



# Low-voltage Capacitor





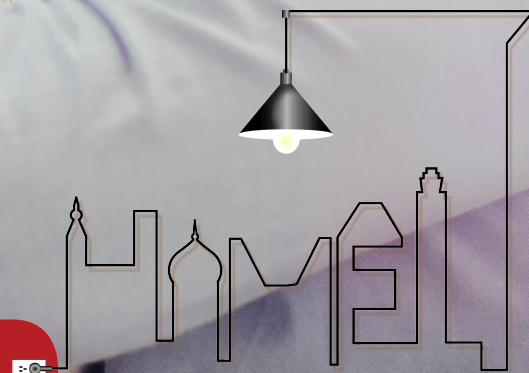
# About Himel



Himel is a multinational manufacturer and provider of electrical products that successfully combines global expertise with local knowledge. We focus on long-term partnership with customers and offer products that meet real needs and ensure adequate compatibility for common usage.

Our global footprint and technology allows to provide the best combination of affordable and reliable offers for low voltage power distribution, Industrial automation and home electric in over 50 countries where we are present.

**Reliable made affordable.**



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## Reactive Power Management

In electrical networks, reactive energy results in increased line currents for a given active energy transmitted to loads.

### The main consequences are:

- Need for oversizing of transmission and distribution networks by utilities,
- Increased voltage drops and sags along the distribution lines,
- Additional power losses.

### This results in increased electricity bills for industrial customers because of:

- Penalties applied by most utilities on reactive energy,
- Increased overall kVA demand,
- Increased energy consumption within the installations.

Reactive energy management aims to optimize your electrical installation by reducing energy consumption, and to improve power availability.

### Power Factor Correction

Every electric machine needs active power (kW) and reactive power (kvar) to operate. The power rating of the installation in kVA is the combination of both:  $(kVA)^2 = (kW)^2 + (kvar)^2$ .

The Power Factor has been defined as the ratio of active power (kW) to apparent power (kVA).  $\text{Power Factor} = (kW) / (kVA)$ .

The objective of Reactive Energy management is improvement of Power Factor, or "Power Factor Correction".

This is typically achieved by producing reactive energy close to the consuming loads, through connection of capacitor banks to the network.

### Quality and Reliability

- Advanced impregnation technology ensures the stability of paraffin fill-in: reliable lifecycle.
- 100% testing in manufacturing plant.
- Design and engineering with the highest international standards.

### Safety

- Explosion-proof equipment, and quick disconnection from power grid;
- No risk of oil leakage due to the application of microcrystalline wax as impregnation.

### Efficiency and Productivity

- Product development including innovation in ergonomics and ease of installation and connection.
- Specially designed components to save time on installation and maintenance.

### A Comprehensive Offer

Power Factor Correction capacitor with and without reactor form part of a comprehensive offer of products perfectly coordinated to meet low-voltage power distribution needs.

Use of these products in the electrical installation will result in:

- Improved continuity of service;
- Reduced power losses;
- Guarantee of scalability;
- efficient monitoring and management.

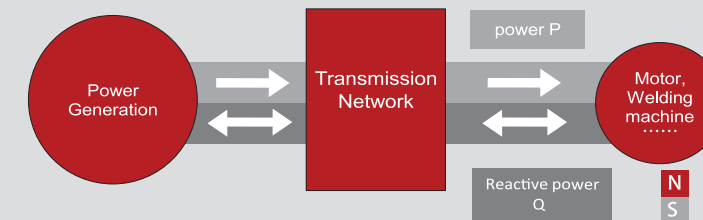
## Reactive Power Management: Why?

All AC electrical networks consume two types of power: active power (kW) and reactive power (kvar):

- The active power P (in kW) is the real power transmitted to loads such as motors, lamps, heaters, computers, etc. The electrical active power is transformed into mechanical power, heat or light.
- The reactive power Q (in kvar) is used only to power the magnetic circuits of machines, motors and transformers.

The apparent power S (in kVA) is the vector combination of active and reactive power.

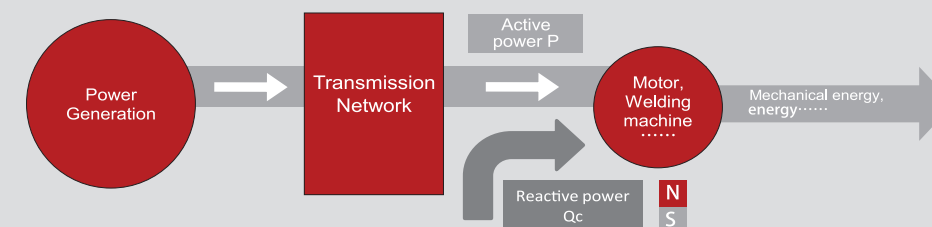
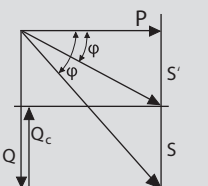
In an electrical circuit, the reactive energy is supplied in addition to the active energy.



For these reasons, there is a great advantage in generating reactive energy at the load level in order to prevent the unnecessary circulation of current in the network. This is what is known as "power factor correction". This is obtained by the connection of capacitors, which produce reactive energy in opposition to the energy absorbed by loads such as motors.

