Intelligent combination type low voltage power capacitor compensation installation

≥8 ×

+

+

+

+

small volume,large capacity

1000mm × 650mm × 2200mm

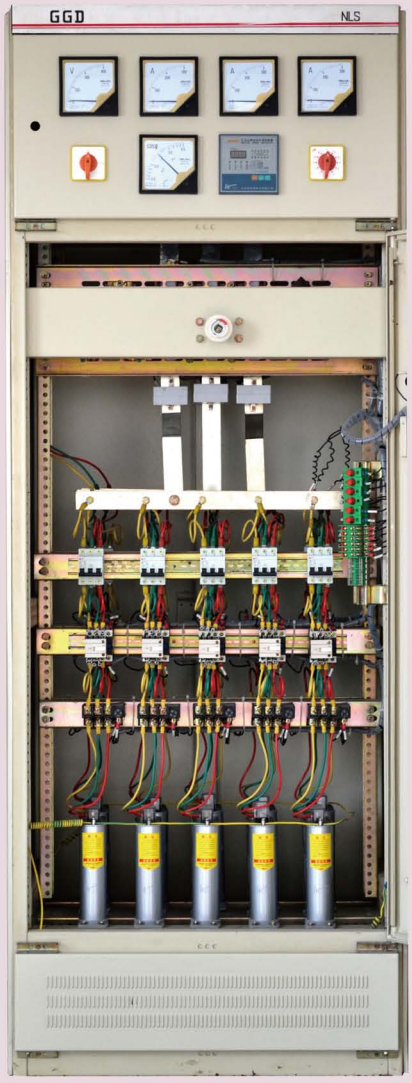
Max. capacity 10 × 60 kvar = 600 kvar

Energy saving → money saving → resources saving → worriless → effortless → space efficient

Reactive compensation and harmonic suppression

Supplying comprehensive solutions

≥2 ×



New **Old**

small volume,large capacity

Energy saving → money saving → resources saving → worriless → effortless → space efficient

Certification (CCC). | patent No. : ZL 2009 1 0176882.6

RCBAGB

Intelligent combination low voltage power capacitor

1 General

Working in a 0.4kv low voltage network, the intelligent reactive compensation installation (intelligent combination type low voltage energy-saving power capacitor) can reduce line power loss, correct power factor, improve power quality, energy-saving device. It combines advanced technologies like modern measurement and control, power electronics, network communication, auto-control, and power capacitor. Compared with traditional reactive compensation installations, it is smaller, cheaper, more cost-saving, more flexible, more convenient to maintain, with less power consumption, longer life span and more reliability, matched with demand of smart grid for reactive compensation.

2 Applicaton

The capacitor compensation installation offers solutions to improve power factor and increase power grid efficiency. The main application fields are:

☑Factory power distribution systems ☑Residential area power distribution systems
☑Municipal commercial buildings ☑Tunnel traffic power distribution systems
☑Box transformer substation, cabinet sets, and outdoor distribution boxes

3 Types and meanings

RC - □□□□ - □□ / □ / □ (□ + □)/- I

- Type (I: dry-type; none: regular)
- Second capacitor capacity
- First capacitor capacity
- Rated capacity
- Capacitor rated voltage
- Program code
- FB: Indicates split phase compensation
- GB: Indicates three phase compensation
- A: Automatic control
- B: Design No.
- Enterprise code

4 Normal working and installation conditions

4.1 Ambient temperature：-25℃ ~ +55℃
4.2 Relative humidity：40℃ ≤20%；20℃ ≤90%
4.3 Altitude：≤2000m
4.4 Environmental conditions: no noxious gas and vapour; no conductivity or explosive dust; no violent mechnical vibration.

5 Main parameters and other conditions

5.1 Measurement error Voltage：≤±0.5%，Current：≤±0.5%，
Active power：≤±1%，Power factor：≤±1%，Temperature：±1℃
5.2 Protection error
Voltage：≤±0.5%，Current：≤±0.5%，Temperature：±1℃ ,Time：±0.1s
5.3 Reactive compensation parameters
Reactive compensation error：≤Minimum capacitance 50%，Capacitor switching time can be set between 10s~180s，
5.4 Reliability parameters
Control accuracy: 100%，Permissible switching times: 1 million，
Attenuation ratio of capacitance running time: ≤1% per year，
Attenuation ratio of capacitance switching: ≤0.1% per 10,000 times
5.5 Mains conditions: rated voltage：380V±20%; (other rated voltage production on requested)。
Harmonic voltage: Sine wave, with total aberration rate no more than 5%；Rated frequency：50Hz/60Hz；
Harmonic current:the harmonic current at the point of common connection must not exceed the standard value requested by GB/T14549。Power consumption：≤3W。

5.6 Executive standards: electric clearance and creep distance, insulating strength, safety protection, short circuit strength, sampling and controlling circuit all apply to the corresponding regulations stated in GB/T15576-2008 Low Voltage Combination Reactive Power Compensation Installation.

