



Controls



POWER FACTOR CORRECTION





Power Factor Correction

5,00 kV
480V60

5,00 kV
480V



POWER FACTOR CORRECTION

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Capacitors: The Technology Within

WEG has played an important role in the electric industry raising the quality and process bar to the highest level since it began the production of the most elementary switch and control gear devices for electric motors. As a result, WEG presents its series of Capacitors for Power Factor Correction, which are assembled according to national and international standards such as NBR IEC 60831 parts 1 and 2, EN IEC 60831 parts 1 and 2 and UL 810. WEG's production chain also includes the ISO 9001 and 14001 certifications.



During their useful life, the capacitors may be subjected to certain utilization conditions, such as electrical and thermal overloads (voltage surges, short circuits, harmonics, excessive switching, high ambient temperature), which can damage them prematurely.

Due to the utilization conditions mentioned above, WEG capacitors are assembled with a high performance and low loss self-healing polypropylene dielectric film providing two important characteristics:

- Low Watt losses: dielectric losses smaller than 0.2 W / kvar;
- Self-healing properties: in application conditions that cause a short circuit fault in the dielectric, the self-healing effect quickly reestablishes its electric properties.

As shown in the picture below, obtained through microscopic magnification, when there is a fault in the dielectric, the metallic layer above the polypropylene film vaporizes around the rupture point isolating the short circuit. This happens because at the moment of short circuit, the metal layer around the fault is subjected to high temperatures. This is the self-healing effect.

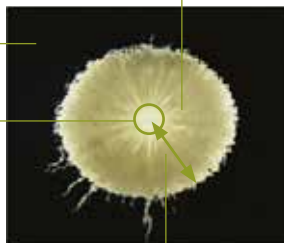
Polypropylene Film After Self-Healing Effect

Area where self-healing occurred
(metal vaporization)

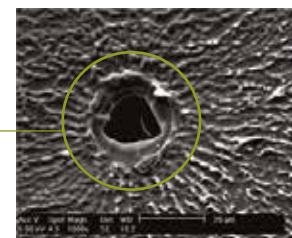
Self-healing polypropylene
film conductive layer

Rupture of
dielectric area

Isolated area, which
increases distance
between rupture area
and conductive layer



Rupture of dielectric area
(magnified 1,000 times)





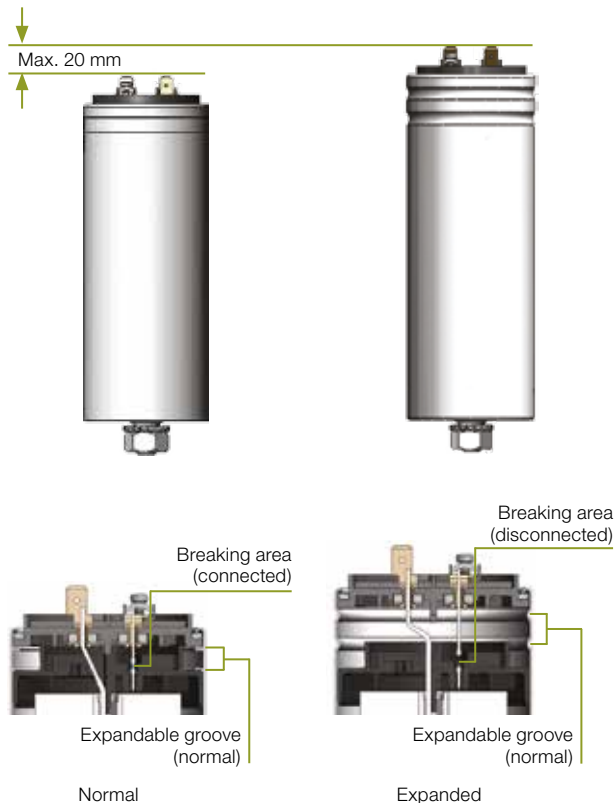
The reduction of the capacitance after the self-healing is so small that it can only be verified with precise measurements and the capacitor remains operating normally after each self-healing. The cumulative effect of the self-healing will result in the increase of its internal pressure up to the point of the end of its life.

To avoid possible damage to the electric installation caused by over-pressure in the capacitor, the polypropylene WEG capacitors are specially designed for power factor correction and have a safety system against internal over-pressures. This safety system has the function of interrupting the electric current on the capacitor and when the internal pressure is too high. The actuation of this system normally occurs in the end of the life of the capacitor or in cases of overload conditions.

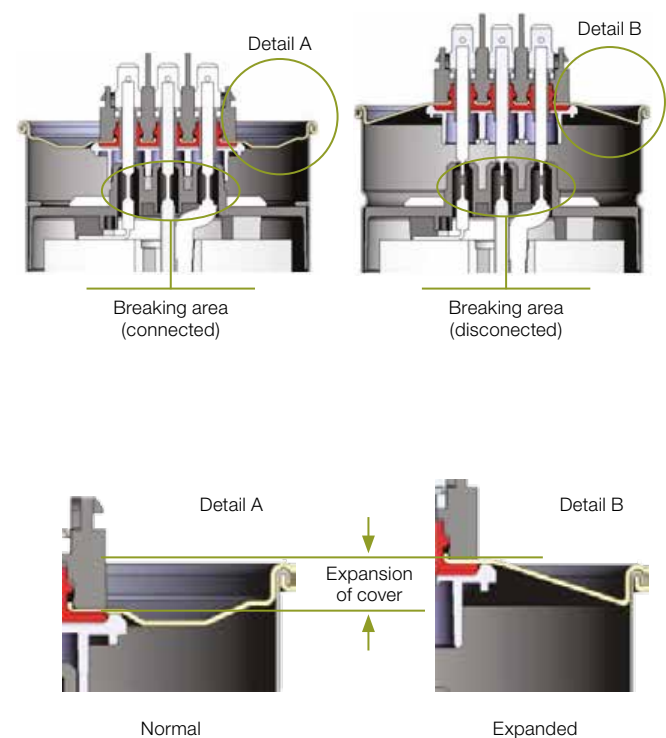
WEG Safety System

The internal over-pressure caused by the cumulative of self-healing effect of the polypropylene film will create a force on the internal walls of the capacitor. This force will act on the expandable grooves (capacitive units with plastic closing top) or on the metallic cover resulting in the breaking of the “mechanical fuse” and, consequently, disconnecting the capacitor from the power source. This mechanism provides total protection against over-pressure.

WEG Safety System in Plastic Covers



WEG Safety System in Metallic Covers



The aluminum enclosures used on WEG capacitors are made from a specific aluminum alloy assuring greater durability, better thermal dissipation and a perfect actuation of the safety system against over-pressure.

To protect the capacitive element from the influence of the external environment (humidity and other impurities), as well as assuring proper heat dissipation and a longer useful life to WEG capacitors, the capacitive element is mounted on the aluminum enclosure and filled with a special non-poisonous oil. WEG capacitors are PCB free.



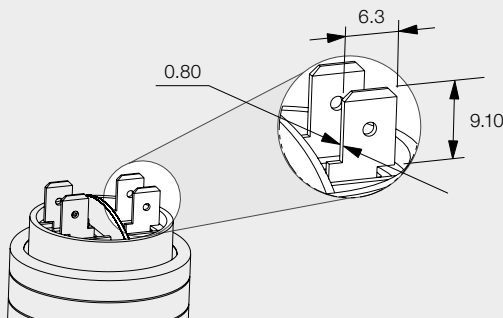
A Series

Single Phase Capacitive Units - UCW

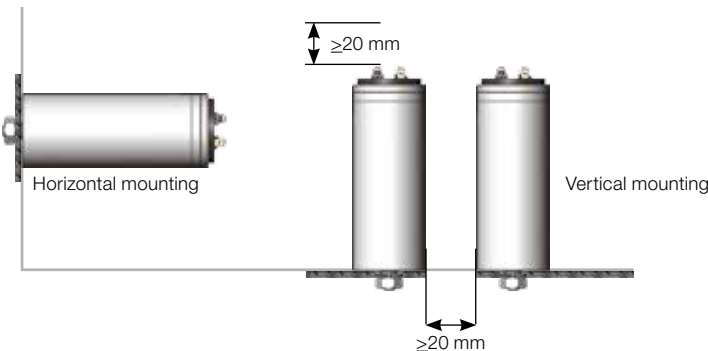
Power 0.62...0.83 (kvar)
Rated Voltage 380...535 (V)

Electrical Connection

- Fast-on connection terminals for connection of power cables and discharge resistors.
- Double fast-on allowing the connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit fixing bolt with assembly plate.

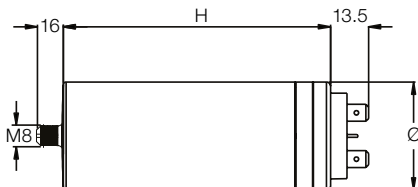


Mounting



M8 bolt fixing
(nut and washer not included in UCW) ¹⁾

Dimensional (mm) and Protection Degree



Diameter (Ø)	Height (H)	Protection degree	Size code
40	85	IP00	G4
40	105	IP00	G6

Note: ¹⁾ The grounding cable must be connected directly to the capacitor fixing screw or the capacitor must be fixed on a grounded base.



B Series

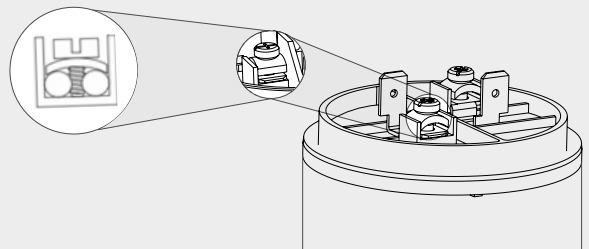
Single Phase Capacitive Units - UCW

Power 0.62...3.3 (kvar)
Rated Voltage 208...240 (V)

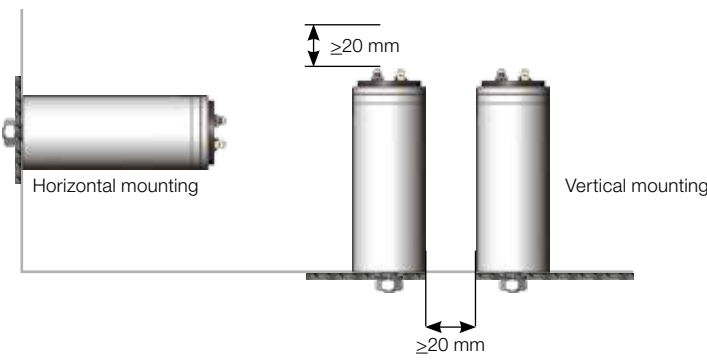
Power 0.62...6.67 (kvar)
Rated Voltage 380...535 (V)

Electrical Connection

- M3 Flat/Philips screw terminals for connection of power cables.
- Fast-on connection terminals for discharge resistor connection.
- Allows connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit fixing bolt with assembly plate.

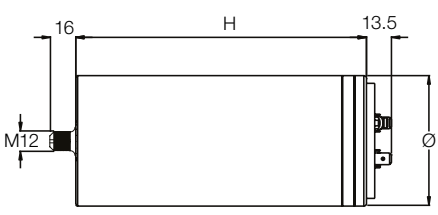


Mounting



M12 bolt fixing
(nut and washer not included in UCW) ¹⁾

Dimensional (mm) and Protection Degree



Diameter (Ø)	Height (H)	Protection degree	Size code
53	68	IP00	J2
53	85	IP00	J4
53	105	IP00	J6
53	141	IP00	J8
60	85	IP00	L4
60	105	IP00	L6
60	141	IP00	L8
60	156	IP00	L10
70	156	IP00	M10

Note: 1) The grounding cable must be connected directly to the capacitor fixing screw or the capacitor must be fixed on a grounded base.



C Series

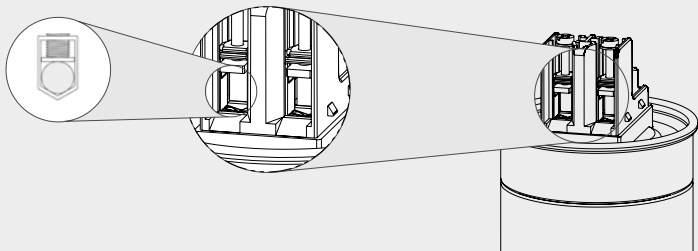
Single Phase Capacitive Units - UCW

Power 3.72...6.67 (kvar)
Rated Voltage 208...240 (V)

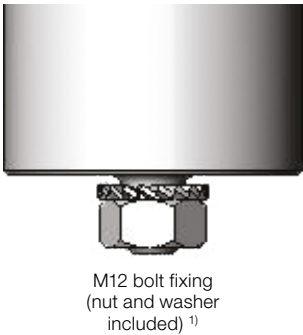
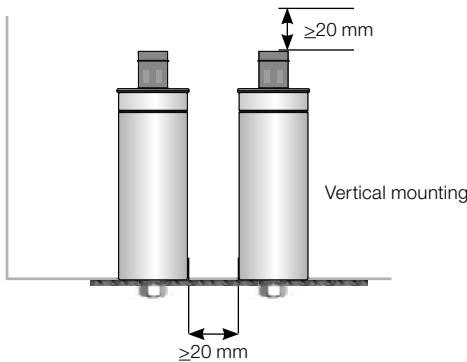
Power 5.56...10 (kvar)
Rated Voltage 380...535 (V)

Electrical Connection

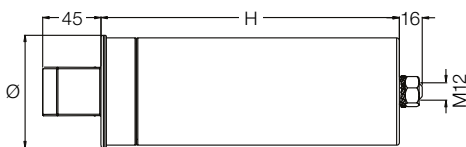
- “Box” type terminals for connection of power cables.
- Fast-on connection terminals for discharge resistor connection (discharge resistor included).
- Allows the connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit fixing bolt with assembly plate.



Mounting



Dimensional (mm) and Protection Degree



Diameter (Ø)	Height (H)	Protection degree	Size code
75	205	IP20	N14

Note: 1) The grounding cable must be connected directly to the capacitor fixing screw or the capacitor must be fixed on a grounded base.



D Series

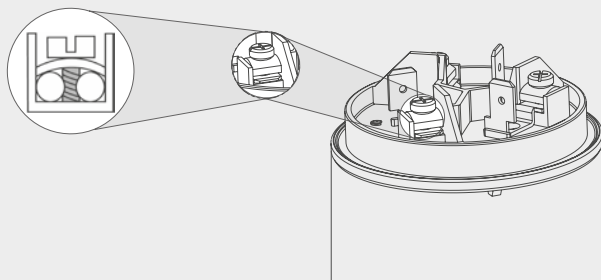
Single Phase Capacitive Units - UCW

Power 0.37...3 (kvar)
Rated Voltage 208...240 (V)

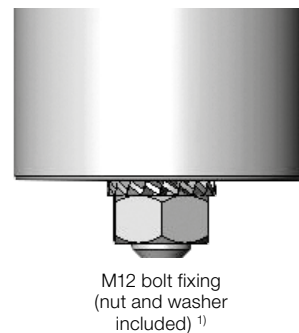
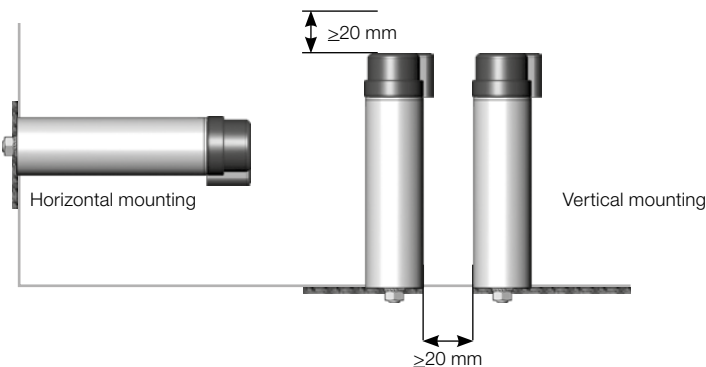
Power 0.37...5 (kvar)
Rated Voltage 380...535 (V)

Electrical Connection

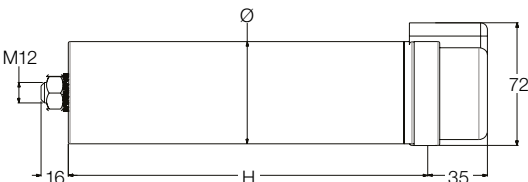
- Provided with IP50 protection cover.
- M3 Flat/Philips screw terminals for connection of power cables.
- Internal discharge resistor in capacitive cell.
- Grounding is assured by connection of capacitive unit fixing bolt with assembly plate.



