



CONTACTORS FOR CAPACITOR SWITCHING



ENGINEERED
TO OUTRUN

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Contactors for capacitor switching

AC-6b utilization category according to IEC 60947-4-1

Capacitor transient conditions

In Low Voltage industrial installations, capacitors are mainly used for reactive energy correction (raising the power factor). When these capacitors are energized, overcurrents of high amplitude and high frequencies (3 to 15 kHz) occur during the transient period (1 to 2 ms).

The amplitude of these current peaks, also known as "inrush current peaks", depends on the following factors:

- The network inductances.
- The transformer power and short-circuit voltage.
- The type of power factor correction.

There are 2 types of power factor correction: fixed or automatic.

Fixed power factor correction consists of inserting, in parallel on the network, a capacitor bank whose total power is provided by the assembly of capacitors of identical or different ratings.

The bank is energized by a contactor that simultaneously supplies all the capacitors (a single step).

The inrush current peak, in the case of fixed correction, can reach 30 times the nominal current of the capacitor bank.

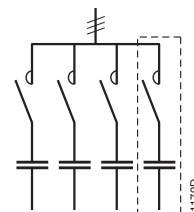


Single-step capacitor bank scheme
Use the AF..., AFC... or UAFC... contactor ranges

An automatic power factor correction system, on the other hand, consists of several capacitor banks of identical or different ratings (several steps), energized separately according to the value of the power factor to be corrected.

An electronic device automatically determines the power of the steps to be energized and activates the relevant contactors.

The inrush current peak, in the case of automatic correction, depends on the power of the steps already on duty, and can reach 100 times the nominal current of the step to be energized.



Multi-step capacitor bank scheme
Use the UAFC... or UAFC...RA contactor ranges

Steady state condition data

The presence of harmonics and the network's voltage tolerance lead to a current, estimated to be 1.3 times the nominal current I_n of the capacitor, permanently circulating in the circuit.

Taking into account the manufacturing tolerances, the exact power of a capacitor can reach 1.1 times its nominal power.

Standard IEC 60831-1 Edition 2014 specifies that the capacitor must therefore have a maximum thermal current I_T of:

$$I_T = 1.3 \times 1.1 \times I_n = 1.43 \times I_n$$

Consequences for the contactors

To avoid malfunctions (welding of main poles, abnormal temperature rise, etc.), contactors for capacitor bank switching must be sized to withstand:

- **A permanent current that can reach 1.43 times the nominal current of the capacitor bank.**
- **The short but high peak current on pole closing** (maximum permissible peak current $\hat{I}$).

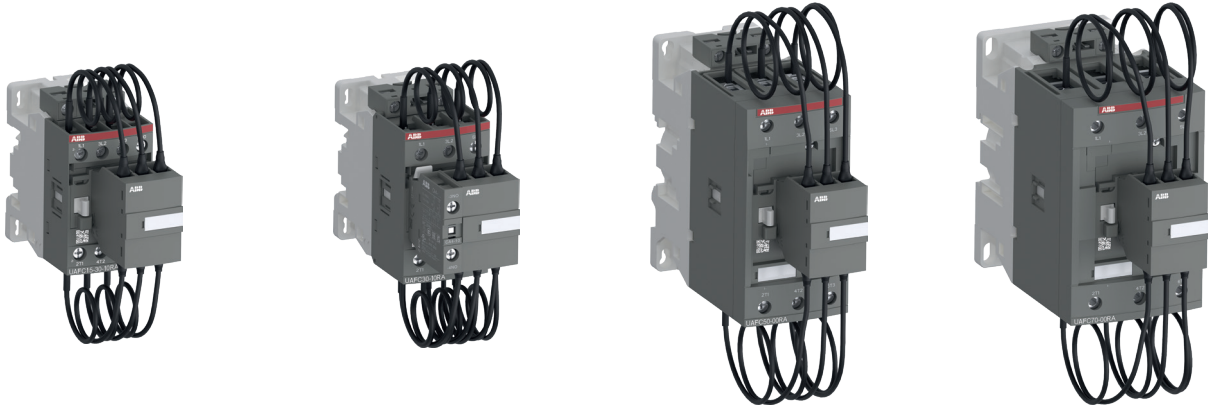
Contactors for capacitor switching

The ABB solutions

ABB offers 2 contactor versions according to the value of the inrush current peak and the power of the capacitor bank.

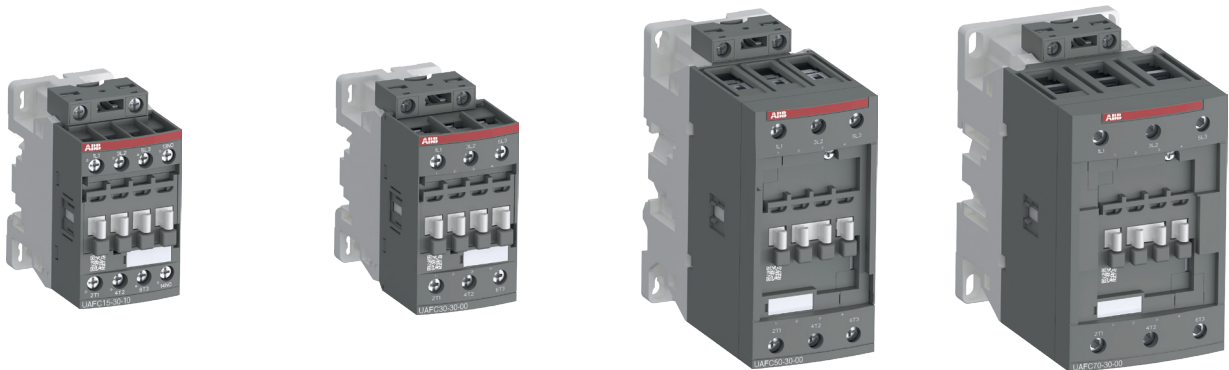
UAFC..RA contactors for capacitor switching (UAFC15..RA to UAFC70..RA) with insertion of damping resistors

The insertion of damping resistors protects the contactor and the capacitor from the highest inrush currents.
Maximum permissible peak current $\hat{I} \leq 200$ times the nominal rms current of the switched capacitor.



UAFC contactors for capacitor switching (UAFC15 to UAFC70)

Maximum permissible peak current $\hat{I} \leq 100$ times the nominal rms current of the switched capacitor.