6 Specifications and data of main product types

RCBAGB Three phase compensation

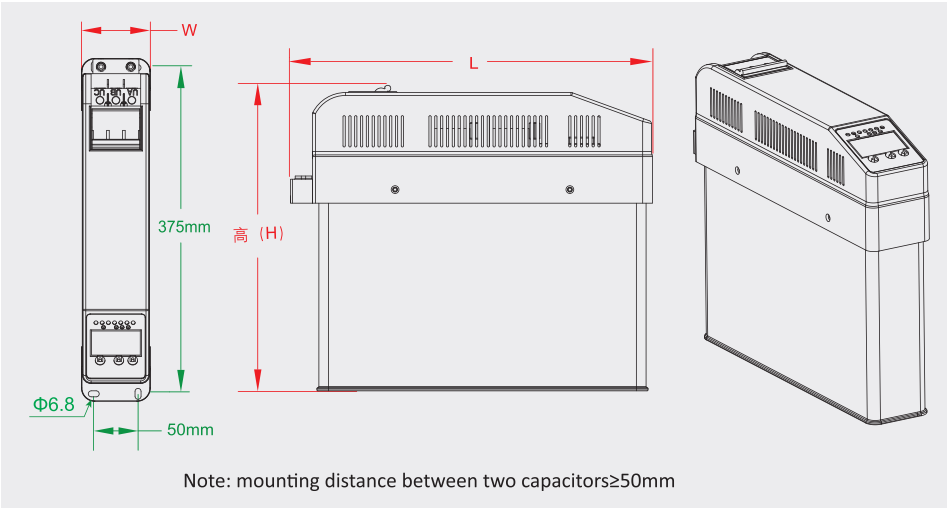
Compensation modes	Type specifications	Capacitor Rated voltage(V)	Rated capacitance (kvar)	Dimensions (L × W × H)mm³
Three phase compensation	RCBAGB-□□/450/10(5+5)	450	10	395 × 78 × 225
	RCBAGB-□□/450/15(10+5)	450	15	395 × 78 × 245
	RCBAGB-□□/450/20(10+10)	450	20	395 × 78 × 245
	RCBAGB-□□/450/30(20+10)	450	30	395 × 78 × 325
	RCBAGB-□□/450/40(20+20)	450	40	395 × 78 × 325
	RCBAGB-□□/450/50(25+25)	450	50	395 × 78 × 355
	RCBAGB-□□/450/60(30+30)	450	60	395 × 78 × 355
Split phase compensation	RCBAFB-□□/250/5	250	5	395 × 78 × 225
	RCBAFB-□□/250/10	250	10	395 × 78 × 225
	RCBAFB-□□/250/15	250	15	395 × 78 × 245
	RCBAFB-□□/250/20	250	20	395 × 78 × 275
	RCBAFB-□□/250/25	250	25	395 × 78 × 325
	RCBAFB-□□/250/30	250	30	395 × 78 × 325

For example：RCBAGB-□□/450/10(5+5)，-□□: Program code

Rear view

RCBAGB

7 Exterior and mounting size （mm）



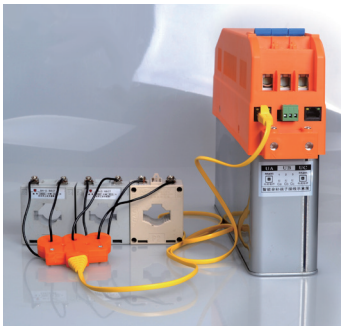
Note: mounting distance between two capacitors≥50mm

