	M-10	430	470	87
7000x2	30.43x2	28x2	540	575	380	M-10	445	490	109
8000x2	34.78x2	32x2	585	575	380	M-10	490	535	122
9000x2	39.13x2	36x2	615	585	420	M-10	520	565	147
10000x2	43.47x2	40x2	665	585	420	M-12	570	615	189
11000x2	47.85x2	44x2	685	585	420	M-12	610	635	219

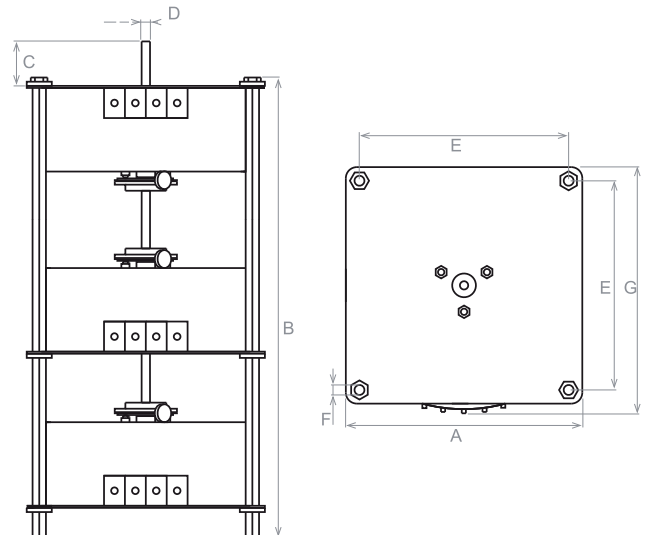
In it refers to the nominal current of the variable autotransformers.



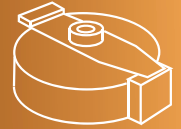
Three phase variable autotransformer (Manual Control)

480 VA – 12000 VA		Input 400V Output 400/430V								
VA	In 400 (A)	In 430 (A)	A	B	C	D	E	F	G	Kg
480	0.7x3	0.64x3	90	255	50	6	75	M-5	92	4.4
660	0.9x3	0.88x3	90	255	50	6	75	M-5	100	5.6
1000	1.52x3	1.4x3	120	305	70	6	100	M-6	130	9.4
1000*	1.52x3	1.4x3	90	255	50	6	75	M-5	92	8
1500	2.17x3	2x3	120	315	70	6	100	M-6	130	11
1500*	2.17x3	2x3	90	255	50	6	75	M-5	92	10.4
2250	3.26x3	3x3	120	345	70	6	100	M-6	130	11.5
3000	4.34x3	4x3	120	375	70	6	100	M-6	130	13.5
3750	5.43x3	5x3	135	375	70	6	112	M-6	140	16
4500	6.52x3	6x3	165	360	70	8	135	M-6	175	20.5
6000	8.69x 3	8x3	165	390	70	8	135	M-6	175	23.5
7500	10.86x3	10x3	200	445	70	8	170	M-8	230	35
9000	13.04x3	12x3	235	475	70	8	195	M-8	242	45
12000	17.39x3	16x3	285	520	90	8	255	M-8	295	61

In it refers to the nominal current of the variable autotransformers.