UAFC15..RA 3-pole contactors for capacitor switching

20 kVar - Peak current $\hat{I} \leq 200$ times the rms current

AC operated



UAFC15-30-10..RA

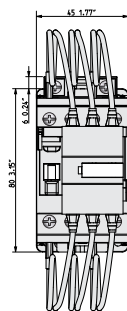
UAFC..RA contactors for capacitor switching can be used for installations in which the peak current up to 200 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

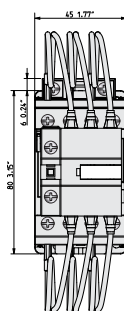
These contactors are of the block type design with:

- 3 main poles and 1 built-in auxiliary contact
- the UAFC..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
 - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
 - the insertion of resistors allows to damp current peak of the capacitor up to 200 times nominal RMS current when switched on.
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

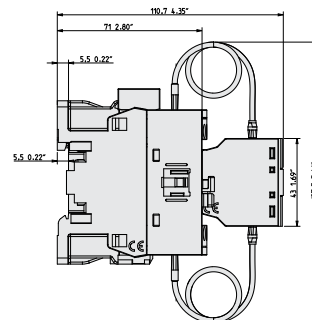
UL/CSA		Rated control circuit voltage Uc		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight Pkg (1 pce) kg
Rated operational power θ ≤ 40 °C 480 V	Rated operational power θ ≤ 40 °C 600 V									
kvar	kvar	V 50 Hz	V 60 Hz	NO	NC	NO	NC			
16	20	24	24	3	0	1	0	UAFC15-30-10RA-81	1SBL171024R8110	0,359
		110	110...120	3	0	1	0	UAFC15-30-10RA-84	1SBL171024R8410	0,359
		200	200...220	3	0	1	0	UAFC15-30-10RA-75	1SBL171024R7510	0,359
		220...230	230...240	3	0	1	0	UAFC15-30-10RA-80	1SBL171024R8010	0,359
		230...240	240...260	3	0	1	0	UAFC15-30-10RA-88	1SBL171024R8810	0,359
		380...400	400...415	3	0	1	0	UAFC15-30-10RA-85	1SBL171024R8510	0,359
		400...415	415...440	3	0	1	0	UAFC15-30-10RA-86	1SBL171024R8610	0,359
16	20	24	24	3	0	1	1	UAFC15-30-11RA-81	1SBL171024R8111	0,373
		110	110...120	3	0	1	1	UAFC15-30-11RA-84	1SBL171024R8411	0,373
		200	200...220	3	0	1	1	UAFC15-30-11RA-75	1SBL171024R7511	0,373
		220...230	230...240	3	0	1	1	UAFC15-30-11RA-80	1SBL171024R8011	0,373
		230...240	240...260	3	0	1	1	UAFC15-30-11RA-88	1SBL171024R8811	0,373
		380...400	400...415	3	0	1	1	UAFC15-30-11RA-85	1SBL171024R8511	0,373
		400...415	415...440	3	0	1	1	UAFC15-30-11RA-86	1SBL171024R8611	0,373



UAFC15-30-10/01RA



UAFC15-30-11RA



Main dimensions mm, inches

UAFC20..RA ... UAFC30..RA 3-pole contactors for capacitor switching

27 to 35 kVar - Peak current $\hat{I} \leq 200$ times the rms current

AC operated



UAFC30-30-10..RA

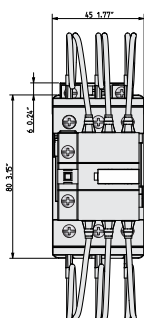
UAFC..RA contactors for capacitor switching can be used for installations in which the peak current up to 200 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

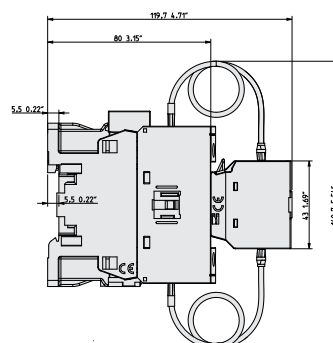
These contactors are of the block type design with:

- 3 main poles and 1 factory mounted auxiliary contact
- the UAFC..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
 - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
 - the insertion of resistors allows to damp current peak of the capacitor up to 200 times nominal RMS current when switched on.
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

UL/CSA		Rated control circuit voltage U_c		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight
Rated operational power $\theta \leq 40^\circ\text{C}$ 480 V	Rated operational power $\theta \leq 40^\circ\text{C}$ 600 V									Pkg (1 pce)
kvar	kvar	V 50 Hz	V 60 Hz	NO	NC	NO	NC			kg
22	27	24	24	3	0	1	0	UAFC20-30-10RA-81	1SBL231024R8110	0,427
		110	110...120	3	0	1	0	UAFC20-30-10RA-84	1SBL231024R8410	0,427
		200	200...220	3	0	1	0	UAFC20-30-10RA-75	1SBL231024R7510	0,427
		220...230	230...240	3	0	1	0	UAFC20-30-10RA-80	1SBL231024R8010	0,427
		230...240	240...260	3	0	1	0	UAFC20-30-10RA-88	1SBL231024R8810	0,427
		380...400	400...415	3	0	1	0	UAFC20-30-10RA-85	1SBL231024R8510	0,427
		400...415	415...440	3	0	1	0	UAFC20-30-10RA-86	1SBL231024R8610	0,427
25	27	24	24	3	0	1	0	UAFC25-30-10RA-81	1SBL271024R8110	0,427
		110	110...120	3	0	1	0	UAFC25-30-10RA-84	1SBL271024R8410	0,427
		200	200...220	3	0	1	0	UAFC25-30-10RA-75	1SBL271024R7510	0,427
		220...230	230...240	3	0	1	0	UAFC25-30-10RA-80	1SBL271024R8010	0,427
		230...240	240...260	3	0	1	0	UAFC25-30-10RA-88	1SBL271024R8810	0,427
		380...400	400...415	3	0	1	0	UAFC25-30-10RA-85	1SBL271024R8510	0,427
		400...415	415...440	3	0	1	0	UAFC25-30-10RA-86	1SBL271024R8610	0,427
28	35	24	24	3	0	1	0	UAFC30-30-10RA-81	1SBL291024R8110	0,427
		110	110...120	3	0	1	0	UAFC30-30-10RA-84	1SBL291024R8410	0,427
		200	200...220	3	0	1	0	UAFC30-30-10RA-75	1SBL291024R7510	0,427
		220...230	230...240	3	0	1	0	UAFC30-30-10RA-80	1SBL291024R8010	0,427
		230...240	240...260	3	0	1	0	UAFC30-30-10RA-88	1SBL291024R8810	0,427
		380...400	400...415	3	0	1	0	UAFC30-30-10RA-85	1SBL291024R8510	0,427
		400...415	415...440	3	0	1	0	UAFC30-30-10RA-86	1SBL291024R8610	0,427



UAFC20..RA, UAFC25..RA, UAFC30..RA



Main dimensions mm, inches

UAFC40..RA ... UAFC50..RA 3-pole contactors for capacitor switching

62 to 70 kVar - Peak current $\hat{I} \leq 200$ times the rms current

AC operated



UAFC50-30-00..RA

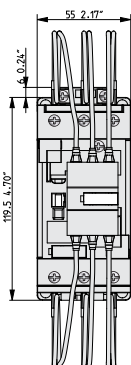
UAFC..RA contactors for capacitor switching can be used for installations in which the peak current up to 200 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

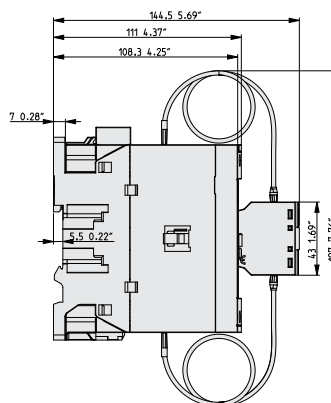
These contactors are of the block type design with:

- 3 main poles
- the UAFC..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
 - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
 - the insertion of resistors allows to damp current peak of the capacitor up to 200 times nominal RMS current when switched on.
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