Mounting



Dimensional (mm) and Protection Degree



Diameter (Ø)	Height (H)	Protection degree	Size code
60	156	IP50	L10
60	211	IP50	L16

Note: 1) The grounding cable must be connected directly to the capacitor fixing screw or the capacitor must be fixed on a grounded base.



E Series

Single Phase Capacitive Units - UCWT

Power 3.72...15 (kvar)

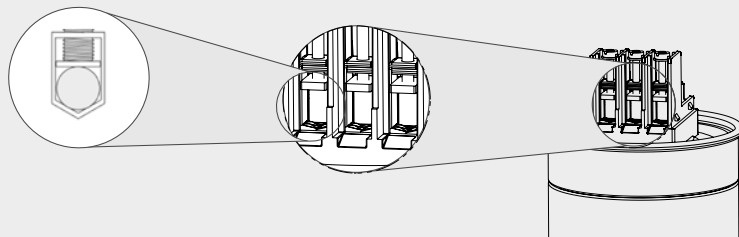
Rated Voltage 208...240 (V)

Power 5.56...25 (kvar)

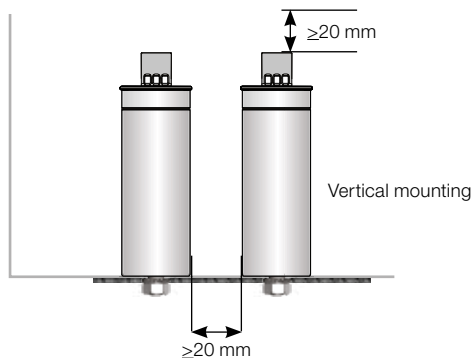
Rated Voltage 380...535 (V)

Electrical Connection

- “Box” type terminals for connection of power cables.
- Fast-on connection terminals for discharge resistor connection.
- Allows connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit fixing bolt with assembly plate.

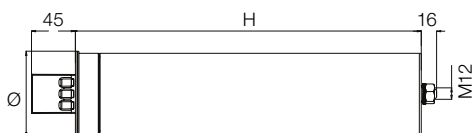


Mounting



M12 bolt fixing
(nut and washer
included) ¹⁾

Dimensional (mm) and Protection Degree



Diameter (Ø)	Height (H)	Protection degree	Size code
75	225	IP20	N14
75	285	IP20	N22
85	285	IP20	O22
85	360	IP20	O24

Note: ¹⁾ The grounding cable must be connected directly to the capacitor fixing screw or the capacitor must be fixed on a grounded base.



F Series

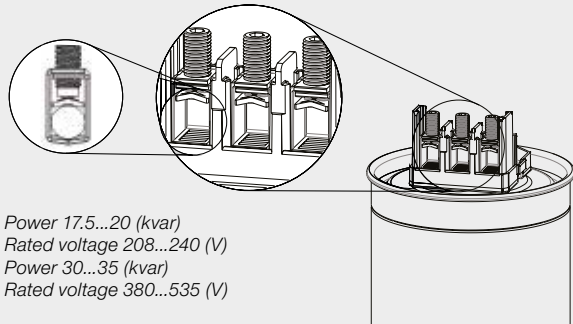
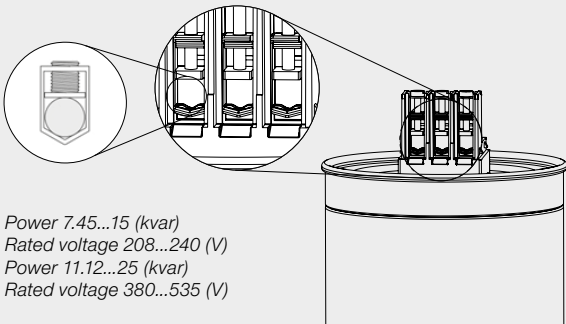
Single Phase Capacitive Units - UCWT

Power 7.45...20 (kvar)
Rated Voltage 208...240 (V)

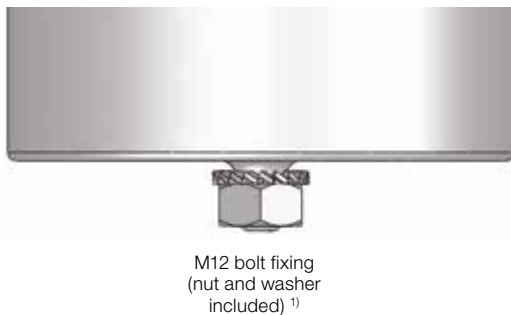
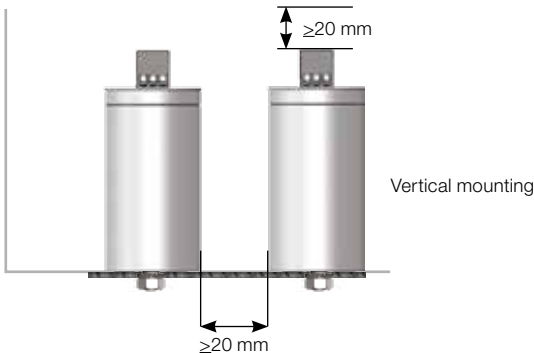
Power 11.12...35 (kvar)
Rated Voltage 380...535 (V)

Electrical Connection

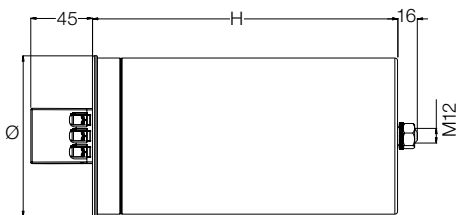
- Flexible installation and connection.
- "Box" type terminals for connection of power cables.
- Fast-on connection terminals for discharge resistor connection.
- Allows connection of power cables separately from discharge resistors.
- Grounding is assured by connection of capacitive unit fixing bolt with assembly plate.



Mounting



Dimensional (mm) and Protection Degree



Diameter (Ø)	Height (H)	Protection degree	Size code
100	230	IP20	Q26
116	230	IP20	S26
116	290	IP20	S28

Note: 1) The grounding cable must be connected directly to the capacitor fixing screw or the capacitor must be fixed on a grounded base.



Three Phase Capacitive Module - MCW

Power 1.86...10 (kvar)

Rated Voltage 208...240 (V)

Power 1.85...15 (kvar)

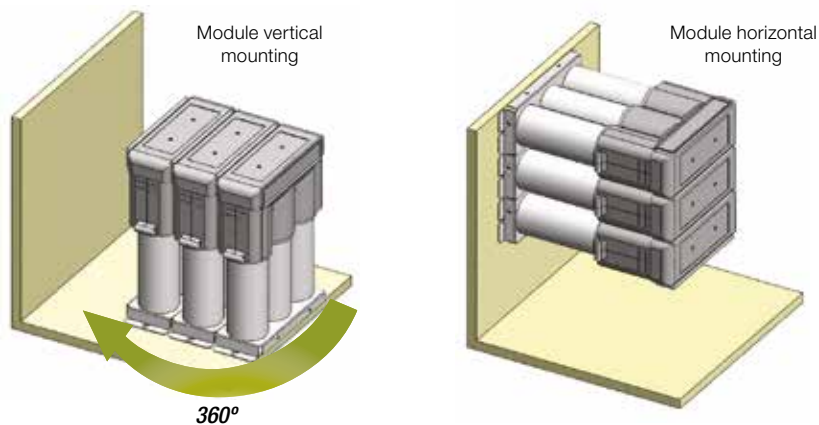
Rated Voltage 380...535 (V)

Module Connection in Parallel

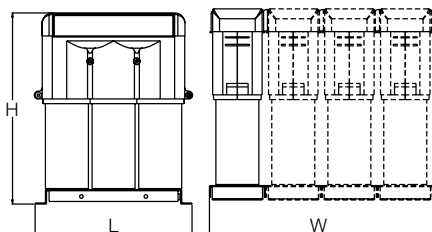
- Voltage up to 240 V:
It is possible to connect up to 3 MCW modules in parallel using connection BI-MCW bars.
For voltages from 208 V to 240 V, it is possible to compensate up to 30 kvar.
- Voltage equal or higher than 380 V:
It is possible to connect up to 4 MCW modules in parallel using BI-MCW bars.
For voltages from 380 V to 535 V, it is possible to compensate up to 60 kvar.



Mounting



Dimensional (mm) and Protection Degree



Number of modules	Dimensions (L x W x H)	Protection degree
1	219 x 78 x 257	IP40
2	219 x 156 x 257	IP40
3	219 x 234 x 257	IP40
4	219 x 312 x 257	IP40



Single Phase Capacitive Units - UCW

Power 0.62...6.67 (kvar)
Rated Voltage 208...240 (V)

Power 0.62...10 (kvar)
Rated Voltage 380...535 (V)



Single phase capacitors - UCW ¹⁾											
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ²⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor ³⁾		Weight (kg)
	Reactive power (kvar)	Rated current In (A) ⁴⁾	Reactive power (kvar)	Rated current In (A) ⁴⁾							
208	0.62	3.0	0.74	3.6	45.5	B	UCW0.83V25 J4	53 x 85	Not included	270 kΩ / 3 W	0.27
	0.62	3.0	0.74	3.6	45.5	B	UCW0.83V25 L6	60 x 105	Not included	270 kΩ / 3 W	0.34
	1.24	6.0	1.49	7.2	91.5	B	UCW1.67V25 L6	60 x 105	Not included	150 kΩ / 3 W	0.35
	1.86	9.0	2.23	10.7	137.0	B	UCW2.5V25 L10	60 x 156	Not included	82 kΩ / 3 W	0.51
	2.48	11.9	2.98	14.3	182.5	B	UCW3.33V25 L10	60 x 156	Not included	56 kΩ / 3 W	0.51
	3.72	17.9	4.47	21.5	274.0	C	UCW5V25 N14	75 x 205	Included	41 kΩ / 3 W	1.19
	4.97	23.9	5.96	28.7	365.6	C	UCW6.67V25 N14	75 x 205	Included	28 kΩ / 3 W	1.22
220	0.69	3.1	0.83	3.8	45.5	B	UCW0.83V25 J4	53 x 85	Not included	270 kΩ / 3 W	0.27
	0.69	3.1	0.83	3.8	45.5	B	UCW0.83V25 L6	60 x 105	Not included	270 kΩ / 3 W	0.34
	1.39	6.3	1.67	7.6	91.5	B	UCW1.67V25 L6	60 x 105	Not included	150 kΩ / 3 W	0.35
	2.08	9.5	2.50	11.4	137.0	B	UCW2.5V25 L10	60 x 156	Not included	82 kΩ / 3 W	0.51
	2.78	12.6	3.33	15.1	182.5	B	UCW3.33V25 L10	60 x 156	Not included	56 kΩ / 3 W	0.51
	4.17	18.9	5.00	22.7	274.0	C	UCW5V25 N14	75 x 205	Included	41 kΩ / 3 W	1.19
	5.56	25.3	6.67	30.3	365.6	C	UCW6.67V25 N14	75 x 205	Included	28 kΩ / 3 W	1.22
230	0.83	3.6	1.00	4.3	49.9	B	UCW0.83V34 L6	60 x 105	Not included	180 kΩ / 3 W	0.32
	1.67	7.3	2.00	8.7	100.5	B	UCW1.67V34 L8	60 x 141	Not included	120 kΩ / 3 W	0.44
	2.50	10.9	3.00	13.0	150.4	B	UCW2.5V34 L10	60 x 156	Not included	56 kΩ / 3 W	0.51
	3.33	14.5	4.00	17.4	200.4	B	UCW3.33V34 L10	60 x 156	Not included	56 kΩ / 3 W	0.50
	5.00	21.7	6.00	26.1	300.9	C	UCW5V34 N14	75 x 205	Included	28 kΩ / 6 W	1.18
240	0.69	2.9	0.83	3.5	38.2	B	UCW0.83V29 L6	60 x 105	Not included	270 kΩ / 3 W	0.36
	1.39	5.8	1.67	7.0	76.9	B	UCW1.67V29 L6	60 x 105	Not included	150 kΩ / 3 W	0.33
	2.08	8.7	2.50	10.4	115.1	B	UCW2.5V29 L8	60 x 141	Not included	82 kΩ / 3 W	0.45
	2.78	11.6	3.33	13.9	153.4	B	UCW3.33V29 L10	60 x 156	Not included	82 kΩ / 3 W	0.51
	4.17	17.4	5.00	20.8	230.3	C	UCW5V29 N14	75 x 205	Included	60 kΩ / 6 W	1.18
380	0.69	1.8	0.83	2.2	15.2	A	UCW0.83V40 G4	40 x 85	Not included	560 kΩ / 3 W	0.19
	0.69	1.8	0.83	2.2	15.2	B	UCW0.83V40 J2	53 x 68	Not included	560 kΩ / 3 W	0.23
	0.69	1.8	0.83	2.2	15.2	B	UCW0.83V40 L4	60 x 85	Not included	560 kΩ / 3 W	0.27
	1.39	3.7	1.67	4.4	30.7	B	UCW1.67V40 J4	53 x 85	Not included	390 kΩ / 3 W	0.28
	1.39	3.7	1.67	4.4	30.7	B	UCW1.67V40 L4	60 x 85	Not included	390 kΩ / 3 W	0.28
	2.08	5.5	2.50	6.6	45.9	B	UCW2.5V40 J8	53 x 141	Not included	270 kΩ / 3 W	0.43
	2.08	5.5	2.50	6.6	45.9	B	UCW2.5V40 L6	60 x 105	Not included	270 kΩ / 3 W	0.37
	2.78	7.3	3.33	8.8	61.2	B	UCW3.33V40 J8	53 x 141	Not included	150 kΩ / 3 W	0.43
	2.78	7.3	3.33	8.8	61.2	B	UCW3.33V40 L8	60 x 141	Not included	150 kΩ / 3 W	0.52
	4.17	11.0	5.00	13.2	91.8	B	UCW5V40 L10	60 x 156	Not included	120 kΩ / 3 W	0.52
	5.56	14.6	6.67	17.6	122.5	B	UCW6.67V40 M10	70 x 156	Not included	82 kΩ / 3 W	0.60
	6.25	16.4	7.5	19.7	137.8	C	UCW7.5V40 N14	75 x 205	Included	75 kΩ / 6 W	1.19
	6.94	18.3	8.33	21.9	153.0	C	UCW8.33V40 N14	75 x 205	Included	60 kΩ / 6 W	1.18
	7.64	20.1	9.17	24.1	168.5	C	UCW9.17V40 N14	75 x 205	Included	60 kΩ / 6 W	1.23
	8.33	21.9	10.00	26.3	183.7	C	UCW10V40 N14	75 x 205	Included	60 kΩ / 6 W	1.23

Notes: 1) For other voltages, please contact WEG.

2) Nuts and washers provided as standard for C series capacitors only. For A and B series - sold separately.

3) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

4) Calculated for single-phase systems.