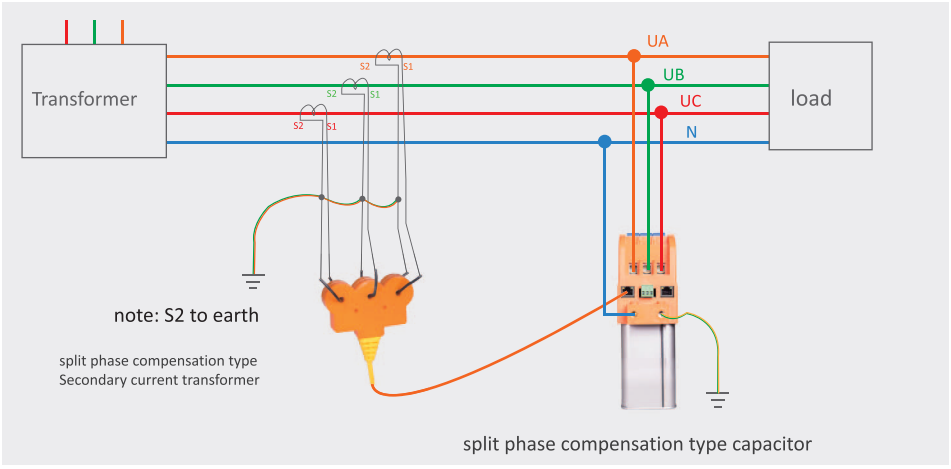
8 Figure of the product function equivalence