UL/CSA		Rated control circuit voltage U_c		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight
Rated operational power $\theta \leq 40^\circ\text{C}$ 480 V	Rated operational power $\theta \leq 40^\circ\text{C}$ 600 V									Pkg (1 pce)
kvar	kvar	V 50 Hz	V 60 Hz	NO	NC	NO	NC			kg
50	62	24	24	3	0	0	0	UAFC40-30-00RA-81	1SBL361024R8100	1,045
		110	110...120	3	0	0	0	UAFC40-30-00RA-84	1SBL361024R8400	1,045
		200	200...220	3	0	0	0	UAFC40-30-00RA-75	1SBL361024R7500	1,045
		220...230	230...240	3	0	0	0	UAFC40-30-00RA-80	1SBL361024R8000	1,045
		230...240	240...260	3	0	0	0	UAFC40-30-00RA-88	1SBL361024R8800	1,045
		380...400	400...415	3	0	0	0	UAFC40-30-00RA-85	1SBL361024R8500	1,045
		400...415	415...440	3	0	0	0	UAFC40-30-00RA-86	1SBL361024R8600	1,045
55	70	24	24	3	0	0	0	UAFC50-30-00RA-81	1SBL381024R8100	1,045
		110	110...120	3	0	0	0	UAFC50-30-00RA-84	1SBL381024R8400	1,045
		200	200...220	3	0	0	0	UAFC50-30-00RA-75	1SBL381024R7500	1,045
		220...230	230...240	3	0	0	0	UAFC50-30-00RA-80	1SBL381024R8000	1,045
		230...240	240...260	3	0	0	0	UAFC50-30-00RA-88	1SBL381024R8800	1,045
		380...400	400...415	3	0	0	0	UAFC50-30-00RA-85	1SBL381024R8500	1,045
		400...415	415...440	3	0	0	0	UAFC50-30-00RA-86	1SBL381024R8600	1,045



UAFC40..RA, UAFC50..RA

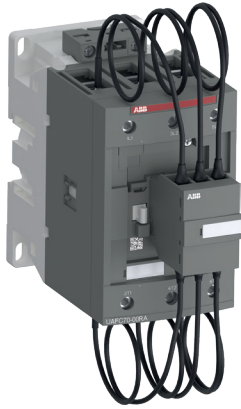


Main dimensions mm, inches

UAFC65..RA ... UAFC70..RA 3-pole contactors for capacitor switching

80 to 100 kVar - Peak current $\hat{I} \leq 200$ times the rms current

AC operated



UAFC70-30-00..RA

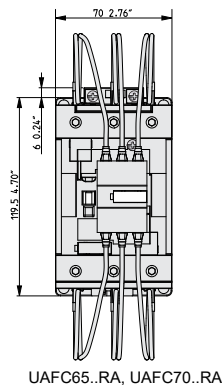
UAFC..RA contactors for capacitor switching can be used for installations in which the peak current up to 200 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

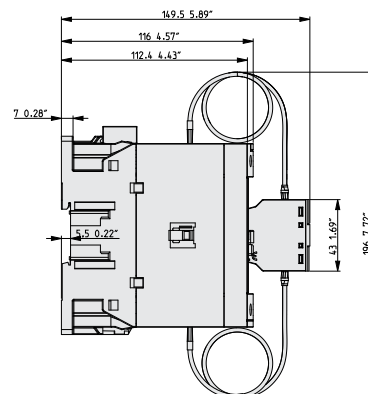
These contactors are of the block type design with:

- 3 main poles
- the UAFC..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
 - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
 - the insertion of resistors allows to damp current peak of the capacitor up to 200 times nominal RMS current when switched on.
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

UL/CSA		Rated control circuit voltage U_c		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight
Rated operational power $\theta \leq 40^\circ\text{C}$ 480 V	Rated operational power $\theta \leq 40^\circ\text{C}$ 600 V									Pkg (1 pce)
kvar	kvar	V 50 Hz	V 60 Hz	NO	NC	NO	NC			kg
65	80	24	24	3	0	0	0	UAFC65-30-00RA-81	1SBL391024R8100	1,278
		110	110...120	3	0	0	0	UAFC65-30-00RA-84	1SBL391024R8400	1,278
		200	200...220	3	0	0	0	UAFC65-30-00RA-75	1SBL391024R7500	1,278
		220...230	230...240	3	0	0	0	UAFC65-30-00RA-80	1SBL391024R8000	1,278
		230...240	240...260	3	0	0	0	UAFC65-30-00RA-88	1SBL391024R8800	1,278
		380...400	400...415	3	0	0	0	UAFC65-30-00RA-85	1SBL391024R8500	1,278
		400...415	415...440	3	0	0	0	UAFC65-30-00RA-86	1SBL391024R8600	1,278
80	100	24	24	3	0	0	0	UAFC70-30-00RA-81	1SBL401024R8100	1,278
		110	110...120	3	0	0	0	UAFC70-30-00RA-84	1SBL401024R8400	1,278
		200	200...220	3	0	0	0	UAFC70-30-00RA-75	1SBL401024R7500	1,278
		220...230	230...240	3	0	0	0	UAFC70-30-00RA-80	1SBL401024R8000	1,278
		230...240	240...260	3	0	0	0	UAFC70-30-00RA-88	1SBL401024R8800	1,278
		380...400	400...415	3	0	0	0	UAFC70-30-00RA-85	1SBL401024R8500	1,278
		400...415	415...440	3	0	0	0	UAFC70-30-00RA-86	1SBL401024R8600	1,278



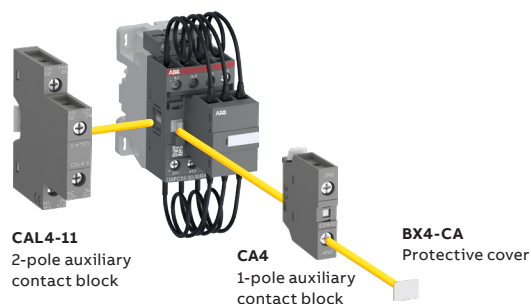
UAFC65..RA, UAFC70..RA



Main dimensions mm, inches

UAFC..RA 3-pole contactors for capacitor switching

$\hat{I} \leq 200$ times the rms current



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles		Available auxiliary contacts	Front-mounted accessories Auxiliary contact blocks				Side-mounted accessories Auxiliary contact blocks	
	NO	NC		1-pole CA4	2-pole CA4	2-pole CAT4-11	4-pole CA4	Left side	Right side
UAFC15..RA	3	0	1 0	1 max.	-	-	-	+	1
UAFC15..RA	3	0	0 1	1 max.	-	-	-	+	1
UAFC15..RA	3	0	1 1	-	-	-	-	+	1
UAFC20..RA...UAFC30..RA	3	0	0 0	1 max.	-	-	-	+	1
UAFC20..RA...UAFC30..RA	3	0	1 0	-	-	-	-	+	1
UAFC40..RA...UAFC50..RA	3	0	0 0	1 max.	-	-	-	+	1
UAFC65..RA...UAFC70..RA	3	0	0 0	1 max.	-	-	-	+	1
UAF65..RA...UAF70..RA	3	0	0 0	1 max.	-	-	-	+	1

(1) Including add-on and built-in contacts : 4 N.C. auxiliary contacts max on positions 1, 2, 3, 4 and 3 N.C. auxiliary contacts max. on positions 1 ±30°, 5.