Power 0.62...6.67 (kvar)
Rated Voltage 208...240 (V)

Power 0.62...10 (kvar)
Rated Voltage 380...535 (V)



Single phase capacitors - UCW ¹⁾											
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ²⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor ³⁾		Weight (kg)
	Reactive power (kvar)	Rated current In (A) ⁴⁾	Reactive power (kvar)	Rated current In (A) ⁴⁾							
400	0.83	2.1	-	-	16.5	A	UCW0.83V44 G6	40 x 105	Not included	560 kΩ / 3 W	0.22
	0.83	2.1	1.00	2.5	16.5	B	UCW0.83V44 J2	53 x 68	Not included	560 kΩ / 3 W	0.23
	0.83	2.1	1.00	2.5	16.5	B	UCW0.83V44 L4	60 x 85	Not included	560 kΩ / 3 W	0.32
	1.67	4.2	2.00	5.0	33.2	B	UCW1.67V44 J6	53 x 105	Not included	270 kΩ / 3 W	0.33
	1.67	4.2	2.00	5.0	33.2	B	UCW1.67V44 L4	60 x 85	Not included	270 kΩ / 3 W	0.29
	2.50	6.3	3.00	7.5	49.7	B	UCW2.5V44 J8	53 x 141	Not included	180 kΩ / 3 W	0.43
	2.50	6.3	3.00	7.5	49.7	B	UCW2.5V44 L6	60 x 105	Not included	180 kΩ / 3 W	0.35
	3.33	8.3	4.00	10.0	66.2	B	UCW3.33V44 L8	60 x 141	Not included	150 kΩ / 3 W	0.47
	5.00	12.5	-	-	99.5	B	UCW5V44 L10	60 x 156	Not included	120 kΩ / 3 W	0.51
	6.67	16.7	-	-	132.7	B	UCW6.67V44 M10	70 x 156	Not included	82 kΩ / 3 W	0.55
	7.50	18.8	9.00	22.5	149.2	C	UCW7.5V44 N14	75 x 205	Included	75 kΩ / 6 W	1.18
	8.33	20.8	10.00	25.0	165.7	C	UCW8.33V44 N14	75 x 205	Included	60 kΩ / 6 W	1.21
415	9.17	22.9	-	-	182.4	C	UCW9.17V44 N14	75 x 205	Included	60 kΩ / 6 W	1.23
	0.62	1.5	0.74	1.8	11.4	A	UCW0.83V49 G4	40 x 85	Not included	1 MΩ / 3 W	0.19
	0.62	1.5	0.74	1.8	11.4	B	UCW0.83V49 J2	53 x 68	Not included	1 MΩ / 3 W	0.23
	0.62	1.5	0.74	1.8	11.4	B	UCW0.83V49 L4	60 x 85	Not included	1 MΩ / 3 W	0.29
	0.74	1.8	0.89	2.1	13.6	B	UCW0.83V48 L4	60 x 85	Not included	560 kΩ / 3 W	0.30
	1.24	3.0	1.49	3.6	22.9	B	UCW1.67V49 J4	53 x 85	Not included	560 kΩ / 3 W	0.28
	1.24	3.0	1.49	3.6	22.9	B	UCW1.67V49 L4	60 x 85	Not included	560 kΩ / 3 W	0.29
	1.49	3.6	1.78	4.3	27.5	B	UCW1.67V48 L4	60 x 85	Not included	390 kΩ / 3 W	0.29
	1.85	4.5	2.22	5.4	34.3	B	UCW2.5V49 J8	53 x 141	Not included	390 kΩ / 3 W	0.43
	1.85	4.5	2.22	5.4	34.3	B	UCW2.5V49 L6	60 x 105	Not included	390 kΩ / 3 W	0.37
	2.22	5.4	2.67	6.4	41.1	B	UCW2.5V48 L6	60 x 105	Not included	270 kΩ / 3 W	0.35
	2.47	5.9	2.96	7.1	45.6	B	UCW3.33V49 J8	53 x 141	Not included	270 kΩ / 3 W	0.45
	2.47	5.9	2.96	7.1	45.6	B	UCW3.33V49 L8	60 x 141	Not included	270 kΩ / 3 W	0.48
	2.96	7.1	3.55	8.6	54.8	B	UCW3.33V48 L8	60 x 141	Not included	180 kΩ / 3 W	0.47
	3.71	8.9	4.45	10.7	68.5	B	UCW5V49 L10	60 x 156	Not included	150 kΩ / 3 W	0.55
	4.45	10.7	-	-	82.2	B	UCW5V48 L10	60 x 156	Not included	120 kΩ / 3 W	0.53
	4.94	11.9	5.93	14.3	91.4	B	UCW6.67V49 M10	70 x 156	Not included	120 kΩ / 3 W	0.58
	5.56	13.4	6.67	16.1	102.8	C	UCW7.5V49 N14	75 x 205	Included	75 kΩ / 6 W	1.17
	6.18	14.9	7.41	17.9	114.1	C	UCW8.33V49 N14	75 x 205	Included	75 kΩ / 6 W	1.18
	6.80	16.4	8.16	19.7	125.6	C	UCW9.17V49 N14	75 x 205	Included	75 kΩ / 6 W	1.21
	7.41	17.9	8.90	21.4	137.0	C	UCW10V49 N14	75 x 205	Included	75 kΩ / 6 W	1.23

Notes: 1) For other voltages, please contact WEG.

2) Nuts and washers provided as standard for C series capacitors only. For A and B series - sold separately.

3) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

4) Calculated for single-phase systems.



Power 0.62...6.67 (kvar)
Rated Voltage 208...240 (V)

Power 0.62...10 (kvar)
Rated Voltage 380...535 (V)



Single phase capacitors - UCW ¹⁾											
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ²⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor ³⁾		Weight (kg)
	Reactive power (kvar)	Rated current In (A) ⁴⁾	Reactive power (kvar)	Rated current In (A) ⁴⁾							
440	0.69	1.6	0.83	1.9	11.4	A	UCW0.83V49 G4	40 x 85	Not included	1 MΩ / 3 W	0.19
	0.69	1.6	0.83	1.9	11.4	B	UCW0.83V49 J2	53 x 68	Not included	1 MΩ / 3 W	0.23
	0.69	1.6	0.83	1.9	11.4	B	UCW0.83V49 L4	60 x 85	Not included	1 MΩ / 3 W	0.29
	0.83	1.9	1.00	2.3	13.6	B	UCW0.83V48 L4	60 x 85	Not included	560 kΩ / 3 W	0.30
	1.39	3.2	1.67	3.8	22.9	B	UCW1.67V49 J4	53 x 85	Not included	560 kΩ / 3 W	0.28
	1.39	3.2	1.67	3.8	22.9	B	UCW1.67V49 L4	60 x 85	Not included	560 kΩ / 3 W	0.29
	1.67	3.8	2.00	4.6	27.5	B	UCW1.67V48 L4	60 x 85	Not included	390 kΩ / 3 W	0.29
	2.08	4.7	2.50	5.7	34.3	B	UCW2.5V49 J8	53 x 141	Not included	390 kΩ / 3 W	0.43
	2.08	4.7	2.50	5.7	34.3	B	UCW2.5V49 L6	60 x 105	Not included	390 kΩ / 3 W	0.37
	2.50	5.7	3.00	6.8	41.1	B	UCW2.5V48 L6	60 x 105	Not included	270 kΩ / 3 W	0.35
	2.78	6.3	3.33	7.6	45.6	B	UCW3.33V49 J8	53 x 141	Not included	270 kΩ / 3 W	0.45
	2.78	6.3	3.33	7.6	45.6	B	UCW3.33V49 L8	60 x 141	Not included	270 kΩ / 3 W	0.48
	3.33	7.6	4.00	9.1	54.8	B	UCW3.33V48 L8	60 x 141	Not included	180 kΩ / 3 W	0.47
	4.17	9.5	5.00	11.4	68.5	B	UCW5V49 L10	60 x 156	Not included	150 kΩ / 3 W	0.55
	5.00	11.4	-	-	82.2	B	UCW5V48 L10	60 x 156	Not included	120 kΩ / 3 W	0.53
	5.56	12.6	6.67	15.2	91.4	B	UCW6.67V49 M10	70 x 156	Not included	120 kΩ / 3 W	0.58
	6.25	14.2	7.5	17.0	102.8	C	UCW7.5V49 N14	75 x 205	Included	75 kΩ / 6 W	1.17
	6.94	15.8	8.33	18.9	114.1	C	UCW8.33V49 N14	75 x 205	Included	75 kΩ / 6 W	1.18
7.64	17.4	9.17	20.8	125.6	C	UCW9.17V49 N14	75 x 205	Included	75 kΩ / 6 W	1.21	
8.33	18.9	10.00	22.7	137.0	C	UCW10V49 N14	75 x 205	Included	75 kΩ / 6 W	1.23	
480	0.69	1.4	0.83	1.7	9.6	A	UCW0.83V53 G4	40 x 85	Not included	1 MΩ / 3 W	0.19
	0.69	1.4	0.83	1.7	9.6	B	UCW0.83V53 J2	53 x 68	Not included	1 MΩ / 3 W	0.23
	0.69	1.4	0.83	1.7	9.6	B	UCW0.83V53 L6	60 x 105	Not included	1 MΩ / 3 W	0.33
	0.83	1.7	1.00	2.1	11.5	B	UCW0.83V52 L6	60 x 105	Not included	560 kΩ / 3 W	0.34
	1.39	2.9	1.67	3.5	19.2	B	UCW1.67V53 J6	53 x 105	Not included	560 kΩ / 3 W	0.33
	1.39	2.9	1.67	3.5	19.2	B	UCW1.67V53 L6	60 x 105	Not included	560 kΩ / 3 W	0.32
	1.67	3.5	2.00	4.2	23.1	B	UCW1.67V52 L6	60 x 105	Not included	390 kΩ / 3 W	0.34
	2.08	4.3	2.50	5.2	28.8	B	UCW2.5V53 J8	53 x 141	Not included	390 kΩ / 3 W	0.43
	2.08	4.3	2.50	5.2	28.8	B	UCW2.5V53 L6	60 x 105	Not included	390 kΩ / 3 W	0.33
	2.50	5.2	3.00	6.3	34.5	B	UCW2.5V52 L6	60 x 105	Not included	270 kΩ / 3 W	0.34
	2.78	5.8	3.33	6.9	38.3	B	UCW3.33V53 J8	53 x 141	Not included	270 kΩ / 3 W	0.45
	2.78	5.8	3.33	6.9	38.3	B	UCW3.33V53 L8	60 x 141	Not included	270 kΩ / 3 W	0.45
	3.33	6.9	4.00	8.3	46.0	B	UCW3.33V52 L8	60 x 141	Not included	180 kΩ / 3 W	0.44
	4.17	8.7	5.00	10.4	57.6	B	UCW5V53 L10	60 x 156	Not included	180 kΩ / 3 W	0.52
	5.00	10.4	-	-	69.1	B	UCW5V52 L10	60 x 156	Not included	150 kΩ / 3 W	0.54
	5.56	11.6	6.67	13.9	76.8	B	UCW6.67V53 M10	70 x 156	Not included	150 kΩ / 3 W	0.57
	6.25	13.0	7.50	15.6	86.3	C	UCW7.5V53 N14	75 x 205	Included	135 kΩ / 6 W	1.19
	6.94	14.5	8.33	17.4	95.9	C	UCW8.33V53 N14	75 x 205	Included	75 kΩ / 6 W	1.18
7.64	15.9	9.17	19.1	105.6	C	UCW9.17V53 N14	75 x 205	Included	75 kΩ / 6 W	1.23	
8.33	17.4	10.00	20.8	115.1	C	UCW10V53 N14	75 x 205	Included	75 kΩ / 6 W	1.22	
535	0.69	1.3	0.83	1.6	7.7	B	UCW0.83V57 L6	60 x 105	Not included	1 MΩ / 3 W	0.30
	1.39	2.6	1.67	3.1	15.5	B	UCW1.67V57 L6	60 x 105	Not included	560 kΩ / 3 W	0.30
	2.08	3.9	2.50	4.7	23.2	B	UCW2.5V57 L6	60 x 105	Not included	390 kΩ / 3 W	0.33
	2.78	5.2	3.33	6.2	30.9	B	UCW3.33V57 L6	60 x 105	Not included	270 kΩ / 3 W	0.34
	4.17	7.8	5.00	9.3	46.3	B	UCW5V57 L10	60 x 156	Not included	180 kΩ / 3 W	0.51
	5.56	10.4	6.67	12.5	61.8	C	UCW6.67V57 N14	75 x 205	Included	135 kΩ / 6 W	1.18
	6.25	11.7	7.50	14.0	69.5	C	UCW7.5V57 N14	75 x 205	Included	135 kΩ / 6 W	1.19
	6.94	13.0	8.33	15.6	77.2	C	UCW8.33V57 N14	75 x 205	Included	135 kΩ / 6 W	1.18
	7.64	14.3	9.17	17.1	85.0	C	UCW9.17V57 N14	75 x 205	Included	135 kΩ / 6 W	1.23
8.33	15.6	10.00	18.7	92.7	C	UCW10V57 N14	75 x 205	Included	75 kΩ / 6 W	1.22	

Notes: 1) For other voltages, please contact WEG.

2) Nuts and washers provided as standard for C series capacitors only. For A and B series - sold separately.

3) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

4) Calculated for single-phase systems.



Three Phase Capacitive Units - UCWT

Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
208	0.37	1.0	0.45	1.2	9.1 x 3	D	UCWT0.5V25 L10	60 x 156	Internal resistor	0.51
	0.56	1.6	0.67	1.9	13.7 x 3	D	UCWT0.75V25 L10	60 x 156	Internal resistor	0.52
	0.74	2.1	0.89	2.5	18.3 x 3	D	UCWT1V25 L10	60 x 156	Internal resistor	0.54
	1.12	3.1	1.34	3.7	27.4 x 3	D	UCWT1.5V25 L10	60 x 156	Internal resistor	0.57
	1.49	4.1	1.79	5.0	36.5 x 3	D	UCWT2V25 L10	60 x 156	Internal resistor	0.59
	1.86	5.2	2.23	6.2	45.7 x 3	D	UCWT2.5V25 L16	60 x 211	Internal resistor	0.73
	2.23	6.2	2.68	7.4	54.8 x 3	D	UCWT3V25 L16	60 x 211	Internal resistor	0.76
	3.72	10.3	4.47	12.4	91.3 x 3	E	UCWT5V25 N20	75 x 225	3 x 120 kΩ / 3 W	1.51
	5.59	15.5	6.70	18.6	137 x 3	E	UCWT7.5V25 N22	75 x 285	3 x 56 kΩ / 3 W	1.81
	7.45	20.7	8.94	24.8	182.7 x 3	E	UCWT10V25 N22	75 x 285	3 x 56 kΩ / 3 W	1.81
	7.45	20.7	8.94	24.8	182.7 x 3	F	UCWT10V25 Q26	100 x 230	3 x 56 kΩ / 3 W	2.17
	9.31	25.8	11.17	31.0	228.4 x 3	E	UCWT12.5V25 Q24	85 x 360	3 x 39 kΩ / 3 W	2.97
	9.31	25.8	11.17	31.0	228.4 x 3	F	UCWT12.5V25 Q26	100 x 230	3 x 56 kΩ / 3 W	2.17
	11.17	31.0	13.41	37.2	274 x 3	E	UCWT15V25 Q24	85 x 360	3 x 39 kΩ / 3 W	2.99
	11.17	31.0	13.41	37.2	274 x 3	F	UCWT15V25 S26	116 x 230	3 x 39 kΩ / 3 W	2.69
	13.04	36.2	15.64	43.4	319.7 x 3	F	UCWT17.5V25 S28	116 x 290	3 x 27 kΩ / 5 W	3.50
	14.90	41.4	17.88	49.6	365.4 x 3	F	UCWT20V25 S28	116 x 290	3 x 27 kΩ / 5 W	3.50
220	0.42	1.1	0.50	1.3	9.1 x 3	D	UCWT0.5V25 L10	60 x 156	Internal resistor	0.51
	0.63	1.6	0.75	2.0	13.7 x 3	D	UCWT0.75V25 L10	60 x 156	Internal resistor	0.52
	0.83	2.2	1.00	2.6	18.3 x 3	D	UCWT1V25 L10	60 x 156	Internal resistor	0.54
	1.25	3.3	1.50	3.9	27.4 x 3	D	UCWT1.5V25 L10	60 x 156	Internal resistor	0.57
	1.67	4.4	2.00	5.2	36.5 x 3	D	UCWT2V25 L10	60 x 156	Internal resistor	0.59
	2.08	5.5	2.50	6.6	45.7 x 3	D	UCWT2.5V25 L16	60 x 211	Internal resistor	0.73
	2.50	6.6	3.00	7.9	54.8 x 3	D	UCWT3V25 L16	60 x 211	Internal resistor	0.76
	4.17	10.9	5.00	13.1	91.3 x 3	E	UCWT5V25 N20	75 x 225	3 x 120 kΩ / 3 W	1.51
	6.25	16.4	7.50	19.7	137 x 3	E	UCWT7.5V25 N22	75 x 285	3 x 56 kΩ / 3 W	1.81
	8.33	21.9	10.00	26.2	182.7 x 3	E	UCWT10V25 N22	75 x 285	3 x 56 kΩ / 3 W	1.81
	8.33	21.9	10.00	26.2	182.7 x 3	F	UCWT10V25 Q26	100 x 230	3 x 56 kΩ / 3 W	2.17
	10.42	27.3	12.50	32.8	228.4 x 3	E	UCWT12.5V25 Q24	85 x 360	3 x 39 kΩ / 3 W	2.97
	10.42	27.3	12.50	32.8	228.4 x 3	F	UCWT12.5V25 Q26	100 x 230	3 x 56 kΩ / 3 W	2.17
	12.50	32.8	15.00	39.4	274 x 3	E	UCWT15V25 Q24	85 x 360	3 x 39 kΩ / 3 W	2.99
	12.50	32.8	15.00	39.4	274 x 3	F	UCWT15V25 S26	116 x 230	3 x 39 kΩ / 3 W	2.69
	14.58	38.3	17.50	45.9	319.7 x 3	F	UCWT17.5V25 S28	116 x 290	3 x 27 kΩ / 5 W	3.50
	16.67	43.7	20.00	52.5	365.4 x 3	F	UCWT20V25 S28	116 x 290	3 x 27 kΩ / 5 W	3.50

Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.



Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
230	0.50	1.3	0.60	1.5	10 x 3	D	UCWT0.5V34 L10	60 x 156	Internal resistor	0.46
	0.75	1.9	0.90	2.3	15 x 3	D	UCWT0.75V34 L10	60 x 156	Internal resistor	0.53
	1.00	2.5	1.20	3.0	20.1 x 3	D	UCWT1V34 L10	60 x 156	Internal resistor	0.55
	1.50	3.8	1.80	4.5	30.1 x 3	D	UCWT1.5V34 L10	60 x 156	Internal resistor	0.42
	2.00	5.0	2.40	6.0	40.1 x 3	D	UCWT2V34 L10	60 x 156	Internal resistor	0.54
	2.50	6.3	3.00	7.5	50.1 x 3	D	UCWT2.5V34 L16	60 x 211	Internal resistor	0.74
	3.00	7.5	-	-	60.2 x 3	D	UCWT3V34 L16	60 x 211	Internal resistor	0.76
	5.00	12.6	6.00	15.1	100.3 x 3	E	UCWT5V34 N20	75 x 225	3 x 82 kΩ / 3 W	1.56
	7.50	18.8	9.00	22.6	150.4 x 3	E	UCWT7.5V34 N22	75 x 285	3 x 56 kΩ / 3 W	1.80
	10.00	25.1	12.00	30.1	200.6 x 3	E	UCWT10V34 Q22	85 x 285	3 x 56 kΩ / 3 W	2.13
	10.00	25.1	12.00	30.1	200.6 x 3	F	UCWT10V34 Q26	100 x 230	3 x 56 kΩ / 3 W	2.18
	12.50	31.4	15.00	37.7	250.7 x 3	E	UCWT12.5V34 Q24	85 x 360	3 x 39 kΩ / 3 W	2.80
	12.50	31.4	15.00	37.7	250.7 x 3	F	UCWT12.5V34 Q26	100 x 230	3 x 39 kΩ / 3 W	2.18
	15.00	37.7	-	-	300.9 x 3	E	UCWT15V34 Q24	85 x 360	3 x 39 kΩ / 3 W	2.80
	15.00	37.7	-	-	300.9 x 3	F	UCWT15V34 S26	116 x 230	3 x 39 kΩ / 3 W	2.70
	17.50	43.9	-	-	351 x 3	F	UCWT17.5V34 S28	116 x 290	3 x 27 kΩ / 5 W	3.50
	20.00	50.2	-	-	401.1 x 3	F	UCWT20V34 S28	116 x 290	3 x 27 kΩ / 5 W	3.50
240	0.42	1.0	0.50	1.2	7.7 x 3	D	UCWT0.5V29 L10	60 x 156	Internal resistor	0.50
	0.63	1.5	0.75	1.8	11.5 x 3	D	UCWT0.75V29 L10	60 x 156	Internal resistor	0.51
	0.83	2.0	1.00	2.4	15.4 x 3	D	UCWT1V29 L10	60 x 156	Internal resistor	0.52
	1.25	3.0	1.50	3.6	23 x 3	D	UCWT1.5V29 L10	60 x 156	Internal resistor	0.56
	1.67	4.0	2.00	4.8	30.7 x 3	D	UCWT2V29 L10	60 x 156	Internal resistor	0.56
	2.08	5.0	2.50	6.0	38.4 x 3	D	UCWT2.5V29 L16	60 x 211	Internal resistor	0.73
	2.50	6.0	3.00	7.2	46.1 x 3	D	UCWT3V29 L16	60 x 211	Internal resistor	0.74
	4.17	10.0	5.00	12.0	76.8 x 3	E	UCWT5V29 N20	75 x 225	3 x 120 kΩ / 3 W	1.62
	6.25	15.0	7.50	18.0	115.1 x 3	E	UCWT7.5V29 N22	75 x 285	3 x 82 kΩ / 3 W	1.87
	8.33	20.0	10.00	24.1	153.5 x 3	E	UCWT10V29 N22	75 x 285	3 x 56 kΩ / 3 W	1.80
	8.33	20.0	10.00	24.1	153.5 x 3	F	UCWT10V29 Q26	100 x 230	3 x 56 kΩ / 3 W	2.17
	10.42	25.1	12.50	30.1	191.9 x 3	E	UCWT12.5V29 Q24	85 x 360	3 x 39 kΩ / 3 W	2.88
	10.42	25.1	12.50	30.1	191.9 x 3	F	UCWT12.5V29 Q26	100 x 230	3 x 56 kΩ / 3 W	2.17
	12.50	30.1	15.00	36.1	230.3 x 3	E	UCWT15V29 Q24	85 x 360	3 x 39 kΩ / 3 W	2.88
	12.50	30.1	15.00	36.1	230.3 x 3	F	UCWT15V29 S26	116 x 230	3 x 39 kΩ / 3 W	2.72
	14.58	35.1	17.50	42.1	268.6 x 3	F	UCWT17.5V29 S28	116 x 290	3 x 27 kΩ / 5 W	3.51
	16.67	40.1	20.00	48.1	307 x 3	F	UCWT20V29 S28	116 x 290	3 x 27 kΩ / 5 W	3.50

Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.



Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
380	0.42	0.6	0.50	0.8	3.1 x 3	D	UCWT0.5V40 L10	60 x 156	Internal resistor	0.50
	0.63	0.9	0.75	1.1	4.6 x 3	D	UCWT0.75V40 L10	60 x 156	Internal resistor	0.51
	0.83	1.3	1.00	1.5	6.1 x 3	D	UCWT1V40 L10	60 x 156	Internal resistor	0.51
	1.25	1.9	1.50	2.3	9.2 x 3	D	UCWT1.5V40 L10	60 x 156	Internal resistor	0.53
	1.67	2.5	2.00	3.0	12.2 x 3	D	UCWT2V40 L10	60 x 156	Internal resistor	0.55
	2.08	3.2	2.50	3.8	15.3 x 3	D	UCWT2.5V40 L10	60 x 156	Internal resistor	0.61
	2.50	3.8	3.00	4.6	18.4 x 3	D	UCWT3V40 L10	60 x 156	Internal resistor	0.56
	4.17	6.3	5.00	7.6	30.6 x 3	D	UCWT5V40 L16	60 x 211	Internal resistor	0.74
	6.25	9.5	7.50	11.4	45.9 x 3	E	UCWT7.5V40 N20	75 x 225	3 x 180 kΩ / 3 W	1.50
	8.33	12.7	10.00	15.2	61.2 x 3	E	UCWT10V40 N20	75 x 225	3 x 150 kΩ / 3 W	1.55
	10.42	15.8	12.50	19.0	76.5 x 3	E	UCWT12.5V40 N22	75 x 285	3 x 120 kΩ / 3 W	1.80
	12.50	19.0	15.00	22.8	91.8 x 3	E	UCWT15V40 N22	75 x 285	3 x 120 kΩ / 3 W	1.81
	12.50	19.0	15.00	22.8	91.8 x 3	F	UCWT15V40 Q26	100 x 230	3 x 120 kΩ / 3 W	2.17
	14.58	22.2	17.50	26.6	107.2 x 3	E	UCWT17.5V40 Q24	85 x 360	3 x 82 kΩ / 3 W	2.95
	14.58	22.2	17.50	26.6	107.2 x 3	F	UCWT17.5V40 Q26	100 x 230	3 x 82 kΩ / 3 W	2.18
	16.67	25.3	20.00	30.4	122.5 x 3	E	UCWT20V40 Q24	85 x 360	3 x 82 kΩ / 3 W	2.99
	16.67	25.3	20.00	30.4	122.5 x 3	F	UCWT20V40 Q26	100 x 230	3 x 82 kΩ / 3 W	2.18
	18.75	28.5	22.50	34.2	137.8 x 3	E	UCWT22.5V40 Q24	85 x 360	3 x 82 kΩ / 3 W	2.96
	18.75	28.5	22.50	34.2	137.8 x 3	F	UCWT22.5V40 S26	116 x 230	3 x 82 kΩ / 3 W	2.69
	20.83	31.7	25.00	38.0	153.1 x 3	E	UCWT25V40 Q24	85 x 360	3 x 82 kΩ / 3 W	3.05
400	0.50	0.7	0.60	0.9	3.3 x 3	D	UCWT0.5V44 L10	60 x 156	Internal resistor	0.50
	0.75	1.1	0.90	1.3	5 x 3	D	UCWT0.75V44 L10	60 x 156	Internal resistor	0.51
	1.00	1.4	1.20	1.7	6.6 x 3	D	UCWT1V44 L10	60 x 156	Internal resistor	0.52
	1.50	2.2	1.80	2.6	9.9 x 3	D	UCWT1.5V44 L10	60 x 156	Internal resistor	0.53
	2.00	2.9	2.40	3.5	13.3 x 3	D	UCWT2V44 L10	60 x 156	Internal resistor	0.49
	2.50	3.6	3.00	4.3	16.6 x 3	D	UCWT2.5V44 L10	60 x 156	Internal resistor	0.57
	3.00	4.3	3.60	5.2	19.9 x 3	D	UCWT3V44 L10	60 x 156	Internal resistor	0.59
	5.00	7.2	-	-	33.2 x 3	D	UCWT5V44 L16	60 x 211	Internal resistor	0.69
	7.50	10.8	9.00	13.0	49.7 x 3	E	UCWT7.5V44 N20	75 x 225	3 x 180 kΩ / 3 W	1.51
	10.00	14.4	12.00	17.3	66.3 x 3	E	UCWT10V44 N20	75 x 225	3 x 150 kΩ / 3 W	1.53
	12.50	18.0	15.00	21.7	82.9 x 3	E	UCWT12.5V44 N22	75 x 285	3 x 120 kΩ / 3 W	1.81
	15.00	21.7	-	-	99.5 x 3	E	UCWT15V44 N22	75 x 285	3 x 82 kΩ / 3 W	1.78
	15.00	21.7	18.00	26.0	99.5 x 3	F	UCWT15V44 Q26	100 x 230	3 x 120 kΩ / 3 W	2.18
	17.50	25.3	21.00	30.3	116.1 x 3	E	UCWT17.5V44 Q24	85 x 360	3 x 82 kΩ / 3 W	3.07
	17.50	25.3	-	-	116.1 x 3	F	UCWT17.5V44 Q26	100 x 230	3 x 82 kΩ / 3 W	2.18
	20.00	28.9	24.00	34.6	132.6 x 3	E	UCWT20V44 Q24	85 x 360	3 x 82 kΩ / 3 W	3.04
	20.00	28.9	-	-	132.6 x 3	F	UCWT20V44 Q26	100 x 230	3 x 82 kΩ / 3 W	2.18
	22.50	32.5	-	-	149.2 x 3	E	UCWT22.5V44 Q24	85 x 360	3 x 82 kΩ / 3 W	3.05
	22.50	32.5	-	-	149.2 x 3	F	UCWT22.5V44 S26	116 x 230	3 x 82 kΩ / 3 W	2.70
	25.00	36.1	-	-	165.8 x 3	E	UCWT25V44 Q24	85 x 360	3 x 82 kΩ / 3 W	3.13
	25.00	36.1	-	-	165.8 x 3	F	UCWT25V44 S26	116 x 230	3 x 82 kΩ / 3 W	2.70
	30.00	43.3	-	-	198.9 x 3	F	UCWT30V44 S28	116 x 290	3 x 56 kΩ / 5 W	3.50
	35.00	50.5	-	-	232.1 x 3	F	UCWT35V44 S28	116 x 290	3 x 56 kΩ / 5 W	3.50

Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.



Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
415	0.37	0.5	0.44	0.6	2.3 x 3	D	UCWT0.5V49 L10	60 x 156	Internal resistor	0.50
	0.44	0.6	0.53	0.7	2.7 x 3	D	UCWT0.5V48 L10	60 x 156	Internal resistor	0.50
	0.56	0.8	0.67	0.9	3.4 x 3	D	UCWT0.75V49 L10	60 x 156	Internal resistor	0.50
	0.67	0.9	0.80	1.1	4.1 x 3	D	UCWT0.75V48 L10	60 x 156	Internal resistor	0.51
	0.74	1.0	0.89	1.2	4.6 x 3	D	UCWT1V49 L10	60 x 156	Internal resistor	0.51
	0.89	1.2	1.07	1.5	5.5 x 3	D	UCWT1V48 L10	60 x 156	Internal resistor	0.52
	1.11	1.5	1.33	1.9	6.9 x 3	D	UCWT1.5V49 L10	60 x 156	Internal resistor	0.53
	1.33	1.9	1.60	2.2	8.2 x 3	D	UCWT1.5V48 L10	60 x 156	Internal resistor	0.54
	1.48	2.1	1.78	2.5	9.1 x 3	D	UCWT2V49 L10	60 x 156	Internal resistor	0.55
	1.78	2.5	2.14	3.0	11 x 3	D	UCWT2V48 L10	60 x 156	Internal resistor	0.57
	1.85	2.6	2.22	3.1	11.4 x 3	D	UCWT2.5V49 L10	60 x 156	Internal resistor	0.56
	2.22	3.1	2.67	3.7	13.7 x 3	D	UCWT3V49 L10	60 x 156	Internal resistor	0.55
	2.67	3.7	3.20	4.5	16.4 x 3	D	UCWT3V48 L16	60 x 211	Internal resistor	0.66
	3.71	5.2	4.45	6.2	22.8 x 3	D	UCWT5V49 L16	60 x 211	Internal resistor	0.75
	4.45	6.2	-	-	27.4 x 3	D	UCWT5V48 L16	60 x 211	Internal resistor	0.76
	5.56	7.7	6.67	9.3	34.3 x 3	E	UCWT7.5V49 N20	75 x 225	3 x 270 kΩ / 3 W	1.51
	6.67	9.3	8.01	11.1	41.1 x 3	E	UCWT7.5V48 N20	75 x 225	3 x 270 kΩ / 3 W	1.51
	7.41	10.3	8.90	12.4	45.7 x 3	E	UCWT10V49 N20	75 x 225	3 x 180 kΩ / 3 W	1.52
	8.90	12.4	10.68	14.9	54.8 x 3	E	UCWT10V48 N22	75 x 285	3 x 180 kΩ / 3 W	1.98
	9.27	12.9	11.12	15.5	57.1 x 3	E	UCWT12.5V49 N22	75 x 285	3 x 180 kΩ / 3 W	1.80
	11.12	15.5	13.34	18.6	68.5 x 3	E	UCWT12.5V48 N22	75 x 285	3 x 120 kΩ / 3 W	1.82
	11.12	15.5	13.34	18.6	68.5 x 3	E	UCWT15V49 N22	75 x 285	3 x 150 kΩ / 3 W	1.82
	11.12	15.5	13.34	18.6	68.5 x 3	F	UCWT15V49 Q26	100 x 230	3 x 150 kΩ / 3 W	2.17
	12.97	18.0	15.57	21.7	79.9 x 3	E	UCWT17.5V49 O24	85 x 360	3 x 120 kΩ / 3 W	3.02
	12.97	18.0	15.57	21.7	79.9 x 3	F	UCWT17.5V49 Q26	100 x 230	3 x 150 kΩ / 3 W	2.18
	13.34	18.6	16.01	22.3	82.2 x 3	E	UCWT15V48 O22	85 x 285	3 x 120 kΩ / 3 W	2.43
	13.34	18.6	16.01	22.3	82.2 x 3	F	UCWT15V48 Q26	100 x 230	3 x 150 kΩ / 3 W	2.18
	14.83	20.6	17.79	24.8	91.3 x 3	E	UCWT20V49 O24	85 x 360	3 x 120 kΩ / 3 W	3.06
	14.83	20.6	17.79	24.8	91.3 x 3	F	UCWT20V49 Q26	100 x 230	3 x 120 kΩ / 3 W	2.18
	15.57	21.7	18.68	26.0	95.9 x 3	F	UCWT17.5V48 Q26	100 x 230	3 x 120 kΩ / 3 W	2.07
	16.68	23.2	20.02	27.8	102.8 x 3	E	UCWT22.5V49 O24	85 x 360	3 x 120 kΩ / 3 W	3.03
	16.68	23.2	20.02	27.8	102.8 x 3	F	UCWT22.5V49 S26	116 x 230	3 x 120 kΩ / 3 W	2.70
	17.79	24.8	21.35	29.7	109.6 x 3	E	UCWT20V48 O24	85 x 360	3 x 120 kΩ / 3 W	2.92
	17.79	24.8	21.35	29.7	109.6 x 3	F	UCWT20V48 S26	116 x 230	3 x 120 kΩ / 3 W	2.70
	18.53	25.8	22.24	30.9	114.2 x 3	E	UCWT25V49 O24	85 x 360	3 x 120 kΩ / 3 W	2.92
	18.53	25.8	22.24	30.9	114.2 x 3	F	UCWT25V49 S26	116 x 230	3 x 120 kΩ / 3 W	3.26
	20.02	27.8	24.02	33.4	123.3 x 3	F	UCWT22.5V48 S26	116 x 230	3 x 82 kΩ / 3 W	2.70
	22.24	30.9	-	-	137 x 3	F	UCWT25V48 S26	116 x 230	3 x 82 kΩ / 3 W	2.71
	22.24	30.9	26.69	37.1	137 x 3	F	UCWT30V49 S28	116 x 290	3 x 56 kΩ / 5 W	3.50
	25.95	36.1	31.14	43.3	159.8 x 3	F	UCWT35V49 S28	116 x 290	3 x 56 kΩ / 5 W	3.50

Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.



Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
440	0.42	0.5	0.50	0.7	2.3 x 3	D	UCWT0.5V49 L10	60 x 156	Internal resistor	0.50
	0.50	0.7	0.60	0.8	2.7 x 3	D	UCWT0.5V48 L10	60 x 156	Internal resistor	0.50
	0.63	0.8	0.75	1.0	3.4 x 3	D	UCWT0.75V49 L10	60 x 156	Internal resistor	0.50
	0.75	1.0	0.90	1.2	4.1 x 3	D	UCWT0.75V48 L10	60 x 156	Internal resistor	0.51
	0.83	1.1	1.00	1.3	4.6 x 3	D	UCWT1V49 L10	60 x 156	Internal resistor	0.51
	1.00	1.3	1.20	1.6	5.5 x 3	D	UCWT1V48 L10	60 x 156	Internal resistor	0.52
	1.25	1.6	1.50	2.0	6.9 x 3	D	UCWT1.5V49 L10	60 x 156	Internal resistor	0.53
	1.50	2.0	1.80	2.4	8.2 x 3	D	UCWT1.5V48 L10	60 x 156	Internal resistor	0.54
	1.67	2.2	2.00	2.6	9.1 x 3	D	UCWT2V49 L10	60 x 156	Internal resistor	0.55
	2.00	2.6	2.40	3.1	11 x 3	D	UCWT2V48 L10	60 x 156	Internal resistor	0.57
	2.08	2.7	2.50	3.3	11.4 x 3	D	UCWT2.5V49 L10	60 x 156	Internal resistor	0.56
	2.50	3.3	3.00	3.9	13.7 x 3	D	UCWT3V49 L10	60 x 156	Internal resistor	0.55
	3.00	3.9	3.60	4.7	16.4 x 3	D	UCWT3V48 L16	60 x 211	Internal resistor	0.66
	4.17	5.5	5.00	6.6	22.8 x 3	D	UCWT5V49 L16	60 x 211	Internal resistor	0.75
	5.00	6.6	-	-	27.4 x 3	D	UCWT5V48 L16	60 x 211	Internal resistor	0.76
	6.25	8.2	7.50	9.8	34.3 x 3	E	UCWT7.5V49 N20	75 x 225	3 x 270 kΩ / 3 W	1.51
	7.50	9.8	9.00	11.8	41.1 x 3	E	UCWT7.5V48 N20	75 x 225	3 x 270 kΩ / 3 W	1.51
	8.33	10.9	10.00	13.1	45.7 x 3	E	UCWT10V49 N20	75 x 225	3 x 180 kΩ / 3 W	1.52
	10.00	13.1	12.00	15.7	54.8 x 3	E	UCWT10V48 N22	75 x 285	3 x 180 kΩ / 3 W	1.98
	10.42	13.7	12.50	16.4	57.1 x 3	E	UCWT12.5V49 N22	75 x 285	3 x 180 kΩ / 3 W	1.80
	12.50	16.4	15.00	19.7	68.5 x 3	E	UCWT12.5V48 N22	75 x 285	3 x 120 kΩ / 3 W	1.82
	12.50	16.4	15.00	19.7	68.5 x 3	E	UCWT15V49 N22	75 x 285	3 x 150 kΩ / 3 W	1.82
	12.50	16.4	15.00	19.7	68.5 x 3	F	UCWT15V49 Q26	100 x 230	3 x 150 kΩ / 3 W	2.17
	14.58	19.1	17.50	23.0	79.9 x 3	E	UCWT17.5V49 Q24	85 x 360	3 x 120 kΩ / 3 W	3.02
	14.58	19.1	17.50	23.0	79.9 x 3	F	UCWT17.5V49 Q26	100 x 230	3 x 150 kΩ / 3 W	2.18
	15.00	19.7	-	-	82.2 x 3	E	UCWT15V48 Q22	85 x 285	3 x 120 kΩ / 3 W	2.43
	15.00	19.7	18.00	23.6	82.2 x 3	F	UCWT15V48 Q26	100 x 230	3 x 150 kΩ / 3 W	2.18
	16.67	21.9	20.00	26.2	91.3 x 3	E	UCWT20V49 Q24	85 x 360	3 x 120 kΩ / 3 W	3.06
	16.67	21.9	20.00	26.2	91.3 x 3	F	UCWT20V49 Q26	100 x 230	3 x 120 kΩ / 3 W	2.18
	17.50	23.0	-	-	95.9 x 3	F	UCWT17.5V48 Q26	100 x 230	3 x 120 kΩ / 3 W	2.07
	18.75	24.6	22.50	29.5	102.8 x 3	E	UCWT22.5V49 Q24	85 x 360	3 x 82 kΩ / 3 W	3.03
	18.75	24.6	22.50	29.5	102.8 x 3	F	UCWT22.5V49 S26	116 x 230	3 x 120 kΩ / 3 W	2.70
	20.00	26.2	24.00	31.5	109.6 x 3	E	UCWT20V48 Q24	85 x 360	3 x 120 kΩ / 3 W	2.92
	20.00	26.2	24.00	31.5	109.6 x 3	F	UCWT20V48 S26	116 x 230	3 x 120 kΩ / 3 W	2.70
	20.83	27.3	25.00	32.8	114.2 x 3	E	UCWT25V49 Q24	85 x 360	3 x 82 kΩ / 3 W	2.92
	20.83	27.3	25.00	32.8	114.2 x 3	F	UCWT25V49 S26	116 x 230	3 x 120 kΩ / 3 W	3.26
	22.50	29.5	-	-	123.3 x 3	F	UCWT22.5V48 S26	116 x 230	3 x 82 kΩ / 3 W	2.70
	25.00	32.8	-	-	137 x 3	F	UCWT25V48 S26	116 x 230	3 x 82 kΩ / 3 W	2.71
	25.00	32.8	30.00	39.4	137 x 3	F	UCWT30V49 S28	116 x 290	3 x 56 kΩ / 5 W	3.50
	29.17	38.3	35.00	45.9	159.8 x 3	F	UCWT35V49 S28	116 x 290	3 x 56 kΩ / 5 W	3.50

Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.



Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
480	0.42	0.5	0.50	0.6	1.9 x 3	D	UCWT0.5V53 L10	60 x 156	Internal resistor	0.49
	0.50	0.6	0.60	0.7	2.3 x 3	D	UCWT0.5V52 L10	60 x 156	Internal resistor	0.50
	0.63	0.8	0.75	0.9	2.9 x 3	D	UCWT0.75V53 L10	60 x 156	Internal resistor	0.51
	0.75	0.9	0.90	1.1	3.5 x 3	D	UCWT0.75V52 L10	60 x 156	Internal resistor	0.51
	0.83	1.0	1.00	1.2	3.8 x 3	D	UCWT1V53 L10	60 x 156	Internal resistor	0.50
	1.00	1.2	1.20	1.4	4.6 x 3	D	UCWT1V52 L10	60 x 156	Internal resistor	0.51
	1.25	1.5	1.50	1.8	5.8 x 3	D	UCWT1.5V53 L10	60 x 156	Internal resistor	0.52
	1.50	1.8	1.80	2.2	6.9 x 3	D	UCWT1.5V52 L10	60 x 156	Internal resistor	0.54
	1.67	2.0	2.00	2.4	7.7 x 3	D	UCWT2V53 L10	60 x 156	Internal resistor	0.53
	2.00	2.4	2.40	2.9	9.2 x 3	D	UCWT2V52 L10	60 x 156	Internal resistor	0.54
	2.08	2.5	2.50	3.0	9.6 x 3	D	UCWT2.5V53 L10	60 x 156	Internal resistor	0.56
	2.50	3.0	3.00	3.6	11.5 x 3	D	UCWT2.5V52 L10	60 x 156	Internal resistor	0.58
	3.00	3.6	3.60	4.3	13.8 x 3	D	UCWT3V52 L10	60 x 156	Internal resistor	0.55
	4.17	5.0	5.00	6.0	19.2 x 3	D	UCWT5V53 L16	60 x 211	Internal resistor	0.73
	5.00	6.0	-	-	23 x 3	D	UCWT5V52 L16	60 x 211	Internal resistor	0.78
	6.25	7.5	7.50	9.0	28.8 x 3	E	UCWT7.5V53 N20	75 x 225	3 x 390 kΩ / 3 W	1.50
	7.50	9.0	9.00	10.8	34.5 x 3	E	UCWT7.5V52 N20	75 x 225	3 x 270 kΩ / 3 W	1.50
	8.33	10.0	10.00	12.0	38.4 x 3	E	UCWT10V53 N20	75 x 225	3 x 270 kΩ / 3 W	1.53
	10.00	12.0	12.00	14.4	46.1 x 3	E	UCWT10V52 N22	75 x 285	3 x 180 kΩ / 3 W	1.97
	10.42	12.5	12.50	15.0	48 x 3	E	UCWT12.5V53 N22	75 x 285	3 x 180 kΩ / 3 W	1.79
	12.50	15.0	15.00	18.0	57.6 x 3	E	UCWT12.5V52 N22	75 x 285	3 x 180 kΩ / 3 W	2.17
	12.50	15.0	15.00	18.0	57.6 x 3	E	UCWT15V53 N22	75 x 285	3 x 180 kΩ / 3 W	1.81
	12.50	15.0	15.00	18.0	57.6 x 3	F	UCWT15V53 Q26	100 x 230	3 x 180 kΩ / 3 W	2.17
	14.58	17.5	17.50	21.0	67.2 x 3	E	UCWT17.5V53 Q24	85 x 360	3 x 120 kΩ / 3 W	3.02
	14.58	17.5	17.50	21.0	67.2 x 3	F	UCWT17.5V53 Q26	100 x 230	3 x 180 kΩ / 3 W	2.18
	15.00	18.0	-	-	69.1 x 3	E	UCWT15V52 Q22	85 x 285	3 x 120 kΩ / 3 W	2.46
	15.00	18.0	18.00	21.7	69.1 x 3	F	UCWT15V52 Q26	100 x 230	3 x 180 kΩ / 3 W	2.17
	16.67	20.0	20.00	24.1	76.8 x 3	E	UCWT20V53 Q24	85 x 360	3 x 120 kΩ / 3 W	3.12
	16.67	20.0	20.00	24.1	76.8 x 3	F	UCWT20V53 Q26	100 x 230	3 x 150 kΩ / 3 W	2.18
	17.50	21.0	-	-	80.6 x 3	F	UCWT17.5V52 Q26	100 x 230	3 x 150 kΩ / 3 W	2.32
	18.75	22.6	22.50	27.1	86.3 x 3	E	UCWT22.5V53 Q24	85 x 360	3 x 120 kΩ / 3 W	3.04
	18.75	22.6	22.50	27.1	86.3 x 3	F	UCWT22.5V53 S26	116 x 230	3 x 120 kΩ / 3 W	2.69
	20.00	24.1	24.00	28.9	92.1 x 3	F	UCWT20V52 S26	116 x 230	3 x 120 kΩ / 3 W	2.69
	20.83	25.1	25.00	30.1	95.9 x 3	E	UCWT25V53 Q24	85 x 360	3 x 120 kΩ / 3 W	3.08
	20.83	25.1	25.00	30.1	95.9 x 3	F	UCWT25V53 S26	116 x 230	3 x 120 kΩ / 3 W	2.99
	22.50	27.1	-	-	103.6 x 3	F	UCWT22.5V52 S26	116 x 230	3 x 120 kΩ / 3 W	2.71
	25.00	30.1	-	-	115.1 x 3	F	UCWT25V52 S26	116 x 230	3 x 120 kΩ / 3 W	2.71
	25.00	30.1	30.00	36.1	115.1 x 3	F	UCWT30V53 S28	116 x 290	3 x 82 kΩ / 5 W	3.50
	29.17	35.1	35.00	42.1	134.3 x 3	F	UCWT35V53 S28	116 x 290	3 x 82 kΩ / 5 W	3.50

Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.



Power 0.37...20 (kvar)
Rated Voltage 208...240 (V)

Power 0.37...35 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitors - UCWT ^{1) 2)}										
Rated voltage (V)	50 Hz		60 Hz		Capacitance (uF)	Series ³⁾	Reference	Dimensions Ø x H (mm)	Discharge resistor	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)						
525	5.00	5.5	-	-	19.2 x 3	D	UCWT5VD2 L16	60 x 211	Internal resistor	0.83
	10.00	11.0	12.00	13.2	38.5 x 3	F	UCWT10VD2 Q26	100 x 230	3 x 180 kΩ / 3 W	2.57
	15.00	16.5	18.00	19.8	57.7 x 3	F	UCWT15VD2 Q26	100 x 230	3 x 180 kΩ / 3 W	2.61
	20.00	22.0	-	-	77 x 3	F	UCWT20VD2 S26	116 x 230	3 x 150 kΩ / 3 W	3.34
	25.00	27.5	30.00	33.0	96.2 x 3	F	UCWT25VD2 S28	116 x 290	3 x 82 kΩ / 3 W	3.67
	30.00	33.0	-	-	115.5 x 3	F	UCWT30VD2 S28	116 x 290	3 x 82 kΩ / 3 W	3.55
535	0.42	0.4	0.50	0.5	1.5 x 3	D	UCWT0.5V57 L10	60 x 156	Internal resistor	0.38
	0.63	0.7	0.75	0.8	2.3 x 3	D	UCWT0.75V57 L10	60 x 156	Internal resistor	0.40
	0.83	0.9	1.00	1.1	3.1 x 3	D	UCWT1V57 L10	60 x 156	Internal resistor	0.42
	1.25	1.3	1.50	1.6	4.6 x 3	D	UCWT1.5V57 L10	60 x 156	Internal resistor	0.46
	1.67	1.8	2.00	2.2	6.2 x 3	D	UCWT2V57 L10	60 x 156	Internal resistor	0.48
	2.08	2.2	2.50	2.7	7.7 x 3	D	UCWT2.5V57 L10	60 x 156	Internal resistor	0.53
	2.50	2.7	3.00	3.2	9.3 x 3	D	UCWT3V57 L10	60 x 156	Internal resistor	0.67
	4.17	4.5	5.00	5.4	15.4 x 3	D	UCWT5V57 L16	60 x 211	Internal resistor	0.75
	6.25	6.7	7.50	8.1	23.2 x 3	E	UCWT7.5V57 N20	75 x 225	3 x 390 kΩ / 3 W	1.50
	8.33	9.0	10.00	10.8	30.9 x 3	E	UCWT10V57 N20	75 x 225	3 x 270 kΩ / 3 W	1.53
	10.42	11.2	12.50	13.5	38.6 x 3	E	UCWT12.5V57 N22	75 x 285	3 x 270 kΩ / 3 W	1.79
	12.50	13.5	15.00	16.2	46.3 x 3	E	UCWT15V57 N22	75 x 285	3 x 270 kΩ / 3 W	1.79
	12.50	13.5	15.00	16.2	46.3 x 3	F	UCWT15V57 Q26	100 x 230	3 x 180 kΩ / 3 W	2.17
	14.58	15.7	17.50	18.9	54.1 x 3	F	UCWT17.5V57 Q26	100 x 230	3 x 180 kΩ / 3 W	2.18
	16.67	18.0	20.00	21.6	61.8 x 3	E	UCWT20V57 Q24	85 x 360	3 x 150 kΩ / 3 W	3.11
	16.67	18.0	20.00	21.6	61.8 x 3	F	UCWT20V57 Q26	100 x 230	3 x 180 kΩ / 3 W	2.18
	18.75	20.2	22.50	24.3	69.5 x 3	E	UCWT22.5V57 Q24	85 x 360	3 x 150 kΩ / 3 W	3.09
	18.75	20.2	22.50	24.3	69.5 x 3	F	UCWT22.5V57 S26	116 x 230	3 x 150 kΩ / 3 W	2.69
	20.83	22.5	25.00	27.0	77.2 x 3	E	UCWT25V57 Q24	85 x 360	3 x 150 kΩ / 3 W	2.94
	20.83	22.5	25.00	27.0	77.2 x 3	F	UCWT25V57 S26	116 x 230	3 x 150 kΩ / 3 W	2.70
	25.00	27.0	30.00	32.4	92.7 x 3	F	UCWT30V57 S28	116 x 290	3 x 82 kΩ / 5 W	3.50
	29.17	31.5	35.00	37.8	108.1 x 3	F	UCWT35V57 S28	116 x 290	3 x 82 kΩ / 5 W	3.50















Notes: 1) For other voltages, please contact WEG.