The result is a reduced apparent power, and an improved power factor  $P/S'$  as illustrated in the diagram opposite.

The power generation and transmission networks are partially relieved, reducing power losses and making additional transmission capacity available.





# Low-voltage Capacitor

The efficiency of power generation, transmission or conversion is improved when operated at near unity power factor. The least expensive way to achieve the same is by installing Capacitors. Capacitors must be able to withstand high voltage transients and power line variations without breakdown.

## Characteristic

- Low loss of medium and temperature with long serving time to save electricity bill.
- HIMEL Capacitors are made in accordance with Metallized Polypropylene technology with built-in SELF HEALING properties.
- Full specifications



# HBSM Low-voltage Capacitor

## HDCAP3 Series

Capacity: 1~30kvar  
 Voltage: 230V, 400V, 450V, 525V  
 Connection type: Three-phase  
 Voltage: 230V, 400V, 450V, 525V  
 Connection type: Three-phase



## HBSM Series

Capacity: 0.5~60kvar  
 Voltage: 230V, 250V, 280V, 400V, 415V, 440V, 450V, 480V, 525V, 660V, 690V, 760V  
 Connection type: Single-phase, three-phase, three-phase four-wire  
 Housing type: D, M and Q



Single-phase D Type



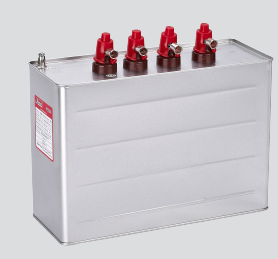
Three-phase D Type



Three-phase Four-wire D Type



Three-phase M Type



Three-phase Four-wire Q Type



Three-phase Four-wire M Type

## Our benefits:

- Small size and light weight, which make a higher compensation accuracy for a system;
- Full-scale specifications: 13 kinds of rated voltage, 3 types of compensation method (single-phase, three-phase delta connection and three-phase four-wire connection), wide range of compensation capacity;
- Built-in reactor structure can be optional for better current suppression function;
- Long-term testing of 2xUn thousands of charges and discharges with inductance.

## Technical Characteristics

Basic Information	
Rated Voltage(AC)	230V,250V,280V,400V,415V,440V,450V,480V,525V, 660V,690V,760V
Rated Capacity	0.5~60kvar
Capacity deviation (μF)	0~+10% of the rated capacity
Loss angle tangent (tan)	At the rated power-frequency voltage, 20°C tan δ ≤ 0.2%
Connection Type	Single-phase, three-phase, three-phase four-wire
Rated Frequency	50Hz
Ambient Temperature	-25°C ~+50°C
AC withstand voltage	Inter-electrode: 2.15Un/10s
	Between shell and phase: 3kV/10s
Allowable over-voltage (Un)	1.10 of rated voltage (not greater than 8h in 24h)
Allowable over-current (In)	1.43 of rated current
Voltage to the ground (Ue)	3000V AC 50Hz
Altitude	≤ 2000m
Relative humidity	≤ 50% at 40°C
	≤ 90% at 20°C
Structure Feature	
Appearance	Box
Inside Dipping Material	Polypropylene metallized film
Self discharge characteristic	The residual voltage reduces to 50V or below from √2Un after 3 minutes in case of power failure
Standard	IEC60831

## Working conditions and installation conditions

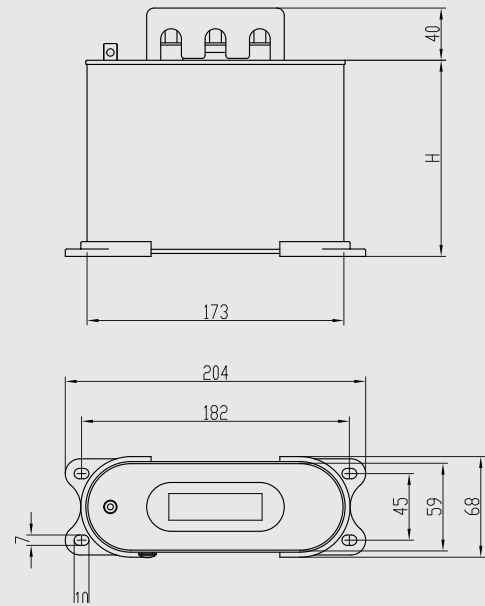
- Environmental condition: no harmful gas and steam, no conductive and explosive dust, no violent mechanical vibration;
- Installation position: vertical; the inclination at each direction does not exceed 10°.