UAFC15 ... UAFC30 3-pole contactors for capacitor switching

20 to 40 kVar - Peak current $\hat{I} \leq 100$ times the rms current

AC operated



UAFC15-30-10



UAFC30-30-00

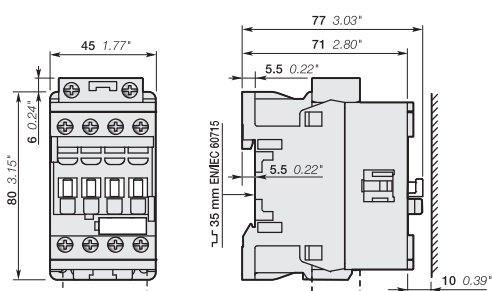
UAFC contactors can be used for the switching of capacitor banks whose inrush current peaks are less than or equal to 100 times nominal rms current.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

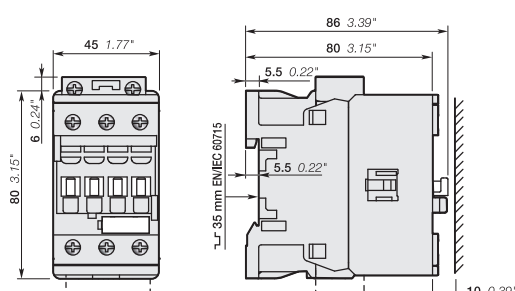
These contactors are of the block type design with:

- 3 main poles (UAFC15 is with 1 built-in auxiliary contact)
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

UL/CSA		Rated control circuit voltage U_c		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight Pkg (1 pce) kg
Rated operational power $\theta \leq 40^\circ\text{C}$ 480 V	Rated operational power $\theta \leq 40^\circ\text{C}$ 600 V	V 50 Hz	V 60 Hz	NO	NC	NO	NC			
15	20	24	24	3	0	1	0	UAFC15-30-10-81	1SBL171022R8110	0,323
		110	110...120	3	0	1	0	UAFC15-30-10-84	1SBL171022R8410	0,323
		200	200...220	3	0	1	0	UAFC15-30-10-75	1SBL171022R7510	0,323
		220...230	230...240	3	0	1	0	UAFC15-30-10-80	1SBL171022R8010	0,323
		230...240	240...260	3	0	1	0	UAFC15-30-10-88	1SBL171022R8810	0,323
		380...400	400...415	3	0	1	0	UAFC15-30-10-85	1SBL171022R8510	0,323
		400...415	415...440	3	0	1	0	UAFC15-30-10-86	1SBL171022R8610	0,323
20	30	24	24	3	0	0	0	UAFC20-30-00-81	1SBL231022R8100	0,373
		110	110...120	3	0	0	0	UAFC20-30-00-84	1SBL231022R8400	0,373
		200	200...220	3	0	0	0	UAFC20-30-00-75	1SBL231022R7500	0,373
		220...230	230...240	3	0	0	0	UAFC20-30-00-80	1SBL231022R8000	0,373
		230...240	240...260	3	0	0	0	UAFC20-30-00-88	1SBL231022R8800	0,373
		380...400	400...415	3	0	0	0	UAFC20-30-00-85	1SBL231022R8500	0,373
		400...415	415...440	3	0	0	0	UAFC20-30-00-86	1SBL231022R8600	0,373
25	30	24	24	3	0	0	0	UAFC25-30-00-81	1SBL271022R8100	0,373
		110	110...120	3	0	0	0	UAFC25-30-00-84	1SBL271022R8400	0,373
		200	200...220	3	0	0	0	UAFC25-30-00-75	1SBL271022R7500	0,373
		220...230	230...240	3	0	0	0	UAFC25-30-00-80	1SBL271022R8000	0,373
		230...240	240...260	3	0	0	0	UAFC25-30-00-88	1SBL271022R8800	0,373
		380...400	400...415	3	0	0	0	UAFC25-30-00-85	1SBL271022R8500	0,373
		400...415	415...440	3	0	0	0	UAFC25-30-00-86	1SBL271022R8600	0,373
32	40	24	24	3	0	0	0	UAFC30-30-00-81	1SBL291022R8100	0,373
		110	110...120	3	0	0	0	UAFC30-30-00-84	1SBL291022R8400	0,373
		200	200...220	3	0	0	0	UAFC30-30-00-75	1SBL291022R7500	0,373
		220...230	230...240	3	0	0	0	UAFC30-30-00-80	1SBL291022R8000	0,373
		230...240	240...260	3	0	0	0	UAFC30-30-00-88	1SBL291022R8800	0,373
		380...400	400...415	3	0	0	0	UAFC30-30-00-85	1SBL291022R8500	0,373
		400...415	415...440	3	0	0	0	UAFC30-30-00-86	1SBL291022R8600	0,373



UAFC15



UAFC20, UAFC25, UAFC30

Main dimensions mm, inches

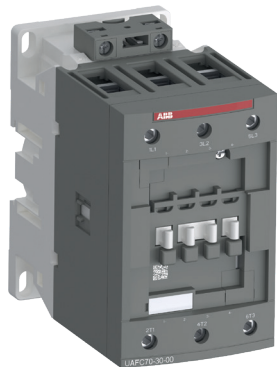
UAFC40 ... UAFC70 3-pole contactors for capacitor switching

50 to 75 kVar - Peak current $\hat{I} \leq 100$ times the rms current

AC operated



UAFC50-30-00



UAFC70-30-00

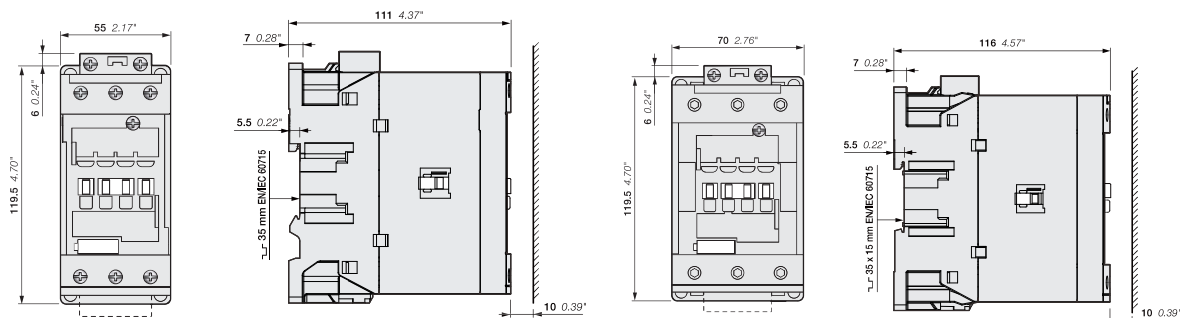
UAFC contactors can be used for the switching of capacitor banks whose inrush current peaks are less than or equal to 100 times nominal rms current.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

These contactors are of the block type design with:

- 3 main poles
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

UL/CSA		Rated control circuit voltage U_c		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight Pkg (1 pce) kg
Rated operational power $\theta \leq 40^\circ\text{C}$ 480 V	Rated operational power $\theta \leq 40^\circ\text{C}$ 600 V	V 50 Hz	V 60 Hz	NO	NC	NO	NC			
kvar	kvar									
40	50	24	24	3	0	0	0	UAFC40-30-00-81	1SBL361022R8100	0,998
		110	110...120	3	0	0	0	UAFC40-30-00-84	1SBL361022R8400	0,998
		200	200...220	3	0	0	0	UAFC40-30-00-75	1SBL361022R7500	0,998
		220...230	230...240	3	0	0	0	UAFC40-30-00-80	1SBL361022R8000	0,998
		230...240	240...260	3	0	0	0	UAFC40-30-00-88	1SBL361022R8800	0,998
		380...400	400...415	3	0	0	0	UAFC40-30-00-85	1SBL361022R8500	0,998
		400...415	415...440	3	0	0	0	UAFC40-30-00-86	1SBL361022R8600	0,998
45	55	24	24	3	0	0	0	UAFC50-30-00-81	1SBL381022R8100	0,998
		110	110...120	3	0	0	0	UAFC50-30-00-84	1SBL381022R8400	0,998
		200	200...220	3	0	0	0	UAFC50-30-00-75	1SBL381022R7500	0,998
		220...230	230...240	3	0	0	0	UAFC50-30-00-80	1SBL381022R8000	0,998
		230...240	240...260	3	0	0	0	UAFC50-30-00-88	1SBL381022R8800	0,998
		380...400	400...415	3	0	0	0	UAFC50-30-00-85	1SBL381022R8500	0,998
		400...415	415...440	3	0	0	0	UAFC50-30-00-86	1SBL381022R8600	0,998
55	70	24	24	3	0	0	0	UAFC65-30-00-81	1SBL391022R8100	1,183
		110	110...120	3	0	0	0	UAFC65-30-00-84	1SBL391022R8400	1,183
		200	200...220	3	0	0	0	UAFC65-30-00-75	1SBL391022R7500	1,183
		220...230	230...240	3	0	0	0	UAFC65-30-00-80	1SBL391022R8000	1,183
		230...240	240...260	3	0	0	0	UAFC65-30-00-88	1SBL391022R8800	1,183
		380...400	400...415	3	0	0	0	UAFC65-30-00-85	1SBL391022R8500	1,183
		400...415	415...440	3	0	0	0	UAFC65-30-00-86	1SBL391022R8600	1,183
70	75	24	24	3	0	0	0	UAFC70-30-00-81	1SBL401022R8100	1,183
		110	110...120	3	0	0	0	UAFC70-30-00-84	1SBL401022R8400	1,183
		200	200...220	3	0	0	0	UAFC70-30-00-75	1SBL401022R7500	1,183
		220...230	230...240	3	0	0	0	UAFC70-30-00-80	1SBL401022R8000	1,183
		230...240	240...260	3	0	0	0	UAFC70-30-00-88	1SBL401022R8800	1,183
		380...400	400...415	3	0	0	0	UAFC70-30-00-85	1SBL401022R8500	1,183
		400...415	415...440	3	0	0	0	UAFC70-30-00-86	1SBL401022R8600	1,183



UAFC40, UAFC50-30-00

UAFC65, UAFC70-30-00

Main dimensions mm, inches

UAFC40 ... UAFC70 3-pole contactors for capacitor switching

50 to 75 kVar - Peak current $\hat{I} \leq 100$ times the rms current

AC operated with 1 N.O. + 1 N.C. auxiliary contacts AC operated



UAFC50-30-11



UAFC70-30-11

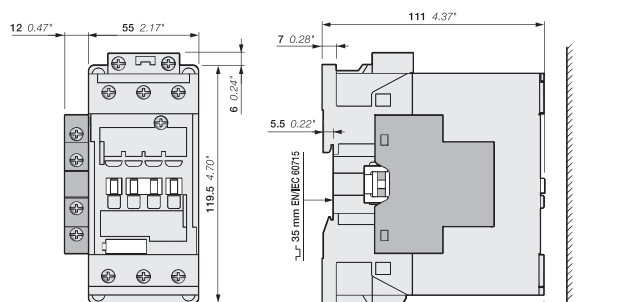
UAFC contactors can be used for the switching of capacitor banks whose inrush current peaks are less than or equal to 100 times nominal rms current.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

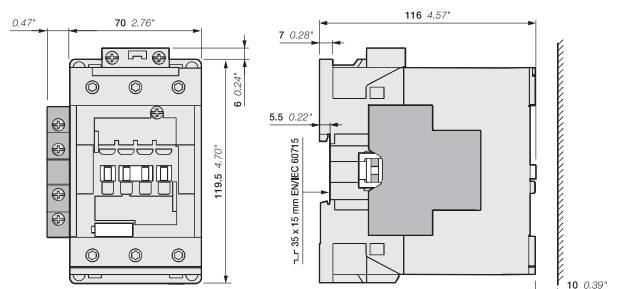
These contactors are of the block type design with:

- 3 main poles and 2 factory mounted auxiliary contact
- control circuit: AC operated
- add-on auxiliary contact blocks for front and side mounting and a wide range of accessories.

UL/CSA		Rated control circuit voltage U_c		Main contacts fitted		Auxiliary contacts fitted		Type	Order code	Weight Pkg (1 pce) kg
Rated operational power $\theta \leq 40^\circ\text{C}$ 480 V	Rated operational power $\theta \leq 40^\circ\text{C}$ 600 V	V 50 Hz	V 60 Hz	NO	NC	NO	NC			
kvar 40	kvar 50	24	24	3	0	1	1	UAFC40-30-11-81	1SBL361022R8111	1,037
		110	110...120	3	0	1	1	UAFC40-30-11-84	1SBL361022R8411	1,037
		200	200...220	3	0	1	1	UAFC40-30-11-75	1SBL361022R7511	1,037
		220...230	230...240	3	0	1	1	UAFC40-30-11-80	1SBL361022R8011	1,037
		230...240	240...260	3	0	1	1	UAFC40-30-11-88	1SBL361022R8811	1,037
		380...400	400...415	3	0	1	1	UAFC40-30-11-85	1SBL361022R8511	1,037
		400...415	415...440	3	0	1	1	UAFC40-30-11-86	1SBL361022R8611	1,037
45	55	24	24	3	0	1	1	UAFC50-30-11-81	1SBL381022R8111	1,037
		110	110...120	3	0	1	1	UAFC50-30-11-84	1SBL381022R8411	1,037
		200	200...220	3	0	1	1	UAFC50-30-11-75	1SBL381022R7511	1,037
		220...230	230...240	3	0	1	1	UAFC50-30-11-80	1SBL381022R8011	1,037
		230...240	240...260	3	0	1	1	UAFC50-30-11-88	1SBL381022R8811	1,037
		380...400	400...415	3	0	1	1	UAFC50-30-11-85	1SBL381022R8511	1,037
		400...415	415...440	3	0	1	1	UAFC50-30-11-86	1SBL381022R8611	1,037
55	70	24	24	3	0	1	1	UAFC65-30-11-81	1SBL391022R8111	1,221
		110	110...120	3	0	1	1	UAFC65-30-11-84	1SBL391022R8411	1,221
		200	200...220	3	0	1	1	UAFC65-30-11-75	1SBL391022R7511	1,221
		220...230	230...240	3	0	1	1	UAFC65-30-11-80	1SBL391022R8011	1,221
		230...240	240...260	3	0	1	1	UAFC65-30-11-88	1SBL391022R8811	1,221
		380...400	400...415	3	0	1	1	UAFC65-30-11-85	1SBL391022R8511	1,221
		400...415	415...440	3	0	1	1	UAFC65-30-11-86	1SBL391022R8611	1,221
70	75	24	24	3	0	1	1	UAFC70-30-11-81	1SBL401022R8111	1,221
		110	110...120	3	0	1	1	UAFC70-30-11-84	1SBL401022R8411	1,221
		200	200...220	3	0	1	1	UAFC70-30-11-75	1SBL401022R7511	1,221
		220...230	230...240	3	0	1	1	UAFC70-30-11-80	1SBL401022R8011	1,221
		230...240	240...260	3	0	1	1	UAFC70-30-11-88	1SBL401022R8811	1,221
		380...400	400...415	3	0	1	1	UAFC70-30-11-85	1SBL401022R8511	1,221
		400...415	415...440	3	0	1	1	UAFC70-30-11-86	1SBL401022R8611	1,221