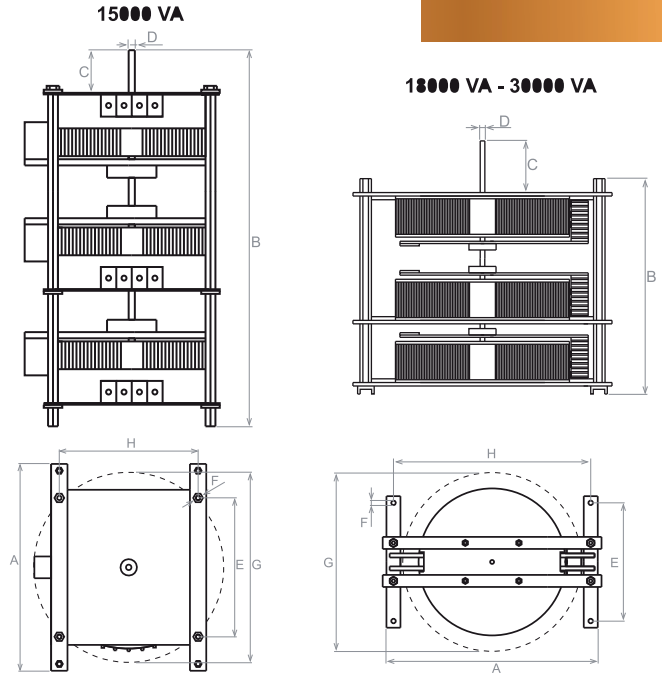


VARIABLE AUTOTRANSFORMERS



15000 VA – 33000 VA		Input 400 V Output 400/430V									
VA	In 400 (A)	In 430 (A)	A	B	C	D	E	F	G	H	Kg
15000	21.73x3	20x3	380	520	90	10	255	M-8	320	255	64.5
18000	26.01x3	24x3	520	645	155	12	380	M-10	430	470	119
21000	30.43x3	28x3	540	645	155	12	380	M-10	445	490	126
24000	34.78x3	32x3	585	645	155	12	380	M-10	490	535	157
27000	39.13x3	36x3	615	675	165	12	420	M-10	520	565	188
30000	43.47x3	40x3	665	675	165	15	420	M-12	570	615	220
33000	47.85x3	44x3	685	675	165	15	420	M-12	610	635	275

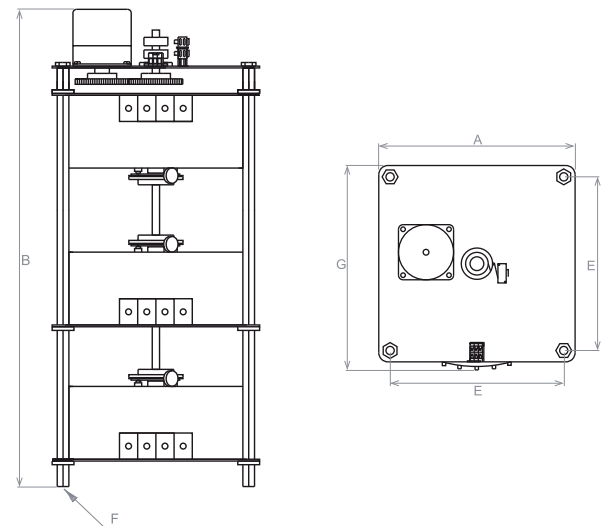
In hace referencia a la intensidad nominal del variador/In it refers to the nominal current of the variable autotransformers.



Three Phase Variable Autotransformer (Power-Assisted Control)