2) Discharge resistors sized so the voltage on the terminals of the capacitor is 1/10 of the rated voltage in 30s.

3) The D series capacitors are provided with internal resistors in the capacitive cell. The E and F series capacitors are provided with external resistors in the capacitive cell.




Capacitive Units - Technical Data


Technical characteristics	A series	B series	C series	D series	E series	F series	
Phases	Single phase			Three phase			
Power	0.62...0.83 (kvar)	0.62...6.67 (kvar)	3.72...10 (kvar)	0.37...5 (kvar)	3.72...25 (kvar)	7.45...25 (kvar)	13.04...35 (kvar)
Rated voltage	380...535 (V)	208...535 (V)					
Rated frequency	50 or 60 (Hz)						
Capacitance tolerance	±5 (%)						
Useful life	100,000 (h)						
Temperature class	-25/D Minimum temperature: -25 °C						
	Max temperature: D						
	Max. temp. = 55 °C Avg. max. temp. in 24h = 45 °C Avg. max. temp. in 1 year = 35 °C						
Safety	Self-healing polypropylene filmDisconnection for overpressure						
Max. short circuit capacity	10 (kA)						
Protection degree	IP00	IP00	IP20	IP50	IP20		IP20
Max. altitude ¹⁾	2,000 (m)						
Shield / Terminal	Plastic / Double Fast-on	Plastic / Screw + Washer	Aluminum / Box	Plastic / Screw + Washer	Aluminum / Box		Aluminum / Box
Input cable connection	Fast-on terminal	M3x2.4 Flat/Philips	M4x16.5 Flat/Philips	M3x2.4 Flat/Philips	M4x16.5 Flat/Philips		M8 x 16.5 mmAllen
Input cable section	0.5...6.0 (mm²)		1.5...10 (mm²)	0.5...6.0 (mm²)	1.5...10.0 (mm²)		10.0...35.0 (mm²)
Input cable torque	-	0.8...1.5 (N.m)	1.5...2.5 (N.m)	0.8...1.5 (N.m)	1.5...2.5 (N.m)		4.0...6.0 (N.m)
Discharge resistance	Fast-on terminal			Inside the product	Fast-on terminal		Fast-on terminal
Discharge resistor	Not included		Included				
Capacitor fixing	M8 bolt	M12 bolt					
Max. torque for capacitor	12 (N.m)	14 (N.m)					
Impregnation	Polyurethane resin						
Max. voltage	1.1 x Vn 8h Duration for each 24h - not continuous (system fluctuation)						
Max. dV/dt	≤30 (V/μm)						
Max. current	1.3 x In (short periods of time)						
Max. inrush current	≤100 x In						
Voltage test between terminals	2.15 x Vn @ 2s						
Voltage test between terminals and enclosure	3.6 kV @ 2s					3.6 kV @ 2s	
Reference standards	IEC 60831-1/2 UL 810						
Certifications ²⁾	  ²⁾	  ²⁾	  ²⁾	  ²⁾	  ²⁾	  ²⁾	  ^{3) 4)}

Notes: 1) Maximum altitude: 2,000 m. For application in higher altitudes, please contact WEG.

2) IRAM Certification available for capacitors of the following voltage / frequency: 230 V / 50 Hz, 400 V / 50 Hz, 440 V / 50 Hz e 480 V / 50 Hz.

3) IRAM Certification available for capacitors of the following voltage/frequency: 230 V / 50 Hz, 400 V / 50 Hz, 440 V / 50 Hz e 480 V / 50 Hz.

4)  in progress to capacitors 116 x 290 mm. Capacitors in 535 V without IRAM certification.

5)  in progress to capacitors 116 x 290 mm.



Three Phase Capacitive Module - MCW

Power 1.86...10 (kvar)
Rated Voltage 208...240 (V)

Power 1.85...15 (kvar)
Rated Voltage 380...535 (V)



Three phase capacitive module - MCW ^{1) 2)}								
Rated voltage (V)	50 Hz		60 Hz		Reference	Composition quant. x UCV / MCW (D connection)	Dimensions (L x W x H) (mm)	Weight (kg)
	Reactive power (kvar)	Rated current In (A)	Reactive power (kvar)	Rated current In (A)				
208	1.86	5.2	2.23	6.2	MCW2.5V25	3xUCW0.83V25 L6	219 x 78 x 257	3.01
	3.72	10.3	4.47	12.4	MCW5V25	3xUCW1.67V25 L6	219 x 78 x 257	3.04
	5.59	15.5	6.70	18.6	MCW7.5V25	3xUCW2.5V25 L10	219 x 78 x 257	3.62
	7.45	20.7	8.94	24.8	MCW10V25	3xUCW3.33V25 L10	219 x 78 x 257	3.65
220	2.08	5.5	2.50	6.6	MCW2.5V25	3xUCW0.83V25 L6	219 x 78 x 257	3.01
	4.17	10.9	5.00	13.1	MCW5V25	3xUCW1.67V25 L6	219 x 78 x 257	3.04
	6.25	16.4	7.50	19.7	MCW7.5V25	3xUCW2.5V25 L10	219 x 78 x 257	3.62
	8.33	21.9	10.00	26.2	MCW10V25	3xUCW3.33V25 L10	219 x 78 x 257	3.65
230	2.50	6.3	3.00	7.5	MCW2.5V34	3xUCW0.83V34 L6	219 x 78 x 257	2.95
	5.00	12.6	6.00	15.1	MCW5V34	3xUCW1.67V34 L6	219 x 78 x 257	3.43
	7.50	18.8	9.00	22.6	MCW7.5V34	3xUCW2.5V34 L10	219 x 78 x 257	3.62
	10.00	25.1	-	-	MCW10V34	3xUCW3.33V34 L10	219 x 78 x 257	3.62
240	2.08	5.0	2.50	6.0	MCW2.5V29	3xUCW0.83V29 L4	219 x 78 x 257	3.04
	4.17	10.0	5.00	12.0	MCW5V29	3xUCW1.67V29 L6	219 x 78 x 257	3.01
	6.25	15.0	7.50	18.0	MCW7.5V29	3xUCW2.5V29 L10	219 x 78 x 257	3.47
	8.33	20.0	10.00	24.1	MCW10V29	3xUCW3.33V29 L10	219 x 78 x 257	3.66
380	2.08	3.2	2.50	3.8	MCW2.5V40	3xUCW0.83V40 L4	219 x 78 x 257	2.29
	4.17	6.3	5.00	7.6	MCW5V40	3xUCW1.67V40 L4	219 x 78 x 257	2.32
	6.25	9.5	7.50	11.4	MCW7.5V40	3xUCW2.5V40 L6	219 x 78 x 257	3.08
	8.33	12.7	10.00	15.2	MCW10V40	3xUCW3.33V40 L8	219 x 78 x 257	3.66
400	12.50	19.0	15.00	22.8	MCW15V40	3xUCW5V40 L10	219 x 78 x 257	3.67
	2.50	3.6	3.00	4.3	MCW2.5V44	3xUCW0.83V44 L4	219 x 78 x 257	2.47
	5.00	7.2	6.00	8.7	MCW5V44	3xUCW1.67V44 L4	219 x 78 x 257	2.37
	7.50	10.8	9.00	13.0	MCW7.5V44	3xUCW2.5V44 L6	219 x 78 x 257	3.03
415	10.00	14.4	12.00	17.3	MCW10V44	3xUCW3.33V44 L8	219 x 78 x 257	3.53
	15.00	21.7	-	-	MCW15V44	3xUCW5V44 L10	219 x 78 x 257	3.63
	1.85	2.6	2.22	3.1	MCW2.5V49	3xUCW0.83V49 L4	219 x 78 x 257	2.35
	2.22	3.1	2.67	3.7	MCW2.5V48	3xUCW0.83V48 L4	219 x 78 x 257	2.40
415	3.71	5.2	4.45	6.2	MCW5V49	3xUCW1.67V49 L4	219 x 78 x 257	2.35
	4.45	6.2	5.34	7.4	MCW5V48	3xUCW1.67V48 L4	219 x 78 x 257	2.37
	5.56	7.7	6.67	9.3	MCW7.5V49	3xUCW2.5V49 L6	219 x 78 x 257	3.08
	6.67	9.3	8.01	11.1	MCW7.5V48	3xUCW2.5V48 L6	219 x 78 x 257	3.03
415	7.41	10.3	8.90	12.4	MCW10V49	3xUCW3.33V49 L8	219 x 78 x 257	3.56
	8.90	12.4	10.68	14.9	MCW10V48	3xUCW3.33V48 L8	219 x 78 x 257	3.53
	11.12	15.5	13.34	18.6	MCW15V49	3xUCW5V49 L10	219 x 78 x 257	3.76
	13.34	18.6	-	-	MCW15V48	3xUCW5V48 L10	219 x 78 x 257	3.70
440	2.08	2.7	2.50	3.3	MCW2.5V49	3xUCW0.83V49 L4	219 x 78 x 257	2.35
	2.50	3.3	3.00	3.9	MCW2.5V48	3xUCW0.83V48 L4	219 x 78 x 257	2.40
	4.17	5.5	5.00	6.6	MCW5V49	3xUCW1.67V49 L4	219 x 78 x 257	2.35
	5.00	6.6	6.00	7.9	MCW5V48	3xUCW1.67V48 L4	219 x 78 x 257	2.37
440	6.25	8.2	7.50	9.8	MCW7.5V49	3xUCW2.5V49 L6	219 x 78 x 257	3.08
	7.50	9.8	9.00	11.8	MCW7.5V48	3xUCW2.5V48 L6	219 x 78 x 257	3.03
	8.33	10.9	10.00	13.1	MCW10V49	3xUCW3.33V49 L8	219 x 78 x 257	3.56
	10.00	13.1	12.00	15.7	MCW10V48	3xUCW3.33V48 L8	219 x 78 x 257	3.53
440	12.50	16.4	15.00	19.7	MCW15V49	3xUCW5V49 L10	219 x 78 x 257	3.76
	15.00	19.7	-	-	MCW15V48	3xUCW5V48 L10	219 x 78 x 257	3.70
480	2.08	2.5	2.50	3.0	MCW2.5V53	3xUCW0.83V53 L6	219 x 78 x 257	2.92
	2.50	3.0	3.00	3.6	MCW2.5V52	3xUCW0.83V52 L6	219 x 78 x 257	2.99
	4.17	5.0	5.00	6.0	MCW5V53	3xUCW1.67V53 L6	219 x 78 x 257	2.94
	5.00	6.0	6.00	7.2	MCW5V52	3xUCW1.67V52 L6	219 x 78 x 257	2.99
480	6.25	7.5	7.50	9.0	MCW7.5V53	3xUCW2.5V53 L6	219 x 78 x 257	2.97
	7.50	9.0	9.00	10.8	MCW7.5V52	3xUCW2.5V52 L6	219 x 78 x 257	3.00
	8.33	10.0	10.00	12.0	MCW10V53	3xUCW3.33V53 L8	219 x 78 x 257	3.46
	10.00	12.0	12.00	14.4	MCW10V52	3xUCW3.33V52 L8	219 x 78 x 257	3.42
480	12.50	15.0	15.00	18.0	MCW15V53	3xUCW5V53 L10	219 x 78 x 257	3.66
	15.00	18.0	-	-	MCW15V52	3xUCW5V52 L10	219 x 78 x 257	3.73
535	2.08	2.2	2.50	2.7	MCW2.5V57	3xUCW0.83V57 L6	219 x 78 x 257	2.87
	4.17	4.5	5.00	5.4	MCW5V57	3xUCW1.67V57 L6	219 x 78 x 257	2.88
	6.25	6.7	7.50	8.1	MCW7.5V57	3xUCW2.5V57 L6	219 x 78 x 257	2.97
	8.33	9.0	10.00	10.8	MCW10V57	3xUCW3.33V57 L6	219 x 78 x 257	3.01
535	12.50	13.5	15.00	16.2	MCW15V57	3xUCW5V57 L10	219 x 78 x 257	3.63

Notes: 1) For other voltages, please contact WEG. 2) Three phase capacitive modules are provided with discharge resistors.



Capacitive Module - Technical Data

Technical characteristics	MCW
Phases	Three phase
Power	1.86...10 (kvar) for 208...240 (V) 1.85...15 (kvar) for 380...535 (V)
Rated voltage	208...535 (V)
Rated frequency	50 or 60 (Hz)
Capacitance tolerance	±5 (%)
Useful life	100,000 (h)
Temperature class	-25/D Minimum temperature: -25 °C <div> Max temperature: D Max. temp. = 55 °C Avg. max. temp. in 24h = 45 °C Avg. max. temp. in 1 year = 35 °C </div>
Safety	Self-healing polypropylene film Disconnection for overpressure
Max. short circuit capacity	10 (kA)
Protection degree	IP40
Max. altitude 1)	2,000 (m)
Input cable connection	LUG Terminal M8
Input cable section	1.5...35.0 (mm ²)
Input cable torque	8...10 (N.m)
Discharge resistor	Included
Impregnation	Polyurethane resin
Max. voltage	1.1 x V _n 8h duration for each 24h - not continuous (system fluctuation)
Max. dV/dt	≤30 (V/μm)
Max. current	1.3 x I _n (short periods of time)
Max. in-rush current	≤100 x I _n
Voltage test between terminals	2.15 x V _n @ 2s
Voltage test between terminals and enclosure	3 kV @ 2s
Reference standards	IEC 60831-1/2 UL 810
Certifications	 

Note: 1) Maximum altitude: 2,000 m. For application in higher altitudes, please contact WEG.