RCBAGB = Two unit + Two unit + Two unit + One unit + Two unit

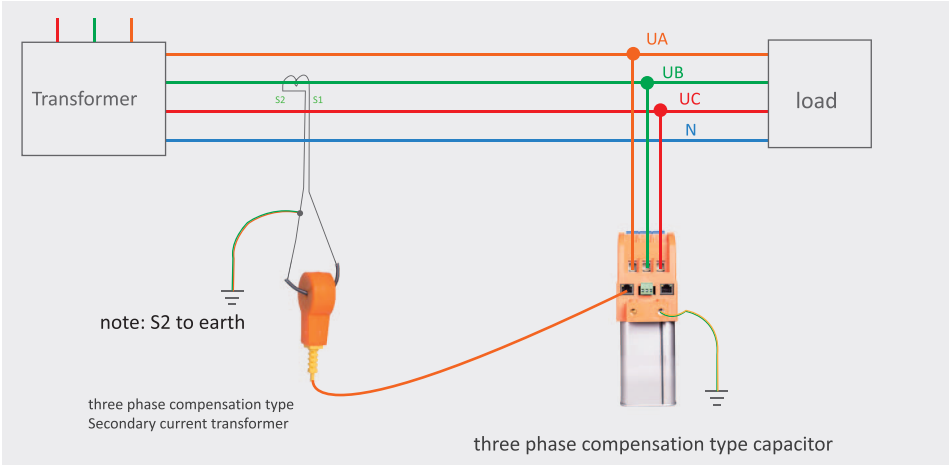
9 Connection diagram

9.1 Single unit connection diagram(split phase compensation type capacitor)

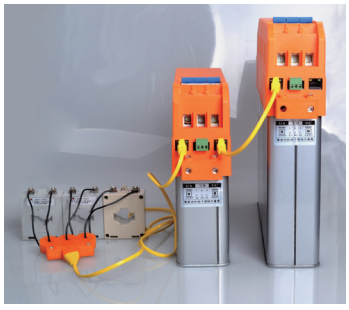


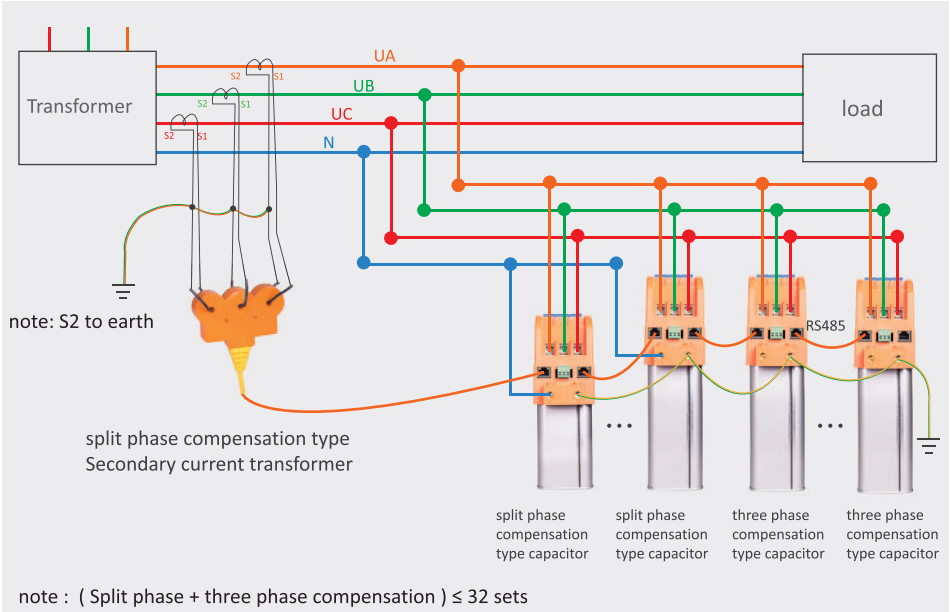


9.2 Single unit connection diagram(three phase compensation type capacitor)



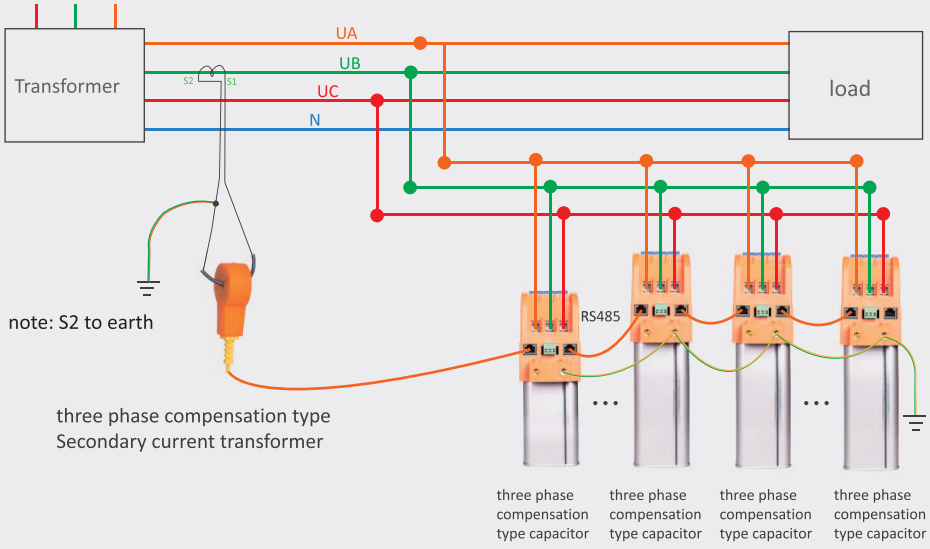
9.3 Connection diagram of three phase mixed compensation (without controller)





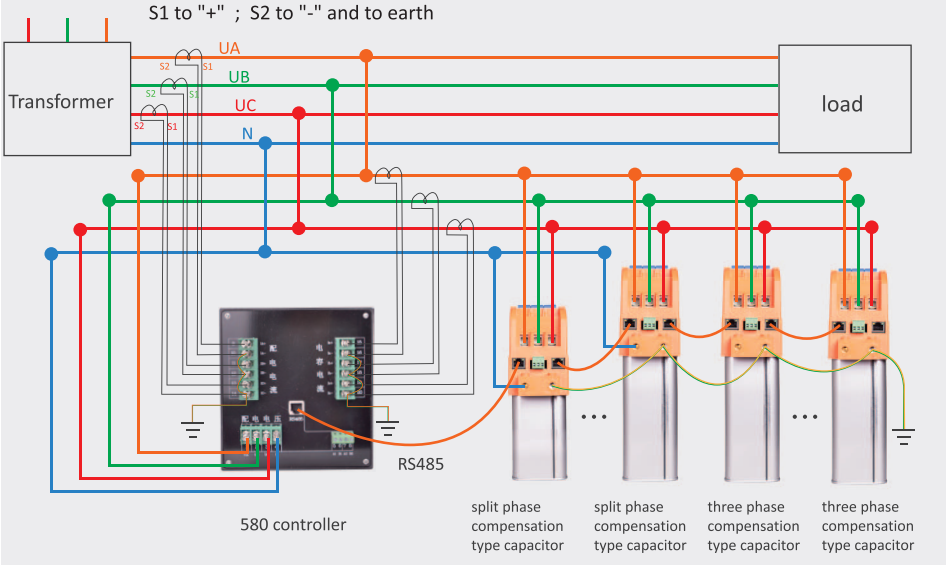
note : (Split phase + three phase compensation) ≤ 32 sets