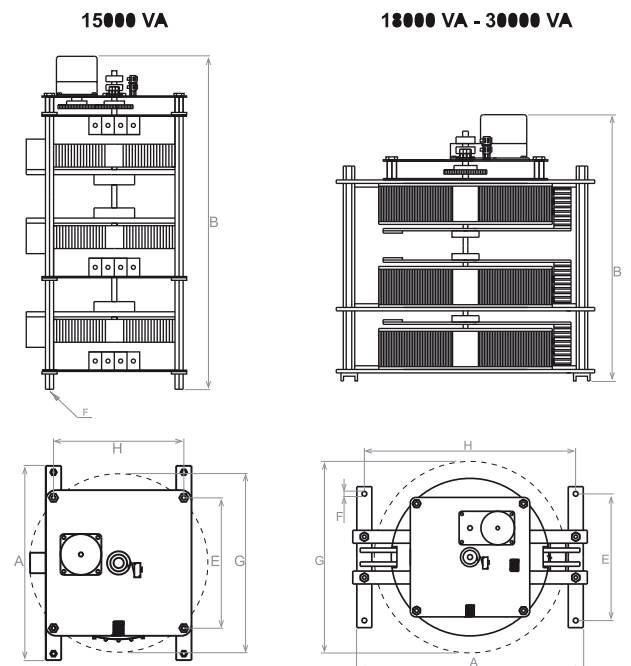
480 VA – 12000 VA		Entrada/Input 400V Salida/Output 400/430V						
VA	In 400 (A)	In 430 (A)	A	B	E	F	G	Kg
480	0.7x3	0.64x3	90	365	75	M-5	92	4.9
660	0.9x3	0.88x3	90	365	75	M-5	100	6.1
1000	1.52x3	1.4x3	120	375	100	M-6	130	11.7
1000*	1.52x3	1.4x3	90	365	75	M-5	92	8.5
1500	2.17x3	2x3	120	375	100	M-6	130	12.6
1500*	2.17x3	2x3	90	365	75	M-5	92	11
2250	3.26x3	3x3	120	405	100	M-6	130	13
3000	4.34x3	4x3	120	435	100	M-6	130	14.6
3750	5.43x3	5x3	135	445	112	M-6	140	17
4500	6.52x3	6x3	165	430	135	M-6	175	21.2
6000	8.69x3	8x3	165	460	135	M-6	175	25
7500	10.86x3	10x3	200	525	170	M-8	230	37
9000	13.04x3	12x3	235	555	195	M-8	242	48.5
12000	17.39x3	16x3	285	600	255	M-8	295	63.7

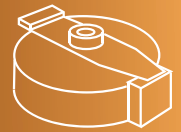
In hace referencia a la intensidad nominal del variador/In it refers to the nominal current of the variable autotransformers.



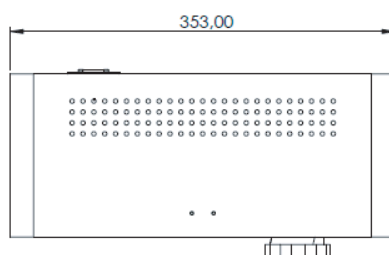
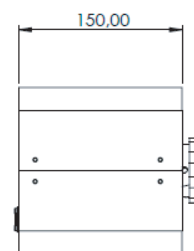
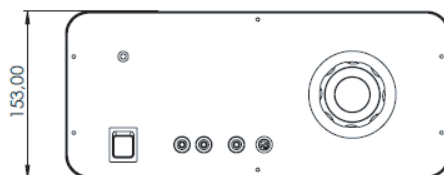
15000 VA – 33000 VA		Entrada/Input 400V Salida/Output 400/430V								
VA	In 400 (A)	In 430 (A)	A	B	E	F	G	H	Kg	
15000	21.73x3	20x3	380	600	255	M-8	320	255	68	
18000	26.01x3	24x3	520	760	380	M-10	430	470	125	
21000	30.43x3	28x3	540	760	380	M-10	445	490	133	
24000	34.78x3	32x3	585	760	380	M-10	490	535	160	
27000	39.13x3	36x3	615	780	420	M-10	520	565	195	
30000	43.47x3	40x3	665	780	420	M-12	570	615	230	
33000	47.85x3	44x3	685	780	420	M-12	610	635	285	

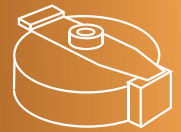
In hace referencia a la intensidad nominal del variador/In it refers to the nominal intensity of the variable autotransformers.