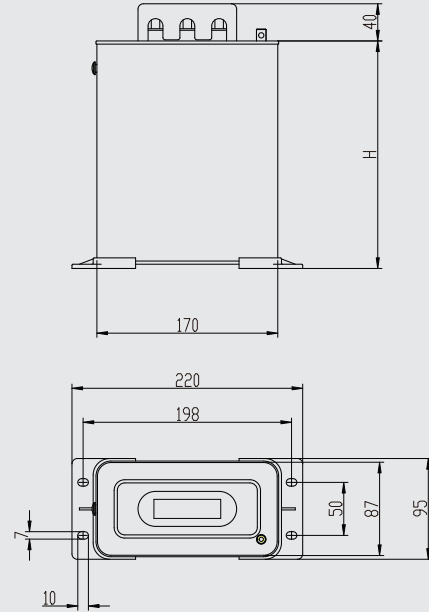
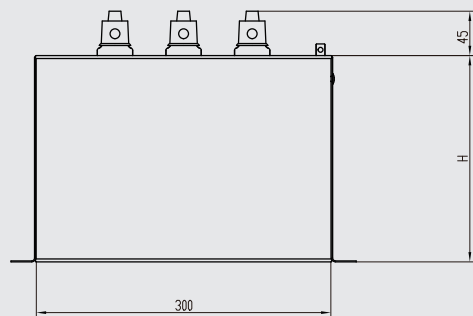
# HBSM Low-voltage Capacitor

## HBSM Selection Guide

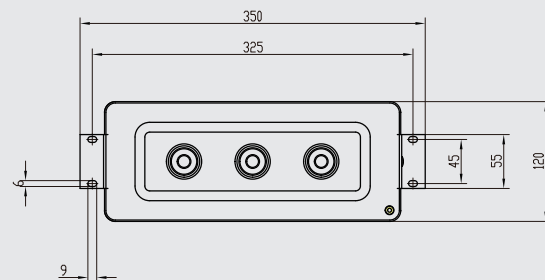
### • Overall Dimensions for D, M and Q Type



	D Type					Unit: mm
	D130	D185	D210	D245	D290	
Housing code	D130	D185	D210	D245	D290	
Capacitor body length x width	173 x 59					
Capacitor body height (H)	130	185	210	245	290	
Max. height	170	225	250	285	330	
Mounting hole size	See Figure					



	M Type		Unit: mm
	M210	M265	
Housing code	M210	M265	
Capacitor body length x width	170 x 87		
Capacitor body height (H)	210	265	
Max. height	250	305	
Mounting hole size	See Figure		



	Q Type		Unit: mm
	Q210	Q240	
Housing code	Q210	Q240	
Capacitor body length x width	300 x 120		
Capacitor body height (H)	210	240	
Max. height	255	285	
Mounting hole size	See Figure		

# HBSM Low-voltage Capacitor

## HBSM Selection Guide

### • HBSM Model Selection

Capacity (kvar)	Single phase			Three-phase			Three-phase four-wire		
	400V	450V	525V	400V	450V	525V	230V	250V	280V
5	D130	D130	D130	D130	D130	D130	D130	D130	D130
6	D130	D130	D130	D130	D130	D130	D130	D130	D130
7.5	D130	D130	D130	D130	D130	D130	D210	D210	D210
8	D130	D130	D130	D130	D130	D130	D210	D210	D210
10	D130	D130	D130	D130	D130	D130	D210	D210	D210
12	D185	D185	D185	D185	D185	D185	D210	D210	D210
14	D185	D185	D185	D185	D185	D185	D210	D210	D210
15	D185	D185	D210	D185	D185	D210	D290	D290	D290
16	D185	D185	D210	D185	D185	D210	D290	D290	D290
18	D210	D210	D210	D210	D210	D210	D290	D290	D290
20	D210	D210	D290	D210	D210	D290	M265	M265	M265
24	D245	D245	D290	D245	D245	D290	M265	M265	M265
25	D245	D245	D290	D245	D245	D290	Q210	Q210	Q210
28	D290	D290	D290	D290	D290	D290	Q210	Q210	Q210
30	D290	D290	M265	D290	D290	M265	Q210	Q210	Q210
35	M265	M265	M265	M265	M265	M265	Q240	Q240	Q240
40	M265	M265	Q210	M265	M265	Q210		Q240	Q240
45	Q210	Q210	Q210	Q210	Q210	Q210			Q240
50	Q210	Q210	Q210	Q210	Q210	Q210			Q240
60	Q240	Q240	Q240	Q240	Q240	Q240			Q240

Note: D290 can be replaced with M210, which depends on the actual installation requirement.

### • HBSM - Construction of references Principle

Product Name	With or Without reactor	Rated voltage	Rated compensation capacity	Compensation method	Housing type
HBSM	0	04500	0150	3	D
	0: Without reactor 1: With reactor	02300: 230V 02500: 250V 02800: 280V 04000: 400V 04150: 415V 04400: 440V 04500: 450V 04800: 480V 05250: 525V 06900: 690V 07500: 750V 02303:230√3V 02503:250√3V 02803:280√3V 04003:400√3V	0005: 0.5kvar ... 0075: 7.5kvar ... 0100: 10kvar ... 0150: 15kvar ... 0200: 20kvar ... 0300: 30kvar ... 0400: 40kvar ... 0600: 60kvar	1: Single-phase compensation  3: Three-phase compensation  4: Three-phase four-wire compensation 3YN	D: D type M: M type Q: Q type

Note: If there is a detuned reactor connected in series with capacitor, you should choose capacitor without reactor type! Two reactors including built-in reactor will affect the total inductance in corresponding loop.