9.4 Connection diagram of three phase compensation (without controller)



note： three phase compensation type ≤ 32 sets

9.5 Connection diagram with JKGHY580 controller(three phase mixed or three phase compensation)



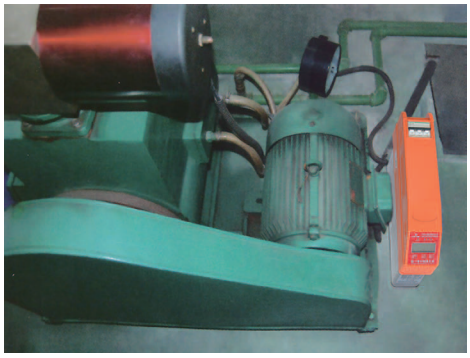
note： (Split phase + three phase compensation) ≤ 20 sets

9.6 Connection diagram with JKGHY-Z controller(three phase mixed or three phase compensation)

See: P29

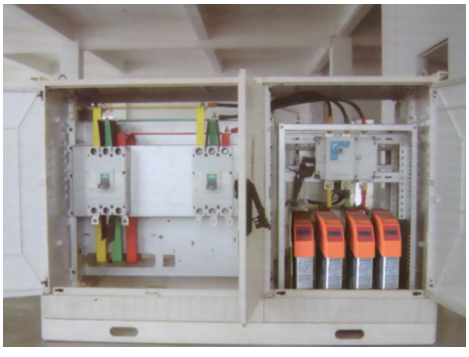
10 Examples of application modes

10.1 Application of on-site reactive compensation



10.2 Application in compensation boxes like pole reactive compensation box.

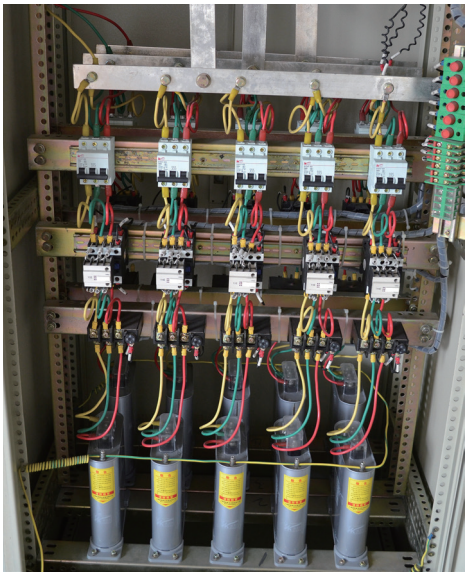
10.3 Low voltage comprehensive power distribution box



10.4 Application in sets factories

10.5 Application in American-type and European-type box transformer substations

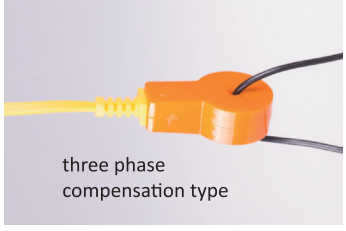
10.6 Application in inspection and extension



Before ...

After ...

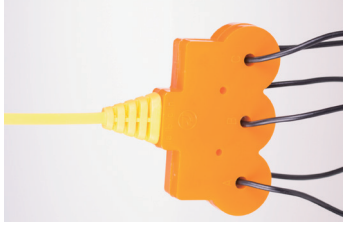
11 Accessories (optional)



three phase compensation type

11.1 Secondary current transformer

Name	Type	Corresponding type
Secondary current transformer	Three phase compensation type	Optional when Three phase compensation type intelligent capacitor is used as master
	Split (mixed) compensation type	Optional when split compensation type intelligent capacitor is used as master



Split (mixed) compensation type

11.2 Communicaton cable

Type and specificaton	Length	The original photo	Usage
W20	20cm		Connection of two neighboring intelligent capacitors
W80	80cm		Connection of bilevel intelligent capacitors
W260	260cm		Connection between main and sub cabinet intelligent capacitors
D300-W	300cm		Connection between intelligent capacitor and controller

12 Ordering notes

12.1 User should supply parameters of rated voltage, rated capacitance,.

Certification (CCC). | patent No. : ZL 2013 2 0216152.6

Intelligent combination harmonic restraining low voltage power capacitor

1 General

RCBAGK

Working in a 0.4kv low voltage network, the new generation reactive compensation installation is effective, energy-saving, harmonic restrained and can raise power factor, replacing the traditional reactive compensation installation, which is made up of intelligent reactive compensation controller, fuse, capacitor switch, filter reactor and power capacitor. It is designed to address the problems like high harmonic content in power grid and malfunction of regular intelligent capacitor. It can fulfill reactive compensation, improve power factor, as well as eliminate the impact caused by corresponding number of harmonic on the system and improve power quality.