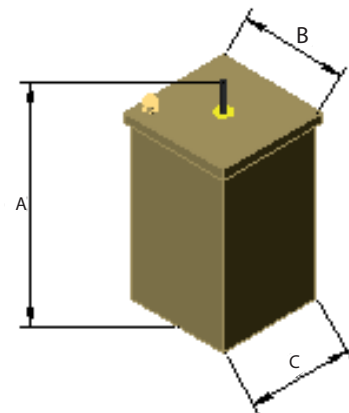
Variador tensión sobremesa 160-1250VA



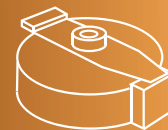


Installation in an oil bath

		1500 VA – 11000 VA		Entrada/Input 230V				
		Salida/Output 230/250V						
		VA	In 230 (A)	In 250 (A)	A	B	C	Kg
Monofásico Single phase 230V/250V		5000	21.73	20	435	390	390	42
		6000	26.01	24	450	590	495	63
		7000	30.43	28	450	610	515	71
		8000	34.78	32	450	655	480	79
		9000	39.13	36	450	685	580	90
		10000	43.47	40	510	735	640	105
		11000	47.85	44	510	756	680	121
Trifásico Triple phase 230V/250V		15000	21.73x3	20x3	725	390	390	98
		18000	26.01x3	24x3	900	590	495	155
		21000	30.43x3	28x3	900	610	515	163
		24000	34.78x3	32x3	900	655	460	190
		27000	39.13x3	36x3	960	685	580	225
		30000	43.47x3	40x3	960	735	640	260
		33000	47.85x3	44x3	960	756	680	315



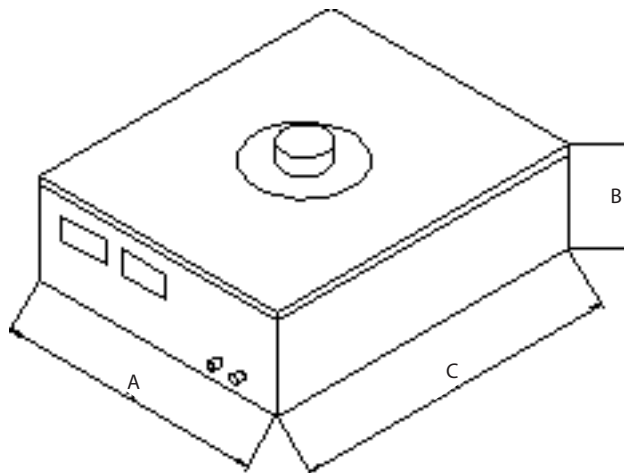
VARIABLE AUTOTRANSFORMERS



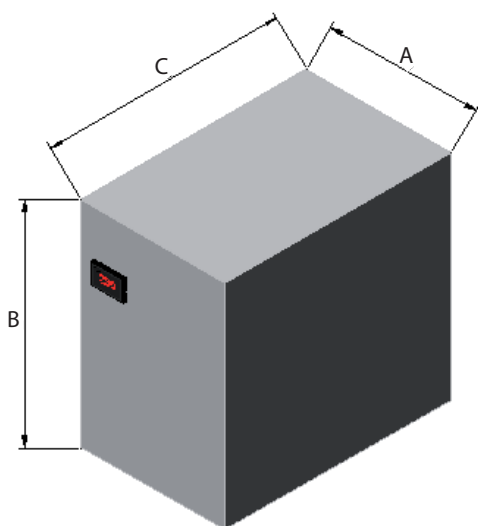
Single-phase Variable Autotransformer in Metallic Cabinet

1500 VA – 11000 VA		Entrada/Input 230V				
		Salida/Output 230/250V				
VA	In 230 (A)	In 250 (A)	A	B	C	Kg
1500	6.52	6	300	300	200	10
2000	8.69	8	300	300	200	12
2500	10.86	10	300	300	200	14
3000	13.04	12	300	300	200	17
4000	17.39	16	400	400	200	21
5000	21.73	20	400	400	200	27
6000	26.01	24	600	600	250	57.6
7000	30.43	28	600	600	250	67.2
8000	34.78	32	600	600	250	76.8
9000	39.13	36	800	800	300	90
10000	43.47	40	800	800	300	109.2
11000	47.85	44	800	800	300	127.2

In hace referencia a la intensidad nominal del variador/In it refers to the nominal current of the variable autotransformers.