# HDCAP3 Low-voltage Capacitor

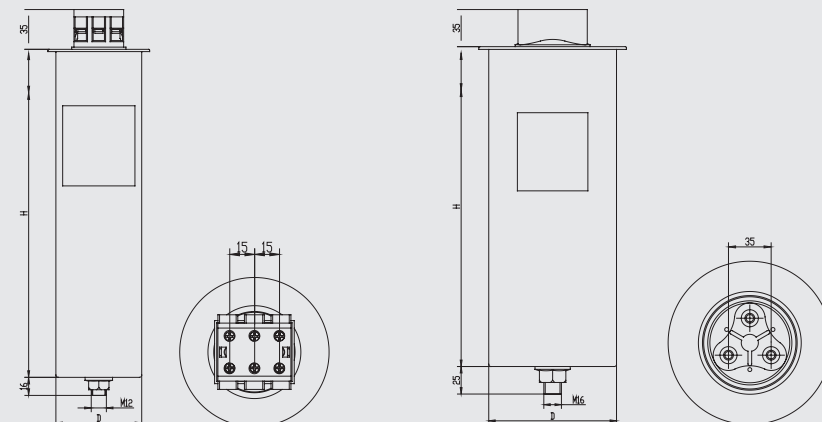
## • Technical Characteristics

Basic Information	
Rated Voltage(AC)	400V, 450V, 525V
Rated Capacity	1~30kvar
Capacity deviation (μF)	0~+10% of the rated capacity
Loss angle tangent (tan)	At the rated power-frequency voltage, 20 °C tan δ≤0.2%
Connection Type	Three-phase
Rated Frequency	50Hz
Ambient Temperature	-25 °C ~+50 °C
AC withstand voltage	Inter-electrode: 2.15Un/10s
	Between shell and phase: 3kV/10s
Allowable over-voltage (Un)	1.10 of rated voltage (not greater than 8h in 24h)
Allowable over-current (In)	1.43 of rated current
Altitude	≤2000m
Relative humidity	"≤50% at 40 °C ≤90% at 20 °C "
Structure Feature	
Appearance	Cylindrical
Inside Dipping Material	Polypropylene metallized film
Self discharge characteristic	The residual voltage reduces to 50V or below from $\sqrt{2}U_n$ after 3 minutes in case of power failure
Standard	IEC60831

Note: If the system is under 60Hz, the corresponding data can be checked in the "Frequency conversion" part.

## • Product features

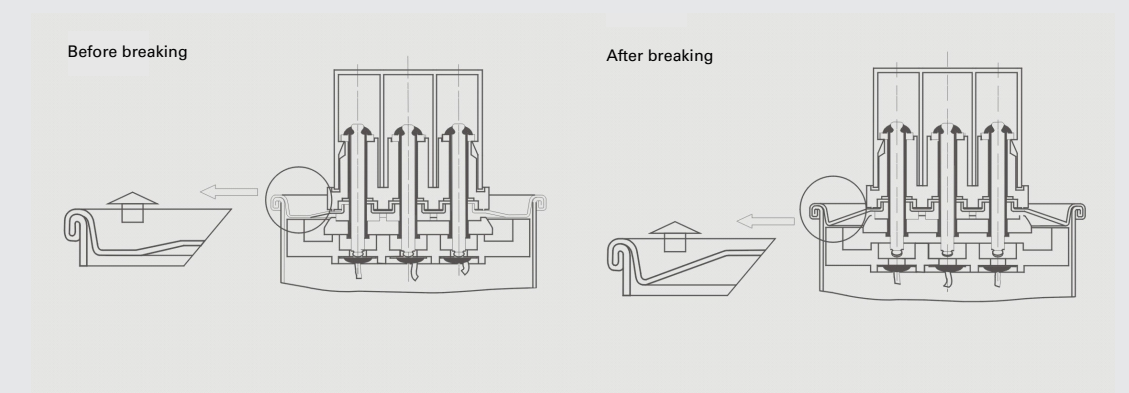
- Aluminum can is used for packaging;
- Impregnant is paraffin wax;
- The pressure separation device and discharge resistor are built in;
- The capacitor packet uses a self-healing high-qualified metallized polypropylene film;
- There is an anti-electric shock terminal block on the top of the capacitor;
- There are M12 or M16 mounting and grounding bolts at the bottom of the capacitor.