This product adopts and intelligentizes state-of-art technologies like microelectronic software and hardware, micro sensor, micro network and electric appliance manufacturing, realizing the low voltage reactive power compensation function. Those technologies enable the product to work with reliability, and conduct functions such as zero passage switching, protection, measurement, sigalling, and connection. It is a major breakthrough for low voltage reactive auto-compensation technology. It is mainly used in areas where harmonic waves are rampant. The product will work with reliability, without generating and magnifing harmonic. Products cascading 7% of electric reactors are mainly used in electrical environments with the 5th or more major harmonic waves. Products cascading 14% of electric reactors are mainly used in electrical environments with the 3rd or more major harmonic waves.

Note: this product must be used together with 580 type reactive compensation measurement and control installation manufactured by our company!

2 Application

RCBAGK-A

This product can be used in industrial areas like steel, chemical, construction materials, papermaking, textile, minel, electricity, telecommunications, aluminium, shipping ports, tabacoo, brewing, carmaking, precision electronics, and precision machinery.

Meanwhile, it can also be used in telecommunications power system, stock exchange power supply system, airport and port backup power system, large medical system, various UPS generator sets, exhibition venues and commercial power systems like commercial office buildings.

3 Types and meanings

RC (B A) □ K - □ (-A)/ □ / □ / □ - I

- Type (I: Resin-immersed; none: regular)
- Reactance rate(%)
- Rated capacitance(kvar)
- Rated voltage of capacitor(V)
- Box type fifth generation
- Program code
- Harmonic resistant
- F: Split phase compensation;
  G: Three phase compensation
- Automatic control
- Design serial
- Enterprise code

4 Normal working and installation conditions

4.1 Ambient temperature：-25℃ ~ +55℃

4.2 Relative humidity：40℃ ≤20%；20℃ ≤90%

4.3 Altitude：≤2000m

4.4 Environmental conditions: no noxious gas and vapour; no conductivity or explosive dust; no violent mechnical vibration.

5 Main parameters and other conditions

5.1 Measurement error　　Voltage：≤±0.5%

5.2 Protection error

Voltage：≤±0.5%，Temperature：≤1℃

5.3 Reactive compensation parameters

Capacitor switching time can be set between 10s~180s

Reactive compensation：Three phase compensation≤40kvar

5.4 Reliability parameters

Control accuracy: 100%，Permissible switching times: 1.2 million，

Attenuation ratio of capacitance running time: ≤1% per year，

Attenuation ratio of capacitance switching: ≤0.1% per 10,000 times，Annual error rate ≤1%

5.5 Mains conditions

Rated voltage：380V±20%；　　Rated frequency：50Hz

5.6 Electrical safety

Electric clearance and creep distance, insulating strength, safety protection, short circuit strength, sampling and controlling circuit all apply to the corresponding regulations stated in People's Republic of China Power Industry standard DL/T842-2003 – Operating and Technical Coditions of Low Voltage Shunt Capacitor Installation.