Accessories for Capacitors

Discharge Resistors

Discharge resistance	
UCW (A and B series)	
Reference	Resistance / power
RDC 56k Ω 3W	56 k Ω / 3 W
RDC 82k Ω 3W	82 k Ω / 3 W
RDC 120k Ω 3W	120 k Ω / 3 W
RDC 150k Ω 3W	150 k Ω / 3 W
RDC 180k Ω 3W	180 k Ω / 3 W
RDC 270k Ω 3W	270 k Ω / 3 W
RDC 390k Ω 3W	390 k Ω / 3 W
RDC 560k Ω 3W	560 k Ω / 3 W
RDC 1M Ω 3W	1 M Ω / 3 W
UCW (C series)	
Reference	Resistance / power
RDC 28k Ω 6W	28 k Ω / 6 W
RDC 41k Ω 6W	41 k Ω / 6 W
RDC 60k Ω 6W	60 k Ω / 6 W
RDC 75k Ω 6W	75 k Ω / 6 W
RDC 135k Ω 6W	135 k Ω / 6 W
UCWT (E and F series)	
Reference	Resistance / power
RDC 27k Ω 5 W - UCW-T	3 x 27 k Ω / 5 W
RDC 39k Ω 3 W - UCW-T	3 x 39 k Ω / 3 W
RDC 56k Ω 3 W - UCW-T	3 x 56 k Ω / 3 W
RDC 56k Ω 5 W - UCW-T	3 x 56 k Ω / 5 W
RDC 82k Ω 5 W - UCW-T	3 x 82 k Ω / 5 W
RDC 82k Ω 3 W - UCW-T	3 x 82 k Ω / 3 W
RDC 120k Ω 3 W - UCW-T	3 x 120 k Ω / 3 W
RDC 150k Ω 3 W - UCW-T	3 x 150 k Ω / 3 W
RDC 180k Ω 3 W - UCW-T	3 x 180 k Ω / 3 W
RDC 270k Ω 3 W - UCW-T	3 x 270 k Ω / 3 W
RDC 390k Ω 3 W - UCW-T	3 x 390 k Ω / 3 W



Fixing of Capacitor

Nuts and washer for UCW and UCWT fixing	
Reference	Series
PAC M8	A
PAC M12	B, C, D, E and F



MCW Interconnection

Bars for MCW interconnection
Reference
BI-MCW

For 2 x MCW = use 1 x BI - MCW

For 3 x MCW = use 2 x BI - MCW

For 4 x MCW = use 3 x BI - MCW



Empty Enclosure for Mounting Capacitor Banks

Empty enclosure for capacitor bank assembly	
Reference	Dimensions (L x W x H) (mm)
UMW01-W41	266 x 193 x 263 (up to 9 UCW's) ¹⁾
UMW02-W41	390 x 193 x 263 (up to 15 UCW's) ¹⁾

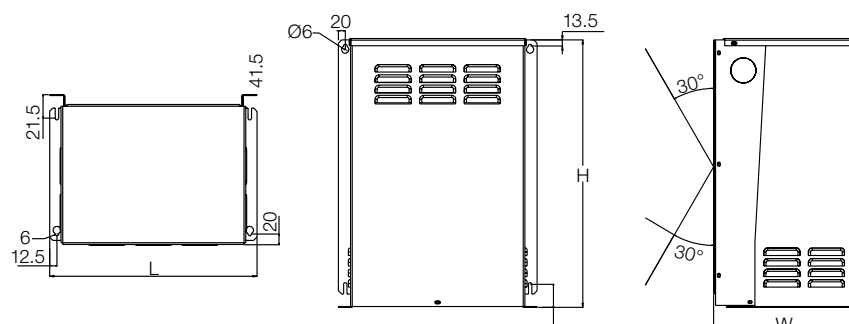
Note: 1) Only for Single-Phase Capacitors UCW up to Ø60 mm (diameter).



Empty Enclosure for Mounting Capacitor Banks with Protection

Empty enclosure for capacitor bank assembly with protection	
Reference	Dimensions (L x W x H) (mm)
UWMP01-W41	357 x 261 x 484 (up to 9 UCW's) ¹⁾
UWMP02-W41	457 x 263 x 484 (up to 15 UCW's) ¹⁾

Note: 1) Only for Single-Phase Capacitors UCW up to Ø60 mm (diameter). Electrical components are not included.



Contactors for Switching of Capacitors

Switching of Power Factor Correction Capacitors

WEG's special CWMC contactors series for switching of capacitors is designed according to IEC 60947-1 and UL, and provides the best solution for the switching of power factor correction capacitors.



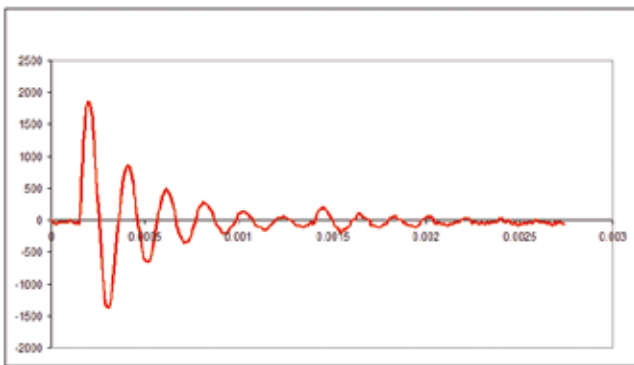
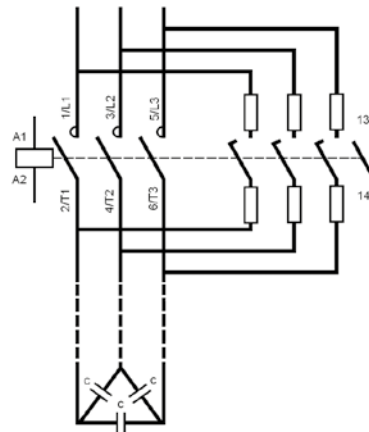
No More In-Rush

When switching on a capacitor bank, the capacitors are uncharged and the system sees them as a short circuit for a quick period of time.

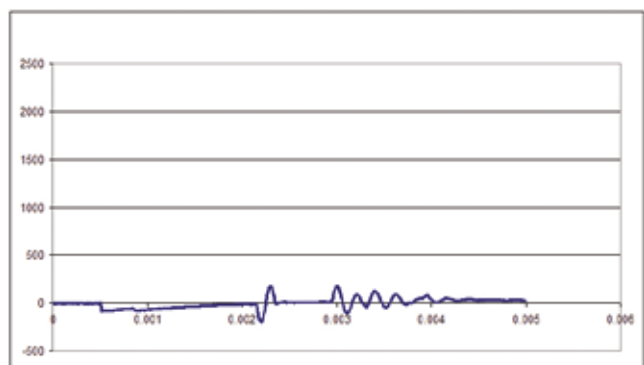
The in-rush current is the result of this little short circuit and usually lasts for some milliseconds. It may reach 100 times the rated current which is one of the main reasons for the short life of a capacitor.

The CWMC contactor is assembled with damping resistors which limit the high in-rush current when the capacitors are switched on. They are assembled with an early-make contact block which is switched on before the main contacts thus, limiting the in-rush current.

However, the damping resistors don't influence the final load, since they are switched off after 5 milliseconds leaving only the capacitors in parallel with their inductive load providing the proper power factor correction. This process increases the lifetime of the capacitors and also prevents net distortions.



Iu (A) with standard contactors



Iu (A) with WEG CWMC contactor

Certifications



SABS - South Africa



US



Modular Design

For 35 mm DIN rail or screw fixing.

Damping Resistors

Avoids high in-rush current.

Contact Data and Certifications

Shows all necessary information of CWMC.

Early Make Contact Block

Connects damping resistors and switches off after 5ms.

Auxiliary Contact

CWMC allows use of standard contact blocks, the same used in CWM line, being either NO or NC.



New Models

CWMC contactors are available in 5 different models in 4 different frames. All contactors are available with AC coils with a large variety of voltage ranges for 50 or 60 Hz. For DC coils and further information, please contact a WEG representative.

CWMC Contactor for Switching of Capacitors (AC-6b)

AC coil		CWMC9	CWMC18	CWMC25	CWMC32	CWMC50	CWMC65	CWMC80	
Reactive power AC-6b @ 55 °C	220-230 V	kvar	6	8	11	15	25	30	35
	380-415 V		10	15	20	25	40	50	61
	440 V		12	16	23	30	45	60	71
	480 V		12.5	17	25	33	50	65	77
	660-690 V		17.5	25	34	45	65	87	106
AC-6b current (I _p)	(55 °C)	A	16	21	30	40	60	77	93
Thermal current (I _{th})	(55 °C)		25	32	45	60	90	110	140
AC-6b current (I _p)	(70 °C)		10	15	22	34	50	62	67
Max fuse (gL/gG)			25	35	50	63	100	125	160
Cable cross section	mm ²	6	6	2 x 10	16 + 16	35 + 35	35 + 35	35	
	AWG	10	10	2 x 7	6 + 6	2 + 2	2 + 2	2	
Tightening torque	N.m	1...1.7		1.6...3	2.5...4	4...6	4...6	5...6.5	
Max. operation per hour	ops/h.	120							
Max. number of auxiliary contacts		1			3	5			
Electrical lifespan	Ops x 10 ³	100							
Coil consumption (AC) pick-up / sealing	VA	75 / 9.3			123 / 12.5	308 / 25			
Weight	kg	0.619			0.670	1.370	1.389	1.7	

Notes: One auxiliary contact 1NO included in CWMC contactors.

Examples of reference code: - CWMC25-10-30♦; - CWMC32-10-30♦; - CWMC50-10-30♦; - CWMC65-10-30♦.

To Complete Reference Code, Replace “♦” with Appropriate Coil Voltage Code ¹⁾

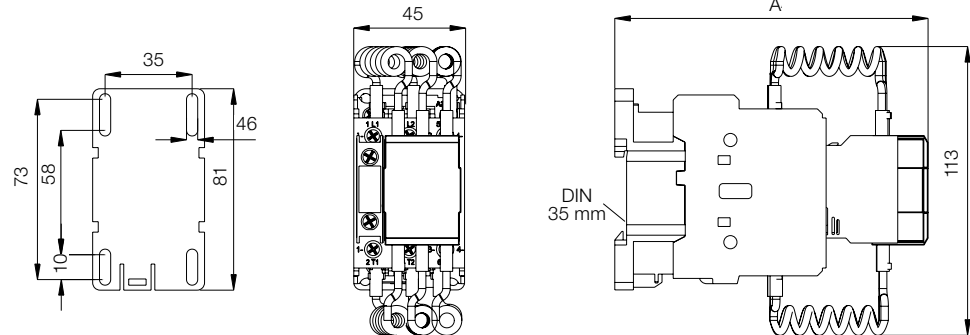
Coil voltage codes	X06	X18	X32	X37	X42	X47	X50	X56
50 Hz	24 V	110 V	220 V	230-240 V	380 V	400-415 V	440 V	500 V
Coil voltage codes	X04	X15	X26	X28	X30	X41	X42	X47
60 Hz	24 V	110 V	220 V	230	240 V	380 V	440 V	480 V
Coil voltage codes (CWMC9...25)	C02	C03	C07	C09	C12	C15	Coil voltage codes (CWMC9...25)	
V dc	12	24	48	60	110	220	C02	C03
							C07	C09
							C12	C15
							V dc	12
								24
								48
								60
								110
								220

Note: 1) Other voltages on request.



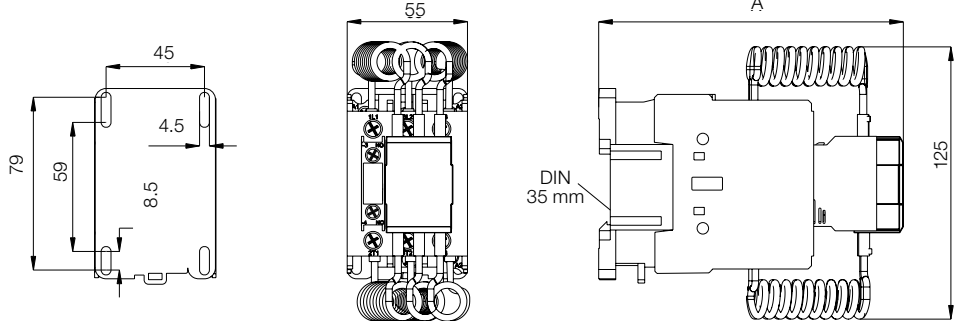
Contactors - Dimensions (mm)

CWMC9 to CWMC25



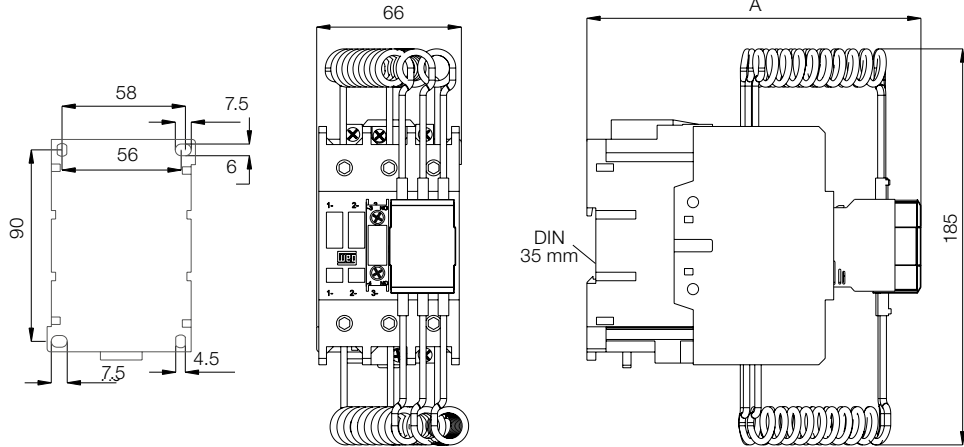
Coil	
AC	DC
A = 129	A = 159

CWMC32



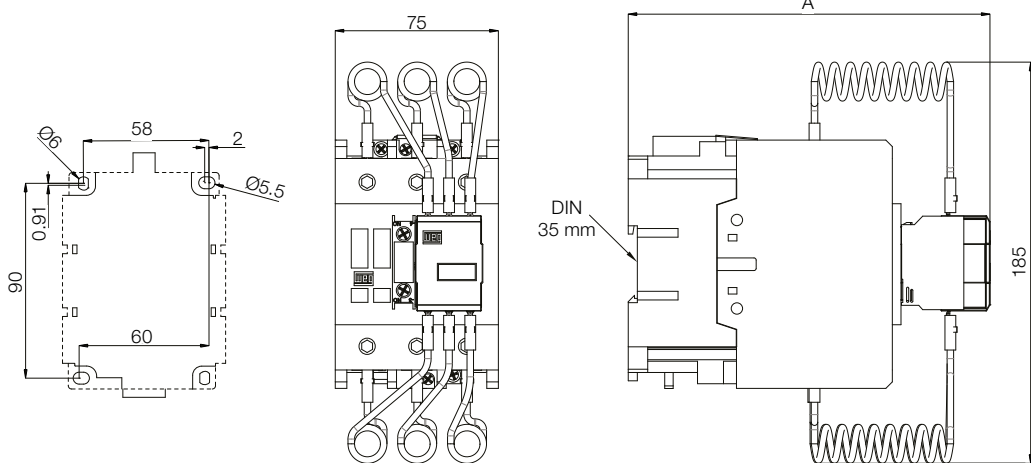
Coil	
AC	DC
A = 140	A = 160

CWMC50 and CWMC65



Coil	
AC	DC
A = 158	A = 158

CWMC80



Coil	
AC	DC
A = 167	A = 167



Power Factor

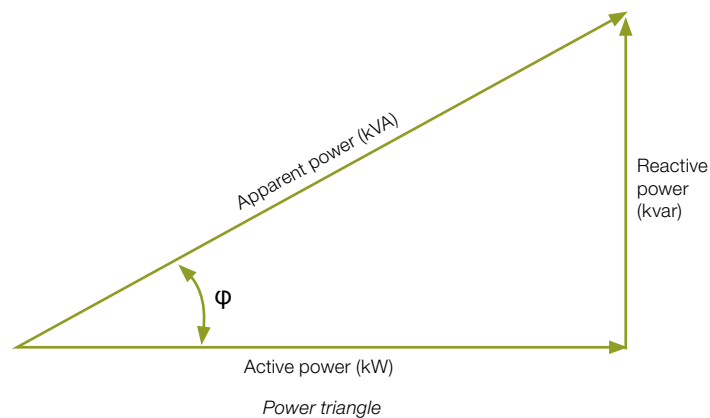
Basic Concepts

In every industrial, commercial or residential installation, equipment transforms some kind of energy into work and the determined quantity of energy granted by an energy source per time unit is called power.

In electric systems, the energy provided by a particular source can be divided into:

- Active Power: the power that is transformed into work, generating heat, light, movement, etc. It is measured in kW.
- Reactive Power: the power used only to create and maintain the magnetic field in inductive loads. It is measured in kvar.
- Apparent Power: the vector sum of the Active and Reactive Power, representing the total power delivered by the power source (electric generator, utility company, etc.) or the total power consumed by a load / system. It is measured in kVA.

A rectangle triangle is frequently used to represent the relation between Active, Reactive and Apparent Power.



The relation between Active Power (the one that does work) and Apparent Power (the total power delivered by the power source) can be used to indicate the usage “efficiency” of electric energy, and is defined as Power Factor.

A high Power Factor indicates a high efficiency or a better usage of energy, while a low Power Factor indicates low efficiency, or a worse energy use.

$$fp = \frac{\text{Active Power (kW)}}{\text{Apparent Power (kVA)}}$$

For purely linear loads, the Power Factor can be defined as the displacement factor $\cos \varphi$, which is the time discrepancy between the voltage and current waveforms:

$$fp = \cos \varphi = \cos \arctan \left(\frac{\text{kvar}}{\text{kW}} \right) = \frac{\text{kW}}{\sqrt{\text{kW}^2 + \text{kvar}^2}}$$



Causes and Consequences of a Low Power Factor

Losses in Installation

The electric losses occur in the form of heat and are proportional to the square of the total current ($I^2 \times R$). As this current grows with the increase of reactive power, a relation between the loss increase and low power factor is established causing the heating up on cables and equipment.