# HDCAP3 Low-voltage Capacitor

## • Technical Characteristics

Model	Rated Voltage	Rated capacity	Overall dimensions	Mounting dimensions
	(V)	(kvar)	D*H (mm)	
HDCAP3-0.4-5-3	400	5	76*245	M12*16
HDCAP3-0.4-7.5-3	400	7.5	76*245	M12*16
HDCAP3-0.4-10-3	400	10	76*245	M12*16
HDCAP3-0.4-12-3	400	12	76*245	M12*16
HDCAP3-0.4-14-3	400	14	86*245	M12*16
HDCAP3-0.4-15-3	400	15	86*245	M12*16
HDCAP3-0.4-16-3	400	16	86*245	M12*16
HDCAP3-0.4-18-3	400	18	86*290	M12*16
HDCAP3-0.4-20-3	400	20	86*290	M12*16
HDCAP3-0.4-25-3	400	25	116*290	M16*25
HDCAP3-0.4-30-3	400	30	116*290	M16*25
HDCAP3-0.45-5-3	450	5	76*245	M12*16
HDCAP3-0.45-7.5-3	450	7.5	76*245	M12*16
HDCAP3-0.45-10-3	450	10	76*245	M12*16
HDCAP3-0.45-12-3	450	12	76*245	M12*16
HDCAP3-0.45-14-3	450	14	86*245	M12*16
HDCAP3-0.45-15-3	450	15	86*245	M12*16
HDCAP3-0.45-16-3	450	16	86*245	M12*16
HDCAP3-0.45-18-3	450	18	86*290	M12*16
HDCAP3-0.45-20-3	450	20	86*290	M12*16
HDCAP3-0.45-25-3	450	25	116*290	M16*25
HDCAP3-0.45-30-3	450	30	116*290	M16*25
HDCAP3-0.525-5-3	525	5	76*245	M12*16
HDCAP3-0.525-7.5-3	525	7.5	76*245	M12*16
HDCAP3-0.525-10-3	525	10	76*245	M12*16
HDCAP3-0.525-12-3	525	12	76*245	M12*16
HDCAP3-0.525-14-3	525	14	86*245	M12*16
HDCAP3-0.525-15-3	525	15	86*245	M12*16
HDCAP3-0.525-16-3	525	16	86*245	M12*16
HDCAP3-0.525-18-3	525	18	86*290	M12*16
HDCAP3-0.525-20-3	525	20	86*290	M12*16
HDCAP3-0.525-25-3	525	25	116*290	M16*25
HDCAP3-0.525-30-3	525	30	116*290	M16*25





# HDCAP3 Low-voltage Capacitor



## • HDCAP3 - Construction of references Principle

Product Name	Rated voltage	Rated compensation capacity	Compensation method
HDCAP3	0400	005	3
	0230: 230V ... 0525: 525V	005: 5kvar ... 030: 30kvar	3: Three-phase compensation

Note: If there is a detuned reactor connected in series with capacitor, you should choose capacitor without reactor type! Two reactors including built-in reactor will affect the total inductance in corresponding loop.

## Low-voltage Capacitor Selection Guide

Under different situations, compensation capacity selection should be varied. We should consider this issue case by case.

### Frequency conversion

50Hz and 60Hz are available for different countries. Therefore, there is a guideline for customers to choose correct compensation capacity for their applications.