6 Specifications and data of main product types

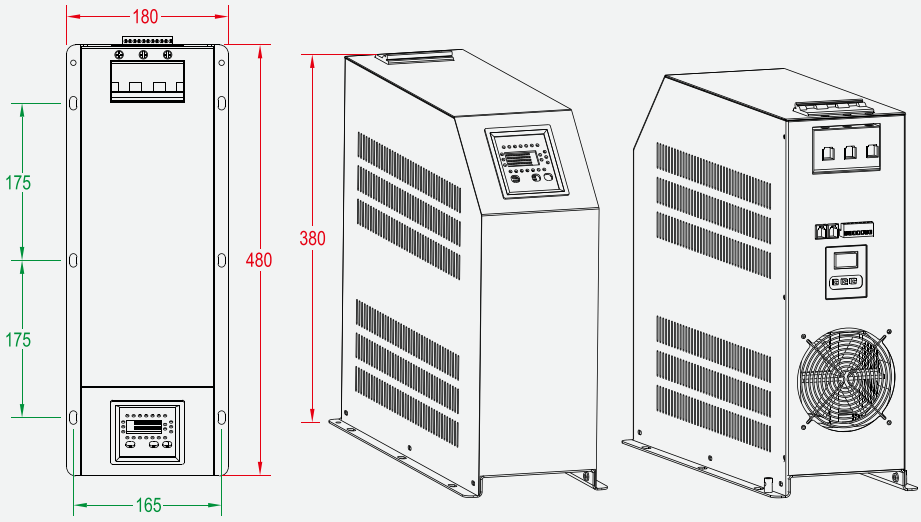
Compensation modes	Type specifications	Capacitor Rated voltage(V)	Reactance Rate	Rated capacitance (kvar)	Dimensions (L×W×H)mm
Three phase compensation	480/70/7%	480/525	7%/14%	70	see p.24
	480/60/7%	480/525	7%/14%	60	
	480/50/7%	480/525	7%/14%	50	
	480/40/7%	480/525	7%/14%	40	
	480/30/7%	480/525	7%/14%	30	
	480/20/7%	480/525	7%/14%	20	
	480/10/7%	480/525	7%/14%	10	
Split phase compensation	280/30/7%	300	7%/14%	30	see p.24
	280/20/7%	280/300	7%/14%	20	
	280/15/7%	280/300	7%/14%	15	
	280/10/7%	280/300	7%/14%	10	
	280/5/7%	280/300	7%/14%	5	

Note: the abovementioned types are the fourth generation products;

Products with reactance rate of 7% or 14% are optional; rated voltage of capacitor optional.

7 Exterior and mounting size(mm)

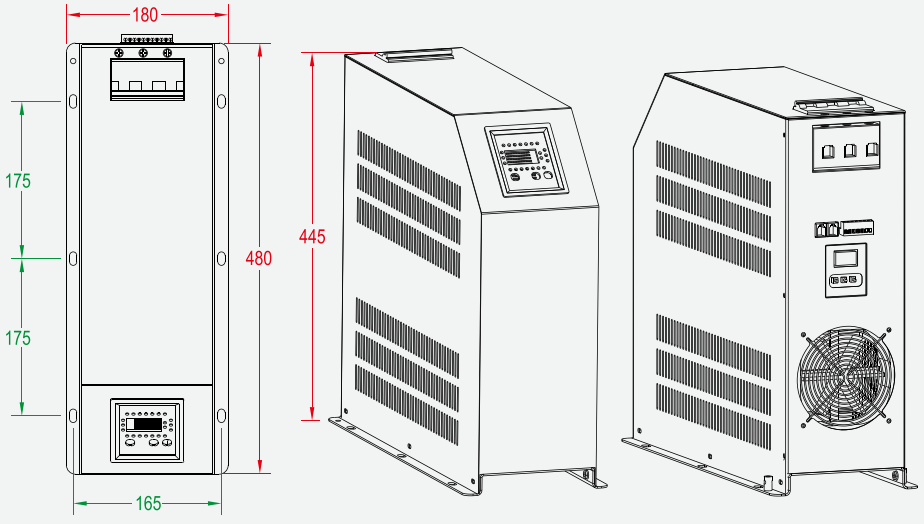
7.1 RCBAGK products H=380mm



Note：Three phase compensation (5kvar ~ 25kvar) H=380mm
Split phase compensation (5kvar ~ 15kvar) H=380mm

7.2 RCBAGK products H=445mm

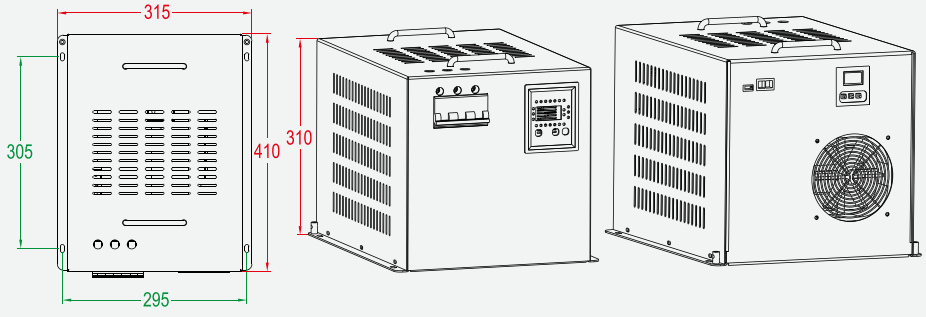
RCBAGK ≤40kvar



Note：Three phase compensation (30kvar ~ 40kvar) H=445mm
Split phase compensation (20kvar) H=445mm