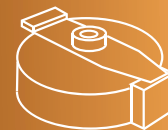


Three-phase Variable Autotransformer in Metallic Cabinet



480 VA – 33000 VA		Entrada/Input 400V				
		Salida/Output 400/430V				
VA	In 230 (A)	In 250 (A)	A	B	C	Kg
480	0.7x3	0.64x3	250	250	150	6
660	0.9x3	0.88x3	250	250	150	8
1000	1.52x3	1.4x3	300	300	150	12.4
1500	2.17x3	2x3	300	300	150	13.5
2250	3.26x3	3x3	300	300	150	14.5
3000	4.34x3	4x3	400	400	200	17.5
3750	5.43x3	5x3	400	400	200	19
4500	6.52x3	6x3	400	400	250	24.5
6000	8.69x3	8x3	400	400	250	27.5
7500	10.86x3	10x3	400	400	250	39
9000	13.04x3	12x3	600	600	300	52
12000	17.39x3	16x3	640	640	440	68
15000	21.73x3	20x3	640	640	440	71
18000	26.01x3	24x3	745	745	495	129
21000	30.43x3	28x3	745	745	495	136
24000	34.78x3	32x3	850	850	550	177
27000	39.13x3	36x3	850	850	550	208
30000	43.47x3	40x3	1000	1000	605	240
33000	47.85x3	44x3	1000	1000	700	295

In hace referencia a la intensidad nominal del variador/In it refers to the nominal current of the variable autotransformers.



SEGURIDAD CONEXIONADO Y MANTENIMIENTO



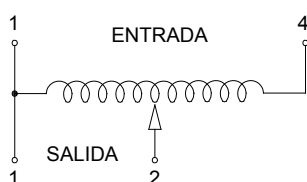
Los variadores de tensión cumplen con normativa CE, siempre que su montaje se realice dentro de una caja o envoltorio que los aisle del exterior, protegiendo al usuario del posible contacto con partes activas, eléctricas y mecánicas del variador.

En caso que los variadores de tensión no se instalen en el interior de una caja o envoltorio protector, se debe evitar el contacto entre usuario y las partes activas, como la pista de contacto, bornes de conexión o la escobilla.

CONEXIONADO

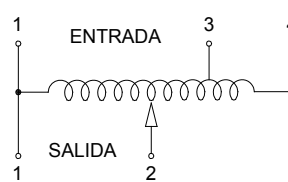
Modos de conexión para variadores monofásicos

Variadores monofásicos sin elevación:



Entrada: 1-4
Salida: 1-2

Variadores monofásicos con elevación:

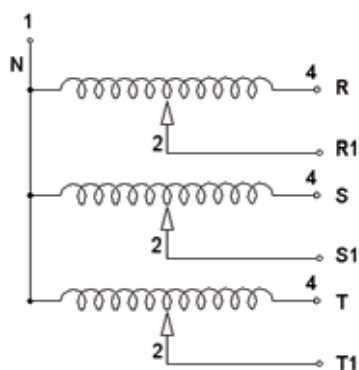


Entrada 1-3
Salida 1-2

Modos de conexión para Variadores trifásicos

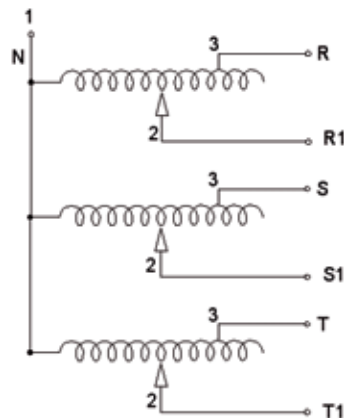
Los Variadores de tensión trifásicos incorporan de serie un puente entre los bornes 1-1-1 de cada bobina, correspondiente al neutro de una conexión en estrella, para evitar posibles desequilibrios en el equipo.

