

# 4500 Series

Automatic Capacitor Banks for networks  
with high harmonic distortion

> 60% THD distorsión en intensidad [37,5 - 600Kvar / 400V 50Hz]



The 4500 series of AENER ENERGIA is specially designed to compensate the reactive energy in networks with very high harmonic content. It enables the correction of the fluctuation caused both by lineal and non-lineal electrical loads.

Among the existing solutions today in the market, it stands out by offering both technical viability and the profitability, that is an ideal combination of technical results and economy in operation.

The 4500 series is introduced as the best effective solution for networks with high values of harmonic distortion. It allows for a remarkable improvement in the quality of the electrical supply, reducing to the minimum possible level of the problems originated by harmonic distortions, all that in keeping the international electro-magnetic compatibility regulations in force at present.

## Technical specifications

- Type of harmonics filter: **Reject type L-C and detuning frequency of 189 Hz.\***
- Detuning factor: **7%.**
- Rated voltage: **400V – 50Hz.**
- Maximum admissible current: **>1,6 IN.**
- Tolerance of capacitance: **0 + 10 %.**
- Insulation test:

- **MAIN POWER CIRCUIT:**  
Operating voltage (U): **400V.**  
Testing voltage: **2.500V between terminals and terminals to case.**

- **AUXILIAR CIRCUIT**  
Testing voltage: **2 x U + 1.000V, but not less than 1.500V between terminals and terminals to case.**

- Temperature range inside the equipment:

Maximum Temperature: **35° C.**  
Max. average over 24 hours: **30° C.**  
Max. average over 365 days: **25° C.**  
Minimum Temperature: **- 5° C.**

- Life expectancy:

Capacitors: **> 120.000 h.**  
Capacitor Duty Contactors: **> 200.000 times.**

- Auto-transformer: **400V / 230V integrated.**
- Protection level: **IP31.**
- Colour: **RAL 7032.**
- Standards:

CE Conformity:

- **73/23/CEE Directive**, about safety (and following amendments).

- **89/336/CEE Directive**, about electromagnetic compatibility (and following amendments).

Above mentioned product is made according to the following harmonization standards:

- **CEI 60439-1:1999 (UNE-EN 60439-1:2001)**, Low-voltage switchgear and control-gear assemblies - Part 1: Type-tested and partially type-tested assemblies.

- **CEI 61921:2003 (UNE-EN 61921:2003)**, Power capacitors - Low-voltage power factor correction banks.

Moreover all capacitors used are manufactured and tested according to established regulations in the standards:

- **CEI 60831-1:1995 (UNE-EN 60831-1: 1998).**  
- **CEI 60831-2:1995 (UNE-EN 60831-2: 1998).**

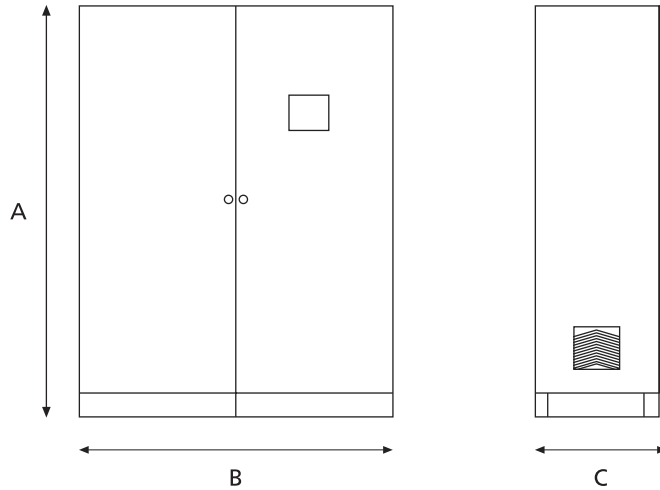
## Standard equipment

- Anti-resonance blockage harmonics filter reactors (detuned system) specially calculated for each installation.
- New generation of reactive energy controller V650 with a powerful microprocessor and digital display.
- Capacitor duty contactors reinforced to operate in harmonics networks.
- Three-phase cylindrical capacitors of the TR30 series with internal safety system, specially calculate odd to work with detuned reactors.
- Step protection fuses.
- Top quality metal cabinet.
- Built-in fan for a better refrigeration of the bank.
- Halogen free internal wiring.

## Optional equipment

- Three-pole on-load circuit breaker.
- Automatic thermo-magnetic circuit contact breaker (MCCB).
- ELCB Residual current circuit breaker.
- Specially protected cabinets for outdoor installation (polyester, stainless steel, etc.).
- Cabinets with other protection levels (IP54, IP55, etc.).
- Special colours.

\*For other detuned frequencies, please consult



**4500 Series**

Code	Power (Kvar)	Voltage (V)	Steps	Dimensions			Weight (Kg)
				A	B	C	
AR037400	37,5	400	5 + 10 + 10 + 12,5	1100	600	600	140
AR050400	50	400	4 x 12,5	1100	600	600	140
AR060400	60	400	10 + 2 x 12,5 + 25	1100	600	600	150
AR075400	75	400	2 x 12,5 + 2 x 25	1100	600	600	168
AR087400	87,5	400	12,5 + 3 x 25	1100	600	600	177
AR100400	100	400	2 x 12,5 + 3 x 25	2100	600	600	278
AR125400	125	400	2 x 12,5 + 2 x 25 + 50	2100	600	600	300
AR150400	150	400	25 + 25 + 50 + 50	2100	600	600	320
AR200400	200	400	25 + 25 + 3 x 50	2100	600	600	370
AR225400	225	400	25 + 4 x 50	2100	600	600	393
AR250400	250	400	5 x 50	2100	600	600	415
AR300400	300	400	6 x 50	2100	1200	600	615
AR350400	350	400	7 x 50	2100	1200	600	665
AR400400	400	400	8 x 50	2100	1200	600	715
AR450400	450	400	50 + 4 x 100	2100	1200	600	765
AR500400	500	400	2 x 50 + 4 x 100	2100	1200	600	815
AR550400	550	400	50 + 5 x 100	2100	1800	600	1015
AR600400	600	400	2 x 50 + 5 x 100	2100	1800	600	1065

► Other power ratings, voltages, steps or frequencies available upon request  
It's recommended before choosing equipment to analyse the net.  
For Harmonics value > 2,5 % THDV, please refer to our Technical Department.



Halogen Free



Technical Advise



Do Not Spread Flame



Poluted Nets



Safety System



Technical Service