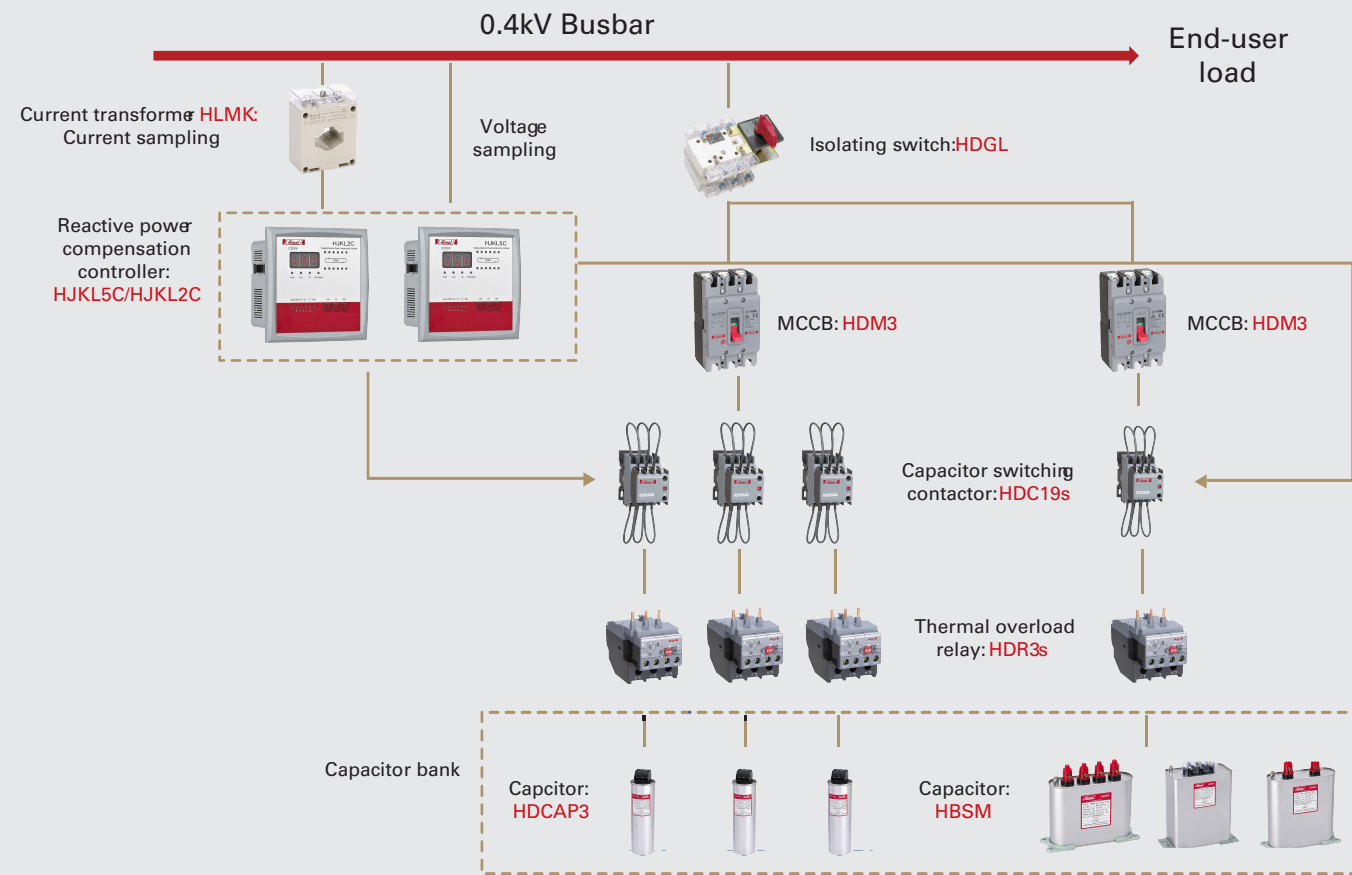
Commercial Reference	Description	Voltage (V)	Capacity kvar (50Hz)	Capacitance (uF)	Capacity kvar (60Hz)
HDCAP304000053	HDCAP3-400V-5kvar-3phase	400	5	99.47	6
HDCAP304007053	HDCAP3-400V-7.5kvar-3phase	400	7.5	149.21	9
HDCAP304000103	HDCAP3-400V-10kvar-3phase	400	10	198.95	12
HDCAP304000123	HDCAP3-400V-12kvar-3phase	400	12	238.74	14.4
HDCAP304000143	HDCAP3-400V-14kvar-3phase	400	14	278.53	16.8
HDCAP304000153	HDCAP3-400V-15kvar-3phase	400	15	298.42	18
HDCAP304000163	HDCAP3-400V-16kvar-3phase	400	13	258.63	15.6
HDCAP304000183	HDCAP3-400V-18kvar-3phase	400	18	358.11	21.6
HDCAP304000203	HDCAP3-400V-20kvar-3phase	400	20	397.90	24
HDCAP304000253	HDCAP3-400V-25kvar-3phase	400	25	497.37	30
HDCAP304000303	HDCAP3-400V-30kvar-3phase	400	30	596.85	36
HDCAP304500053	HDCAP3-450V-5kvar-3phase	450	5	78.60	6
HDCAP304507053	HDCAP3-450V-7.5kvar-3phase	450	7.5	117.90	9
HDCAP304500103	HDCAP3-450V-10kvar-3phase	450	10	157.19	12
HDCAP304500123	HDCAP3-450V-12kvar-3phase	450	12	188.63	14.4
HDCAP304500143	HDCAP3-450V-14kvar-3phase	450	14	220.07	16.8
HDCAP304500153	HDCAP3-450V-15kvar-3phase	450	15	235.79	18
HDCAP304500163	HDCAP3-450V-16kvar-3phase	450	16	251.51	19.2
HDCAP304500183	HDCAP3-450V-18kvar-3phase	450	18	282.95	21.6
HDCAP304500203	HDCAP3-450V-20kvar-3phase	450	20	314.39	24
HDCAP304500253	HDCAP3-450V-25kvar-3phase	450	25	392.99	30
HDCAP304500303	HDCAP3-450V-30kvar-3phase	450	30	471.58	36
HDCAP305250053	HDCAP3-525V-5kvar-3phase	525	5	57.74	6
HDCAP305257053	HDCAP3-525V-7.5kvar-3phase	525	7.5	86.62	9

# Low-voltage Capacitor Selection Guide

Commercial Reference	Description	Voltage (V)	Capacity kvar (50Hz)	Capacitance (uF)	Capacity kvar (60Hz)
HDCAP305250103	HDCAP3-525V-10kvar-3phase	525	10	115.49	12
HDCAP305250123	HDCAP3-525V-12kvar-3phase	525	12	138.59	14.4
HDCAP305250143	HDCAP3-525V-14kvar-3phase	525	14	161.69	16.8
HDCAP305250153	HDCAP3-525V-15kvar-3phase	525	15	173.23	18
HDCAP305250163	HDCAP3-525V-16kvar-3phase	525	16	184.78	19.2
HDCAP305250183	HDCAP3-525V-18kvar-3phase	525	18	207.88	21.6
HDCAP305250203	HDCAP3-525V-20kvar-3phase	525	20	230.98	24
HDCAP305250253	HDCAP3-525V-25kvar-3phase	525	25	288.72	30
HDCAP305250303	HDCAP3-525V-30kvar-3phase	525	30	346.47	36
HBSM00400001001D	HBSM-0-400V-10kvar-1phase-D	400	10	198.95	12
HBSM00400001501D	HBSM-0-400V-15kvar-1phase-D	400	15	298.42	18
HBSM00400002001D	HBSM-0-400V-20kvar-1phase-D	400	20	397.90	24
HBSM00400003001D	HBSM-0-400V-30kvar-1phase-D	400	30	596.85	36
HBSM00400005001Q	HBSM-0-400V-50kvar-1phase-Q	400	50	994.75	60
HBSM00400001003D	HBSM-0-400V-10kvar-3phase-D	400	10	198.95	12
HBSM00400001503D	HBSM-0-400V-15kvar-3phase-D	400	15	298.42	18
HBSM00400002003D	HBSM-0-400V-20kvar-3phase-D	400	20	397.90	24
HBSM00400002503D	HBSM-0-400V-25kvar-3phase-D	400	25	497.37	30
HBSM00400003003D	HBSM-0-400V-30kvar-3phase-D	400	30	596.85	36
HBSM00400003003M	HBSM-0-400V-30kvar-3phase-M	400	30	596.85	36
HBSM00400005003Q	HBSM-0-400V-50kvar-3phase-Q	400	50	994.75	60
HBSM00400006003Q	HBSM-0-400V-60kvar-3phase-Q	400	60	1193.70	72
HBSM00450001003D	HBSM-0-450V-10kvar-3phase-D	0.45	10	157.19	12
HBSM00450001503D	HBSM-0-450V-15kvar-3phase-D	0.45	15	235.79	18
HBSM00450002003D	HBSM-0-450V-20kvar-3phase-D	0.45	20	314.39	24
HBSM00450002503D	HBSM-0-450V-25kvar-3phase-D	0.45	25	392.99	30
HBSM00450003003D	HBSM-0-450V-30kvar-3phase-D	0.45	30	471.58	36
HBSM00450004003M	HBSM-0-450V-40kvar-3phase-M	0.45	40	628.78	48
HBSM00525001503D	HBSM-0-525V-15kvar-3phase-D	525	15	173.23	18
HBSM00525002003D	HBSM-0-525V-20kvar-3phase-D	525	20	230.98	24
HBSM00525003003M	HBSM-0-525V-30kvar-3phase-M	525	30	346.47	36
HBSM00525005003Q	HBSM-0-525V-50kvar-3phase-Q	525	50	577.45	60
HBSM00525006003Q	HBSM-0-525V-60kvar-3phase-Q	525	60	692.94	72