UAFC40, UAFC50-30-11

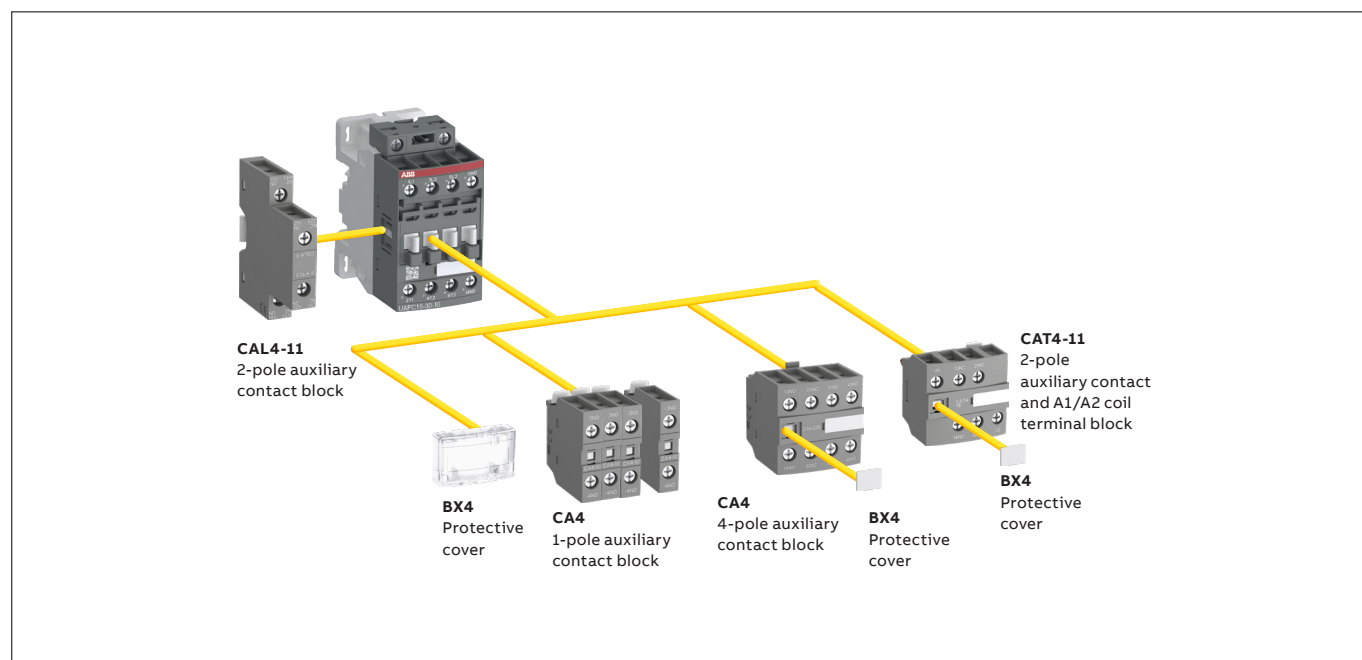


UAFC65, UAFC70-30-11

Main dimensions mm, inches

UAFC 3-pole contactors for capacitor switching

Contactors and main accessories



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles		Available auxiliary contacts	Front-mounted accessories Auxiliary contact blocks						Side-mounted accessories Auxiliary contact blocks	
	NO	NC	NO NC	1-pole CA4	2-pole CA4	2-pole CAT4-11	4-pole CA4			Left side	Right side
UAFC15	3	0	1	4 max.	or 2 max.	or 1	or 1	+	1	1	or 1 ⁽¹⁾
				2 max.	or 1 max.	or 1	or -	+	1	+1 ⁽¹⁾	
UAFC20...UAFC30	3	0	0	3 max.	or 1 max.	or -	or -	+	1	1	or 1 ⁽¹⁾
UAFC40...UAFC50	3	0	0	4 max.	or 2 max.	or 1	or -	+	1	1	+1
UAFC65...UAFC70	3	0	0	4 max.	or 2 max.	or -	or -	+	1	1	+1

(1) Including add-on and built-in contacts : 4 N.C. auxiliary contacts max on positions 1, 2, 3, 4 and 3 N.C. auxiliary contacts max. on positions 1 ±30°, 5.

UAFC15..RA ... UAFC70..RA 3-pole contactors for capacitor switching

Peak current $\hat{I} \leq 200$ times the rms current

Technical data

MAIN POLE - UTILIZATION CHARACTERISTICS ACCORDING TO IEC

Contactor types	AC operated	UAFC15..RA	UAFC20..RA	UAFC25..RA	UAFC30..RA	UAFC40..RA	UAFC50..RA	UAFC65..RA	UAFC70..RA	
Standards		IEC/EN 60947-1, IEC/EN 60947-4-1								
Rated operational voltage U_e max.		690 V						1000 V		
Rated frequency (without derating)		50 / 60 Hz								
Pollution degree		3								
AC-6b Utilization category										
Rated operational power AC-6b (1)										
For air temperature close to contactor	$\theta \leq 40^\circ\text{C}$	230-240 V	8.7 kvar	11.5 kvar	14.5 kvar	17.5 kvar	23 kvar	28.7 kvar	37.5 kvar	40 kvar
		400-415 V	15 kvar	20 kvar	25 kvar	30 kvar	40 kvar	50 kvar	65 kvar	70 kvar
		440 V	16.5 kvar	22 kvar	27.5 kvar	33 kvar	44 kvar	55 kvar	71.5 kvar	77 kvar
		500-550 V	18 kvar	30 kvar	31 kvar	34 kvar	55 kvar	65 kvar	78.5 kvar	85 kvar
		690 V	22 kvar	35 kvar	42 kvar	45 kvar	72 kvar	80 kvar	108.5 kvar	120 kvar
	$\theta \leq 55^\circ\text{C}$	230-240 V	7 kvar	11.5 kvar	12 kvar	15.7 kvar	23 kvar	26 kvar	29.5 kvar	35 kvar
		400-415 V	12.5 kvar	20 kvar	21 kvar	27.5 kvar	40 kvar	45 kvar	51 kvar	61 kvar
		440 V	13.7 kvar	22 kvar	23 kvar	30 kvar	44 kvar	49.5 kvar	56 kvar	67 kvar
		500-550 V	16 kvar	25 kvar	26 kvar	34 kvar	50 kvar	60 kvar	63.5 kvar	75 kvar
		690 V	21 kvar	31 kvar	35 kvar	45 kvar	65 kvar	75 kvar	88 kvar	105 kvar
	$\theta \leq 70^\circ\text{C}$	230-240 V	5.7 kvar	9 kvar	10.5 kvar	11 kvar	20 kvar	22.5 kvar	25 kvar	30 kvar
		400-415 V	10 kvar	15.5 kvar	18 kvar	19.5 kvar	35 kvar	39 kvar	43.5 kvar	53 kvar
		440 V	11 kvar	17 kvar	19.5 kvar	21 kvar	38.5 kvar	42.5 kvar	47.5 kvar	58 kvar
		500-550 V	12.5 kvar	20 kvar	22.5 kvar	25 kvar	46 kvar	50 kvar	54.5 kvar	70 kvar
		690 V	17 kvar	26 kvar	31 kvar	32 kvar	60 kvar	65 kvar	75 kvar	85 kvar
Max. permissible peak current $\hat{I}$		$\leq 200 \times I_n$								
Short-circuit protection device for contactors gG type fuse (2)		40 A	63 A	63 A	63 A	160 A	160 A	200 A	200 A	
Maximum breaking capacity $\cos \varphi = 0.45$	at 440 V	250 A	500 A	500 A	500 A	950 A	950 A	1150 A	1150 A	
	at 690 V	106 A	200 A	200 A	200 A	600 A	600 A	750 A	750 A	
	$I_e / \text{AC-6b}$	0.6 W	0.7 W	1.3 W	1.8 W	2.1 W	3.3 W	4.3 W	5 W	
Max. electrical switching frequency		240 cycles/h					120 cycles/h			
Electrical durability AC-6b	$U_e \leq 440 \text{ V}$	300 000 operating cycles								
	$500 \text{ V} \leq U_e \leq 690 \text{ V}$	100 000 operating cycles						60 000 operating cycles		