7.3 RCBAGK-A products (5kvar ~ 40kvar)

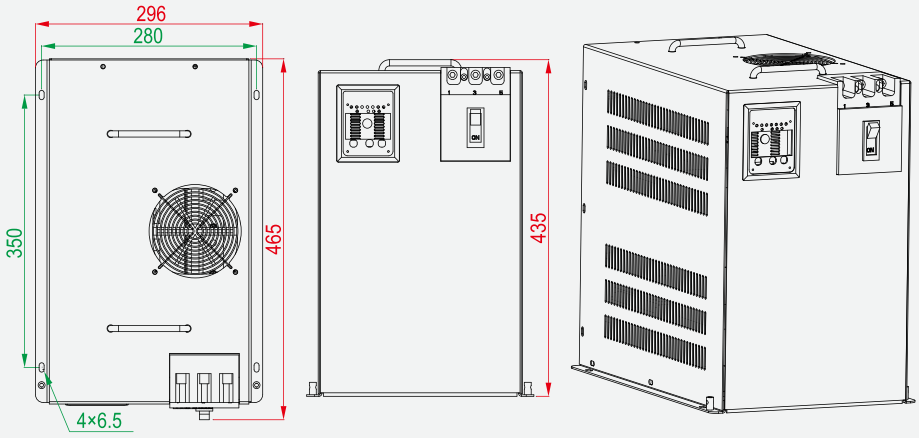
RCBAGK-A ≤40kvar



Note: (5kvar ~ 40kvar) mounting size is 295mm × 305mm

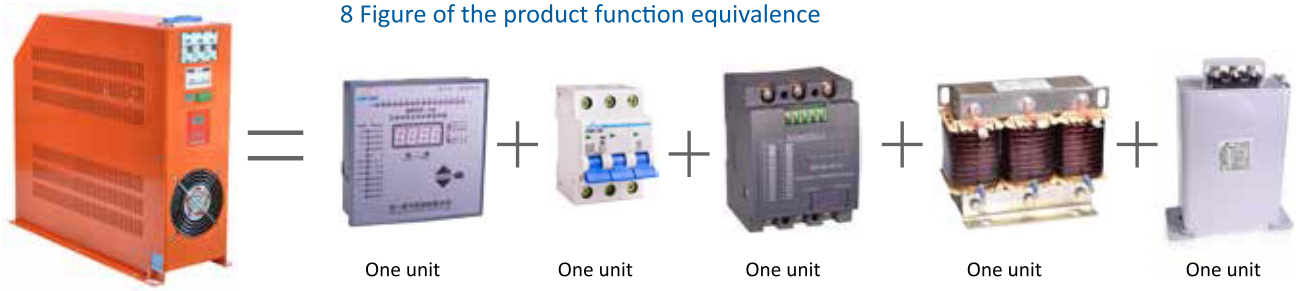
7.4 RCBAGK-A products (45~70kvar))

RCBAGK-A 45~70 kvar



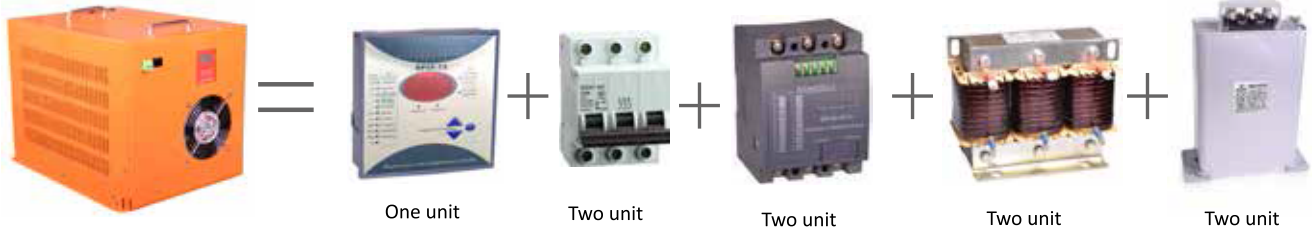
Note: (45~70kvar) Outline dimension: 296mm × 465mm × 435mm;
mounting size:280mm × 350mm

8 Figure of the product function equivalence



RCBAGK ≤40kvar

One unit One unit One unit One unit One unit



RCBAGK-A ≤70kvar

One unit Two unit Two unit Two unit Two unit

9 Ordering notes

9.1 User should supply parameters of rated voltage, rated capacitance,.