# Low-voltage Capacitor Solution



System solution for reactive power compensation cabinet.

# Low-voltage Capacitor Selection Guide

## • Coordination table between Capacitor and Contactor

Commercial Reference	Description	Voltage (V)	Capacity kvar (50Hz)	Matched HDC19s
HDCAP304000053	HDCAP3-400V-5kvar-3phase	400	5	HDC19s-25
HDCAP304007053	HDCAP3-400V-7.5kvar-3phase	400	7.5	HDC19s-25
HDCAP304000103	HDCAP3-400V-10kvar-3phase	400	10	HDC19s-25
HDCAP304000123	HDCAP3-400V-12kvar-3phase	400	12	HDC19s-32
HDCAP304000143	HDCAP3-400V-14kvar-3phase	400	14	HDC19s-32
HDCAP304000153	HDCAP3-400V-15kvar-3phase	400	15	HDC19s-43
HDCAP304000163	HDCAP3-400V-16kvar-3phase	400	13	HDC19s-32
HDCAP304000183	HDCAP3-400V-18kvar-3phase	400	18	HDC19s-43
HDCAP304000203	HDCAP3-400V-20kvar-3phase	400	20	HDC19s-63
HDCAP304000253	HDCAP3-400V-25kvar-3phase	400	25	HDC19s-63
HDCAP304000303	HDCAP3-400V-30kvar-3phase	400	30	HDC19s-95
HDCAP304500053	HDCAP3-450V-5kvar-3phase	450	5	HDC19s-25
HDCAP304507053	HDCAP3-450V-7.5kvar-3phase	450	7.5	HDC19s-25
HDCAP304500103	HDCAP3-450V-10kvar-3phase	450	10	HDC19s-32
HDCAP304500123	HDCAP3-450V-12kvar-3phase	450	12	HDC19s-25
HDCAP304500143	HDCAP3-450V-14kvar-3phase	450	14	HDC19s-32
HDCAP304500153	HDCAP3-450V-15kvar-3phase	450	15	HDC19s-32
HDCAP304500163	HDCAP3-450V-16kvar-3phase	450	16	HDC19s-32
HDCAP304500183	HDCAP3-450V-18kvar-3phase	450	18	HDC19s-43
HDCAP304500203	HDCAP3-450V-20kvar-3phase	450	20	HDC19s-43
HDCAP304500253	HDCAP3-450V-25kvar-3phase	450	25	HDC19s-63
HDCAP304500303	HDCAP3-450V-30kvar-3phase	450	30	HDC19s-63
HDCAP305250053	HDCAP3-525V-5kvar-3phase	525	5	HDC19s-25
HDCAP305257053	HDCAP3-525V-7.5kvar-3phase	525	7.5	HDC19s-25
HDCAP305250103	HDCAP3-525V-10kvar-3phase	525	10	HDC19s-25
HDCAP305250123	HDCAP3-525V-12kvar-3phase	525	12	HDC19s-25
HDCAP305250143	HDCAP3-525V-14kvar-3phase	525	14	HDC19s-25
HDCAP305250153	HDCAP3-525V-15kvar-3phase	525	15	HDC19s-25
HDCAP305250163	HDCAP3-525V-16kvar-3phase	525	16	HDC19s-32
HDCAP305250183	HDCAP3-525V-18kvar-3phase	525	18	HDC19s-32
HDCAP305250203	HDCAP3-525V-20kvar-3phase	525	20	HDC19s-43
HDCAP305250253	HDCAP3-525V-25kvar-3phase	525	25	HDC19s-43
HDCAP305250303	HDCAP3-525V-30kvar-3phase	525	30	HDC19s-63
HBSM00400001001D	HBSM-0-400V-10kvar-1phase-D	400	10	HDC19s-32
HBSM00400001501D	HBSM-0-400V-15kvar-1phase-D	400	15	HDC19s-43