Variador trifásico sin elevación

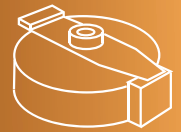


Entrada estrella: 1 - 4, 4, 4.
Salida: 1 - 2, 2, 2.

Variador trifásico con elevación



Entrada estrella: 1 - 3, 3, 3.
Salida: 1 - 2, 2, 2.

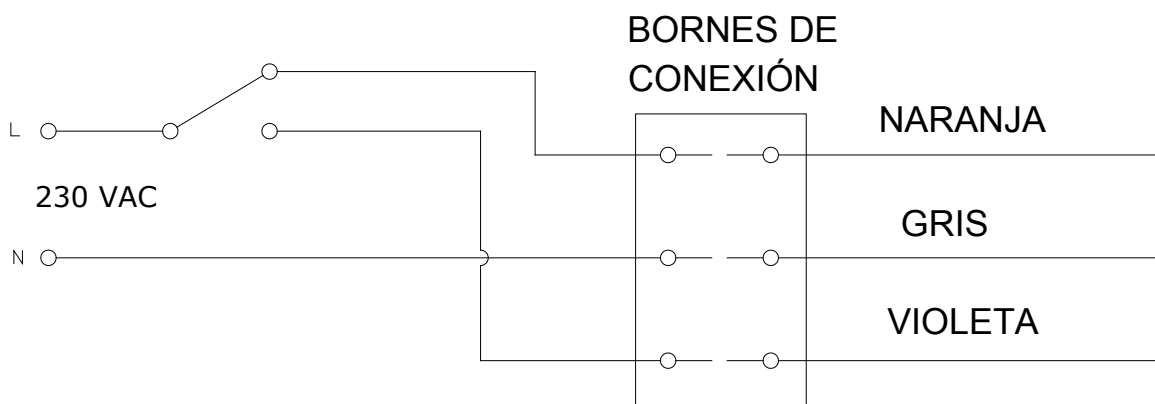


REGULACIÓN MOTORIZADA

Los variadores con regulación motorizada disponen de tres bornes de conexión correspondientes al suplemento motorizado.

Para aumentar la tensión de salida en el variador, se debe aplicar tensión 230 VAC entre los bornes cableados Violeta – gris.

Para disminuir la tensión de salida en el variador, se debe aplicar tensión 230 VAC entre los bornes cableados Naranja – gris.



No se debe aplicar en ningún caso tensión entre los bornes cableados naranja – violeta.

MANTENIMIENTO

Recomendamos para prolongar la vida útil del variador:

- Colocar, a ser posible, el variador de forma que evite la acumulación de polvo en la pista de contacto.
- Revisar periódicamente el desgaste de los carbones de contacto, substituyéndolos cuando sea necesario.
- Comprobar periódicamente el estado de la pista de contacto para que, en caso que sea necesario, se realice una revisión completa del variador de tensión en nuestras instalaciones.

PROTECCIÓN

- Aconsejamos proteger la salida del variador intercalando un fusible de valor 10% superior a la intensidad nominal entre el borne 2 y la carga.
- En caso de querer proteger la entrada, se debe colocar un fusible o magnetotérmico de acción retardada entre la red y el borne 1, dado el elevado pico de tensión que se produce en el arranque de los toroidales.

GANRANTÍA

Este producto esta garantizado por un periodo de 12 meses a partir de su fecha de adquisición.

No estarán sujetos a garantía los desperfectos ocasionados por una manipulación indebida, así como lo daños ocasionados por la aplicación de tensiones o corrientes superiores a las especificadas en la etiqueta del producto.

SERVICIO

Para cualquier consulta pueden ponerse en contacto con nuestro departamento técnico al nº de telf.: 93 312 01 61