(1) For 220 V and 380 V, multiply by 0.9 the rated values at 230 V and 400 V respectively. Example: 50 kvar / 400 V corresponding to $0.9 \times 50 = 45 \text{ kvar} / 380 \text{ V}$.

(2) The fuse ratings given represent the maximum ratings ensuring type 1 coordination according to the definition of standard IEC 60947-4-1.

MAIN POLE - UTILIZATION CHARACTERISTICS ACCORDING TO UL / CSA

Contactor types	AC operated	UAFC15..RA	UAFC20..RA	UAFC25..RA	UAFC30..RA	UAFC40..RA	UAFC50..RA	UAFC65..RA	UAFC70..RA
Power - 60 Hz									
For air temperature close to contactor $\theta \leq 40^\circ\text{C}$	240 V	8 kvar	11 kvar	12 kvar	14 kvar	25 kvar	27.5 kvar	32 kvar	40 kvar
	480 V	16 kvar	22 kvar	25 kvar	28 kvar	50 kvar	55 kvar	65 kvar	80 kvar
	600 V	20 kvar	27 kvar	27 kvar	35 kvar	62 kvar	70 kvar	80 kvar	100 kvar
Max. permissible peak Current $\hat{I}$	$U_e \leq 480 \text{ V}$	4.4 kA	5.8 kA	7.2 kA	8.7 kA	10.5 kA	12 kA	13.5 kA	15 kA
	$U_e > 480 \text{ V}$	3.7 kA	5.8 kA	7.1 kA	7.6 kA	10.5 kA	12 kA	13.5 kA	15 kA

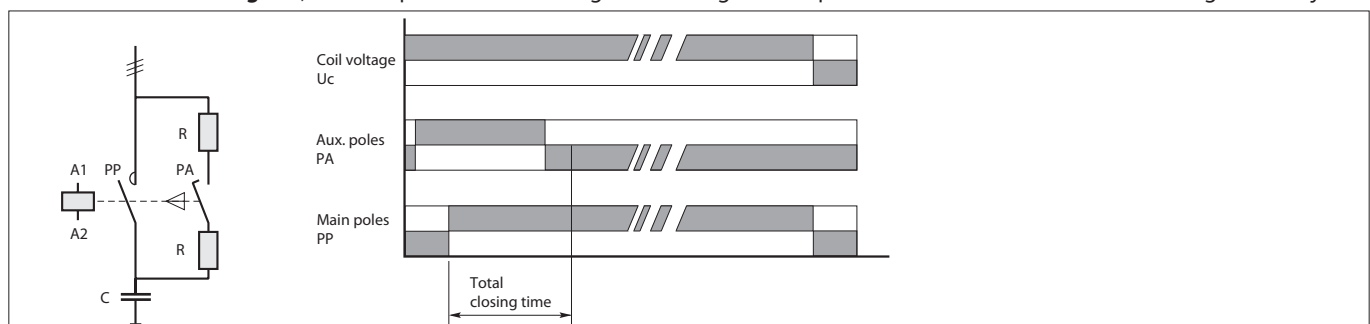
Operating principle

The front-mounted block mechanism of the UA..RA contactors ensures:

- early making of the auxiliary "PA" poles with respect to the main "PP" poles
- automatic return to the open position of the auxiliary "PA" poles after the main poles are closed.

When the coil is energized, the early making auxiliary poles connect the capacitor to the network via the set of 3 resistors. The damping resistors attenuate the first current peak and the second inrush current when the main contacts begin to make. Once the main poles are in the closed position, the auxiliary poles automatically break.

When the coil is de-energized, the main poles break ensuring the breaking of the capacitor bank. The contactor can then begin a new cycle.



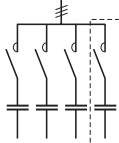
The insertion of resistors allows to damp the highest current peak of the capacitor when switching on, whatever its level.