# Low-voltage Capacitor Application

## • Coordination table between Capacitor and Contactor

Commercial Reference	Description	Voltage (V)	Capacity kvar (50Hz)	Matched HDC19s
HBSM00400002001D	HBSM-0-400V-20kvar-1phase-D	400	20	HDC19s-63
HBSM00400003001D	HBSM-0-400V-30kvar-1phase-D	400	30	HDC19s-95
HBSM00400005001Q	HBSM-0-400V-50kvar-1phase-Q	400	50	HDC19s-115
HBSM00400001003D	HBSM-0-400V-10kvar-3phase-D	400	10	HDC19s-32
HBSM00400001503D	HBSM-0-400V-15kvar-3phase-D	400	15	HDC19s-43
HBSM00400002003D	HBSM-0-400V-20kvar-3phase-D	400	20	HDC19s-63
HBSM00400002503D	HBSM-0-400V-25kvar-3phase-D	400	25	HDC19s-63
HBSM00400003003D	HBSM-0-400V-30kvar-3phase-D	400	30	HDC19s-95
HBSM00400003003M	HBSM-0-400V-30kvar-3phase-M	400	30	HDC19s-95
HBSM00400005003Q	HBSM-0-400V-50kvar-3phase-Q	400	50	HDC19s-115
HBSM00400006003Q	HBSM-0-400V-60kvar-3phase-Q	400	60	Not available in HIMEL
HBSM00450001003D	HBSM-0-450V-10kvar-3phase-D	0.45	10	HDC19s-25
HBSM00450001503D	HBSM-0-450V-15kvar-3phase-D	0.45	15	HDC19s-32
HBSM00450002003D	HBSM-0-450V-20kvar-3phase-D	0.45	20	HDC19s-43
HBSM00450002503D	HBSM-0-450V-25kvar-3phase-D	0.45	25	HDC19s-63
HBSM00450003003D	HBSM-0-450V-30kvar-3phase-D	0.45	30	HDC19s-63
HBSM00450004003M	HBSM-0-450V-40kvar-3phase-M	0.45	40	HDC19s-95
HBSM00525001503D	HBSM-0-525V-15kvar-3phase-D	525	15	HDC19s-25
HBSM00525002003D	HBSM-0-525V-20kvar-3phase-D	525	20	HDC19s-43
HBSM00525003003M	HBSM-0-525V-30kvar-3phase-M	525	30	HDC19s-63
HBSM00525005003Q	HBSM-0-525V-50kvar-3phase-Q	525	50	HDC19s-95
HBSM00525006003Q	HBSM-0-525V-60kvar-3phase-Q	525	60	HDC19s-115

# Power Factor Controller



HJKL5C Series



HJKL2C Series

The Reactive Power Compensation controllers permanently monitor the reactive power of the installation and control the connection and disconnection of capacitor steps in order to obtain the targeted power factor.

## Reactive Power Compensation Controller HJKL5C & HJKL2C Series

### Performance

- Permanent monitoring of the network and equipment
- Information provided about equipment status.
- New control algorithm designed to reduce the number of switching operations and quickly attain the targeted power factor.

### Simplicity

- Simplified programming and possibility of intelligent self set-up.
- Ergonomic layout of control buttons.
- Quick and simple mounting and wiring.
- A special menu allows controller self-configuration.

### User-friendliness

- Direct viewing of installation electrical information and capacitor stage condition.
- Direct reading of set-up configuration.
- Alarm indication.

### Function

The reactive power compensation controller is a specified controller that can match all kinds of capacitors in low-voltage system. It adopts MCU controlling and uses numerical techniques to compute the phase difference between the fundamentals of current and voltage, enabling precise power factor measurement with quick response.

### Technical Characteristics

Category	Parameter value	Default Value
Sampling voltage	380V(HJKL5C)/ 220V(HJKL2C)±15%	
Sampling current	n/5A ( I <sub>s</sub> ≤5A )	
Frequency	50~60(Hz)	
Sensitivity	50mA	
Input threshold	lag 0.80~lead-0.82 adjustable step 0.01	0.95
Cut-off threshold	lead-0.80 ~lag0.82 adjustable step 0.01	Technical Characteristics
Loop setting	1~12 adjustable step 1	
Time setting	1s~120s adjustable step 1s	30s
Overvoltage setting	400~450V(HJKL5C)adjustable step 5V	430V
	235~260V(HJKL2C)adjustable step 5V	245V
Undervoltage protection	300V(HJKL5C) / 170V(HJKL2C)	
Undercurrent setting	0mA~500mA adjustable step 50mA	200mA (0 is for close)
COSΦ display	Lead & Lag (0.00~0.99) resolution 0.01	
Working methods	Continuous working, circular switching	
Output loops	4, 6, 8, 10, 12 loops	
Capacity of output	Each group 5A, 220V resistive / 3A, 380V resistive	
IP grade	IP30 for cover	