Voltage Drops









The increase of current due to the excess of reactive power results in large voltage drops, and may even cause the interruption of the energy supply and overloads in some equipment. Above all, this risk is increased during the periods where the power line is highly required. The voltage drops can also cause the reduction in luminous intensity of lamps and the increase of current in electric motors.

Underuse of Installed Capacity

The overload on the electric installation caused by the reactive energy unables its full use. So, for new loads, further investments have to be made which could be avoided if the power factor had higher levels. The “space” occupied by the reactive energy could be then used for the new loads. The investments on expansion of the electric installation are mainly related to transformers and conductors. The installed transformer must attend the total power of the installed equipment but, due to the presence of reactive power, its capacity must be calculated taking the apparent power into consideration. The table below shows the total power that a transformer must have to attend a load of 800 kW for increasing power factors.

Active power - kW	Power factor	Transformer power - kVA
800	0.50	1,600
	0.80	1,000
	1.00	800

The cost of the switch and control gear of the equipment grows with the increase of the reactive power. Likewise, to conduct the same active power without the increase of losses, the section of the conductors increases as the power factor decreases. Table 2 shows the variation of the section of the conductor with the power factor. It also demonstrates that the required section, supposing a power factor of 0.70, is double the section for a power factor of 1.00.

Conductor relative section		Power factor
1.00		1.00
1.23		0.9
1.56		0.8
2.04		0.7
2.78		0.6
4.00		0.5
6.25		0.4
11.1		0.3



The power factor correction alone can increase the capacity for installing new equipment without the need of investing in new transformers or replacing the cables. Besides this, it may also increase the voltage levels. The example below shows the increase of capacity of the installation.

Example: Correction of the power factor to 0.92 of a load of 930 kW, 380 V ac and PF = 0.65:

- Without Power Factor Correction:

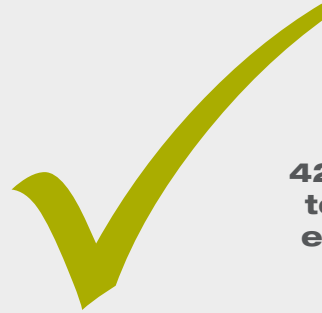
$$\text{Initial apparent power} = \frac{930}{0.65} = 1,431 \text{ kVA}$$

$$\text{Initial current} = \sqrt{\frac{930,000}{3 \cdot 380 \cdot 0.65}} = 2,174 \text{ A}$$

- With Power Factor Correction:

$$\text{Final apparent power} = \frac{930}{0.92} = 1,011 \text{ kVA}$$

$$\text{Final current} = \sqrt{\frac{930,000}{3 \cdot 380 \cdot 0.92}} = 1,536 \text{ A}$$



RESULT
420 kVA free
to add new
equipments

It is evident, then that, in this case, after the correction of the power factor, the installation may have load increases up to 41% without additional high investments, such as new transformers and/or cables.

Main Consequences of Low Power Factor

- Increase of energy bill due to the low power factor
- Limitation of capacity of power transformers
- Voltage drops and fluctuations on distribution circuits
- Overload on switch gear, limiting useful life
- Electrical losses increase on distribution line due to Joule effect
- Need of increasing the conductors section
- Need of increasing capacity of the switch and control gear.

Main Causes of Low Power Factor

- Induction motors running without load
- Oversized motors
- Transformers without load or with low loads
- Low power factor reactors on lighting system
- Induction or arc furnaces
- Thermal treatment machines
- Welding machines
- Voltage level above rated, resulting in higher reactive power consumption.

Power Factor Correction in Low Voltages

Types of Power Factor Correction

Correction can be made by installing the capacitors in four different ways resulting in energy conservation and cost / benefit relation (see Types of Installation Diagram).

- Correction on the low voltage energy input: allows a significant correction normally with automatic capacitor banks. This type of correction may be used on electrical installations with a high number of loads with different power and utilization regimes with little uniformity. The main disadvantage is not to have a sensitive relief of the feeders of each equipment.
- Correction by load groups: the capacitors are installed to correct a specific area or a set of small machines (<7.5 kW / 10 HP). They are installed along with the distribution board that supplies this equipment. The disadvantage is it does not lower the current on the feeding circuits of each equipment.

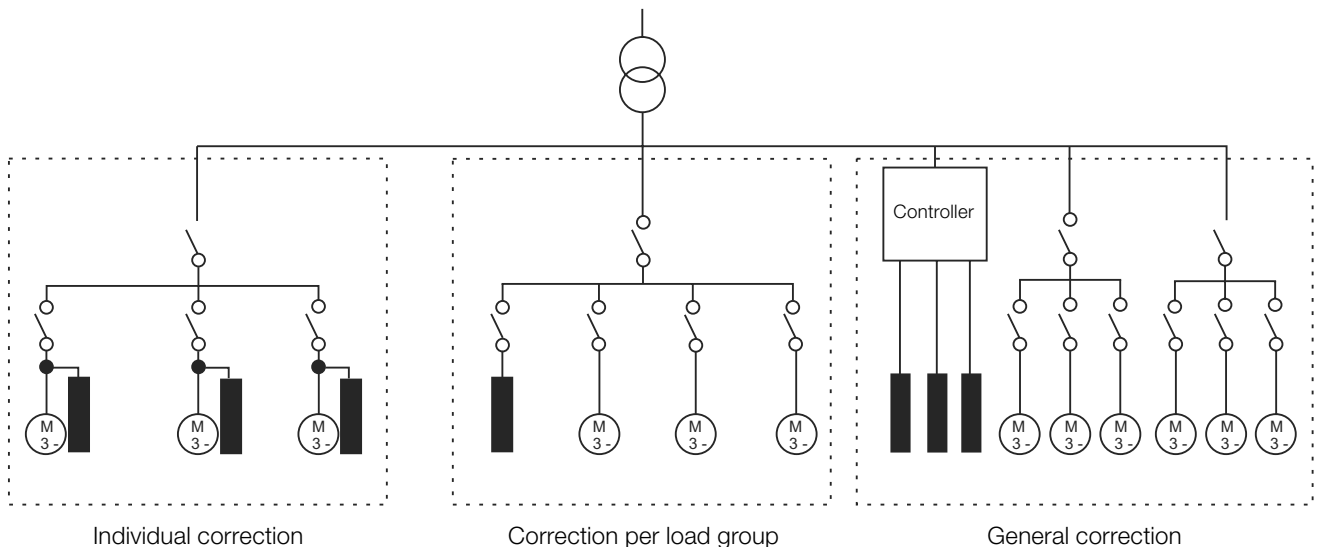
c) Local correction: is obtained by installing the capacitors next to the equipment where the reduction of the power factor is required. This kind of correction represents, from the technical point of view, the best solution with the following advantages:

- Reduces energy losses in installation.
- Lowers load on feeding circuits.
- A single system can be used for controlling and switching load and capacitors sparing one set of equipment.
- Generates reactive power only where it is necessary.

d) Mixed correction: from the “Energy Conservation” point of view, considering the technical, practical and financial aspects, it is the best solution. The following criteria are used for mixed correction:

1. A fixed capacitor is installed next to secondary of transformer.
2. Motors of 7.5 kW (10 HP) or more are locally corrected (be careful with high inertia motors because use of contactors for switching of capacitors should always be used when rated current of these motors is higher than 90% of excitation current of motor).
3. Motors with less than 7.5 kW (10 HP) are corrected by groups.
4. Lighting lines with discharge lamps, with low power factor reactors, are corrected on line input.
5. Automatic capacitor bank is installed on input for final equalization.

The diagram below shows all of the installation types explained earlier:



Example: Correction of the PF of a WEG W22 motor, 55 kW, IV poles, 50 Hz, 380-415 V operating in a power supply of 400 V / 50 Hz and at 75% of the rated load.

For power factor correction of electric motors, the following equation is used:

$$Q_{\text{camp}} = \frac{(\% \text{load}) \times P \times F}{\eta}$$

Where:

%_{load} = Factor related to operational power of motor:

%_{load} = 0.50 means motor operating at 50% load;

%_{load} = 0.75 means motor operating at 75% load;

%_{load} = 1.00 means motor operating at 100% load;

P = Active power in kW;

F = Multiplication factor, according to table below;

η = Motor efficiency according to percentage of load it is operating;

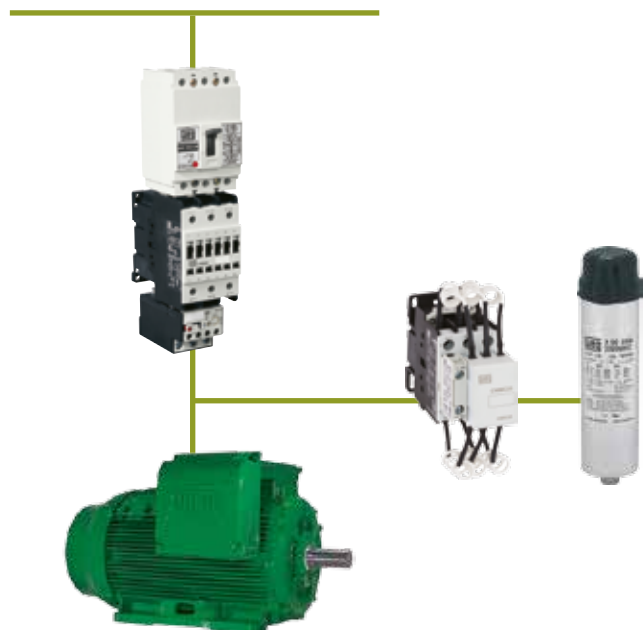
Q_{capm} = Required reactive power on motor in kvar.



Current power factor	Power factor desired (F)														
	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99
0.50	1.112	1.139	1.165	1.192	1.220	1.248	1.276	1.306	1.337	1.369	1.403	1.440	1.481	1.529	1.589
0.52	1.023	1.050	1.076	1.103	1.131	1.159	1.187	1.217	1.248	1.280	1.314	1.351	1.392	1.440	1.500
0.54	0.939	0.966	0.992	1.019	1.047	1.075	1.103	1.133	1.164	1.196	1.230	1.267	1.308	1.356	1.416
0.56	0.860	0.887	0.913	0.940	0.968	0.996	1.024	1.054	1.085	1.117	1.151	1.188	1.229	1.277	1.337
0.58	0.785	0.812	0.838	0.865	0.893	0.921	0.949	0.979	1.010	1.042	1.076	1.113	1.154	1.202	1.262
0.60	0.713	0.740	0.766	0.793	0.821	0.849	0.877	0.907	0.938	0.970	1.004	1.041	1.082	1.130	1.190
0.62	0.646	0.673	0.699	0.726	0.754	0.782	0.810	0.840	0.871	0.903	0.937	0.974	1.015	1.063	1.123
0.64	0.581	0.608	0.634	0.661	0.689	0.717	0.745	0.775	0.806	0.838	0.872	0.909	0.950	0.998	1.068
0.66	0.518	0.545	0.571	0.598	0.626	0.654	0.682	0.712	0.743	0.775	0.809	0.846	0.887	0.935	0.995
0.68	0.458	0.485	0.511	0.538	0.566	0.594	0.622	0.652	0.683	0.715	0.749	0.786	0.827	0.875	0.935
0.70	0.400	0.427	0.453	0.480	0.508	0.536	0.564	0.594	0.625	0.657	0.691	0.728	0.769	0.817	0.877
0.72	0.344	0.371	0.397	0.424	0.452	0.480	0.508	0.538	0.569	0.601	0.635	0.672	0.713	0.761	0.821
0.74	0.289	0.316	0.342	0.369	0.397	0.425	0.453	0.483	0.514	0.546	0.580	0.617	0.658	0.706	0.766
0.76	0.235	0.262	0.288	0.315	0.343	0.371	0.399	0.429	0.460	0.492	0.526	0.563	0.604	0.652	0.712
0.78	0.182	0.209	0.235	0.262	0.290	0.318	0.346	0.376	0.407	0.439	0.473	0.510	0.551	0.599	0.659
0.80	0.130	0.157	0.183	0.210	0.238	0.266	0.294	0.324	0.355	0.387	0.421	0.458	0.499	0.547	0.609
0.82	0.078	0.105	0.131	0.158	0.186	0.214	0.242	0.272	0.303	0.335	0.369	0.406	0.447	0.495	0.555
0.84	0.026	0.053	0.079	0.106	0.134	0.162	0.190	0.220	0.251	0.283	0.317	0.354	0.395	0.443	0.503
0.86			0.026	0.053	0.081	0.109	0.137	0.167	0.198	0.230	0.264	0.301	0.342	0.390	0.450
0.88					0.028	0.056	0.084	0.114	0.145	0.177	0.211	0.248	0.289	0.337	0.397
0.90							0.028	0.058	0.089	0.121	0.155	0.192	0.233	0.281	0.341
0.92									0.031	0.063	0.097	0.134	0.175	0.223	0.283
0.94											0.034	0.071	0.112	0.160	0.229
0.96													0.041	0.089	0.149
0.98															0.060

Current Power Factor (PF_c) = 0.85;
 Active Power (P) = 55 kW;
 Required Power Factor (PF_r) = 0.92;
 Factor (see table above) (F) = 0.220;
 %load = 0.75 (75% of load);
 $\eta = 93.2\%$;
 $Q_{kvar} = (\%load \times P \times F) / \eta = (0.75 \times 55 \times 0.220) / 0.932 = 9.73 \text{ kvar}$.

Use: **UCWT10V44 N20 + CWMC18-10-30**



Notes: The examples shown on this catalogue are strictly for guidance. Whenever possible, the types of loads and the load curve of the installation should be known.
 If more than 20% of the loads to be corrected are non-linear (VSDs, Soft-Starters, rectifiers, electronic reactors, etc.), Anti-Harmonics Inductors must be installed in series with the capacitors.
 THD limit for capacitors: THDvoltage <5% V_{rms} and THDcurrent <15%.
 The use of capacitors in electric systems with high harmonic distortions can internally damage the capacitive cells. For guidance and detailed information on the sizing, installation and maintenance of WEG Capacitors for Power Factor Correction, please consult:
 - Power Factor Correction manual;
 - Safety and Application Manual for using capacitors in alternate current.
 The manuals are available at www.weg.net

Index

Products	Series ¹⁾	Technical characteristics			Standards	Certifications ^{2) 3)}	Pages
		Power	Rated voltage	Connection type			
UCW series Single phase Capacitive units		A	0.62...0.83 (kvar)	380...535 (V)	-	IEC 60831-1/2 UL 810	CE IRAM c UL us
		B	0.62...6.67 (kvar)	208...535 (V)	-	IEC 60831-1/2 UL 810	CE IRAM c UL us
		C	3.72...10.0 (kvar)	208...535 (V)	-	IEC 60831-1/2 UL 810	CE IRAM c UL us
UCWT series Three phase Capacitive units		D	0.37...5.0 (kvar)	208...535 (V)	Δ (Delta)	IEC 60831-1/2 UL 810	CE IRAM c UL us
		E	3.72...25.0 (kvar)	208...535 (V)	Δ (Delta)	IEC 60831-1/2 UL 810	CE IRAM c UL us
		F	7.48...35.0 (kvar)	208...535 (V)	Δ (Delta)	IEC 60831-1/2 UL 810	CE IRAM c UL us ^{4) 5)}
MCW series Three phase Capacitor module		-	1.85...15.0 (kvar)	208...535 (V)	Δ (Delta)	IEC 60831-1/2 UL 810	CE c UL us
Accessories for capacitors		-	-	-	-	-	-
CWM series Contactors for switching of capacitors		-	Up to 77 (kvar)	Up to 690 (V)	-	IEC 60947-1 UL 508	CE c UL us
Introduction to power factor correction							31

Notes: 1) For easier identification, the capacitors are sorted according to their mechanical and electrical characteristics (see page 6 to 11).

2) For additional information, contact WEG.

3) IRAM Certification available for capacitors of the following voltage/frequency: 230 V / 50 Hz, 400 V / 50 Hz, 440 V / 50 Hz e 480 V / 50 Hz.

4) IRAM in progress to capacitors 116 x 290 mm.

5) UL in progress to capacitors 116 x 290 mm.







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