UAFC15 ... UAFC70 3-pole contactors for capacitor switching

Peak current $\hat{I} \leq 100$ times the rms current

Technical data

MAIN POLE - UTILIZATION CHARACTERISTICS ACCORDING TO IEC

Contactor types	AC operated	UAFC15	UAFC20	UAFC25	UAFC30	UAFC40	UAFC50	UAFC65	UAFC70
Standards	IEC/EN 60947-1, IEC/EN 60947-4-1								
Rated operational voltage Ue max.	690 V								
Rated frequency (without derating)	50 / 60 Hz								
AC-6b Utilization category									
Rated operational power AC-6b (1)									
For air temperature close $\theta \leq 40^{\circ}\text{C}$ to contactor									
	230-240 V	8.7 kvar	11.5 kvar	14.5 kvar	17.5 kvar	23 kvar	28.7 kvar	37.5 kvar	40 kvar
	400-415 V	15 kvar	20 kvar	25 kvar	30 kvar	40 kvar	50 kvar	65 kvar	70 kvar
	440 V	15.5 kvar	22 kvar	27 kvar	33 kvar	40 kvar	50 kvar	67 kvar	70 kvar
	500-550 V	15.5 kvar	25 kvar	27 kvar	34 kvar	40 kvar	50 kvar	67 kvar	70 kvar
	690 V	21.5 kvar	28 kvar	30 kvar	45 kvar	55 kvar	70 kvar	77 kvar	80 kvar
	$\theta \leq 60^{\circ}\text{C}$								
	230-240 V	6.7 kvar	9.5 kvar	10.5 kvar	15.7 kvar	19 kvar	24.7 kvar	29.5 kvar	37.5 kvar
	400-415 V	11.7 kvar	16.5 kvar	18.5 kvar	27.5 kvar	33 kvar	43 kvar	51 kvar	65 kvar
	440 V	12.7 kvar	18 kvar	20 kvar	30 kvar	36 kvar	47 kvar	56 kvar	70 kvar
	500-550 V	14.7 kvar	20 kvar	22 kvar	34 kvar	40 kvar	50 kvar	64 kvar	70 kvar
Multi-step capacitor bank scheme									
$\theta \leq 70^{\circ}\text{C}$									
230-240 V	5.7 kvar	7.5 kvar	8.5 kvar	11 kvar	18.5 kvar	21.5 kvar	23.7 kvar	31.5 kvar	
400-415 V	10 kvar	12.5 kvar	14.5 kvar	19 kvar	32 kvar	37 kvar	41 kvar	55 kvar	
440 V	11 kvar	13.7 kvar	15.7 kvar	20.7 kvar	35 kvar	40.7 kvar	45 kvar	60 kvar	
500-550 V	12.5 kvar	17.5 kvar	19.5 kvar	23.5 kvar	40 kvar	45 kvar	51.5 kvar	60 kvar	
690 V	17 kvar	22 kvar	25 kvar	32 kvar	52 kvar	60 kvar	67 kvar	70 kvar	
Max. permissible peak current $\hat{I}$									
$U_e \leq 500\text{ V}$									
		1.8 kA	2.5 kA	3 kA	3.5 kA	5 kA	6.5 kA	8.0 kA	9.0 kA
$U_e > 500\text{ V}$									
		1.6 kA	2.4 kA	2.7 kA	3.1 kA	4.5 kA	5.8 kA	7.0 kA	7.5 kA
Short-circuit protection device for contactors									
gG type fuse									
sized 1.5...1.8 In of the capacitor									
Max. electrical switching frequency									
240 cycles/h						120 cycles/h			
Electrical durability AC-6b									
$U_e \leq 690\text{ V}$		100 000 operating cycles							

(1) For 220 V and 380 V, multiply by 0.9 the rated values at 230 V and 400 V respectively.

Example: 50 kvar / 400 V corresponding to $0.9 \times 50 = 45$ kvar/380 V.

If, in an application, the current peak is greater than the maximum peak current $\hat{I}$ specified in the tables above, select a higher rating, refer to the UAFC...RA contactors, or add inductances. (see application guide "Contactors for capacitor switching").

MAIN POLE - UTILIZATION CHARACTERISTICS ACCORDING TO UL / CSA

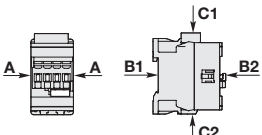
Contactor types	AC operated	UAFC15	UAFC20	UAFC25	UAFC30	UAFC40	UAFC50	UAFC65	UAFC70
Power - 60 Hz									
For air temperature close $\theta \leq 40^\circ\text{C}$ to contactor									
	240 V	7.5 kvar	12.5 kvar	12.5 kvar	16 kvar	20 kvar	22 kvar	27.5 kvar	35 kvar
	480 V	15 kvar	20 kvar	25 kvar	32 kvar	40 kvar	45 kvar	55 kvar	70 kvar
	600 V	20 kvar	30 kvar	30 kvar	40 kvar	50 kvar	55 kvar	70 kvar	75 kvar

If, in an application, the current peak is greater than the maximum peak current $\hat{I}$ specified in the tables above, select a higher rating, refer to the UA...RA contactors, or add inductances. (see application guide "Contactors for capacitor switching").

UAFC15..(RA) ... UAFC30..(RA) 3-pole contactors for capacitor switching

Technical data

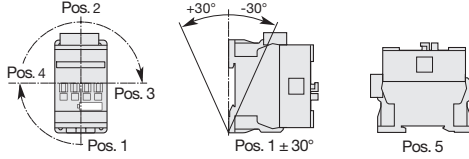
GENERAL TECHNICAL DATA

Contactor types	AC operated	UAFC15..(RA)	UAFC20..(RA)	UAFC25..(RA)	UAFC30..(RA)
Rated insulation voltage U_i acc. to IEC 60947-4-1		690 V			
acc. to UL / CSA		600 V			
Rated impulse withstand voltage U_{imp}		6 kV			
Pollution degree		3			
Ambient air temperature close to contactor					
Operation		-40...+70 °C			
Storage		-60...+80 °C			
Climatic withstand		Category B according to IEC 60947-1 Annex Q			
Maximum operating altitude (without derating)		3000 m			
Mechanical durability					
Number of operating cycles		UAFC..RA: 3 millions operating cycles, UAFC: 10 millions operating cycles			
Max. switching frequency		3600 cycles/h			
Shock withstand acc. to IEC 60068-2-27 and EN 60068-2-27					
Mounting position 1					
	Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position			
	A	30 g			
	B1	25 g closed position / 5 g open position			
	B2	15 g			
	C1	25 g			
	C2	25 g			
Vibration withstand acc. to IEC 60068-2-6		5...300 Hz 4 g closed position / 2 g open position			

MAGNET SYSTEM CHARACTERISTICS FOR UAFC15..(RA) ... UAFC30..(RA)

Contactor types	AC operated	UAFC15..(RA)	UAFC20..(RA)	UAFC25..(RA)	UAFC30..(RA)
Coil operating limits acc. to IEC 60947-4-1	AC supply	At $\theta \leq 60^\circ\text{C}$ 0.85...1.1 x U_c At $\theta \leq 70^\circ\text{C}$ 1 x U_c			
AC control voltage					
Rated control circuit voltage U_c	50 Hz	24...415 V			
	60 Hz	24...480 V			
Coil consumption	Average pull-in value at 50 Hz	70 VA			
	at 60 Hz	66 VA			
	Average holding value	8 VA / 2.3 W			
Drop-out voltage	50 Hz	40...65 % of U_c min.			
	60 Hz	40...70 % of U_c min.			
Operating time (-40°C ... +60°C)					
Between coil energization and:	N.O. contact closing	10...26 ms			
	N.C. contact opening	7...21 ms			
Between coil de-energization and:	N.O. contact opening	4...18 ms			
	N.C. contact closing	9...20 ms			

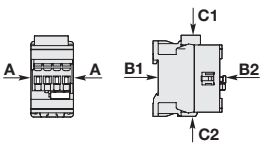
MOUNTING CHARACTERISTICS AND CONDITIONS FOR USE

Contactor types	AC operated	UAFC15..(RA)	UAFC20..(RA)	UAFC25..(RA)	UAFC30..(RA)
Mounting positions					
		Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-pole contactor UAFC15..(RA) ... UAFC30..(RA)			
Mounting distances		see accessory fitting details for a 3-pole contactor UAFC15..(RA) ... UAFC30..(RA)			
Fixing					
On rail according to IEC 60715, EN 60715		35 x 7.5 mm or 35 x 15 mm			
By screws (not supplied)		2 x M4 screws placed diagonally			

UAFC40..(RA) ... UAFC70..(RA) 3-pole contactors for capacitor switching

Technical data

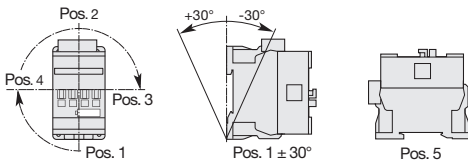
GENERAL TECHNICAL DATA

Contactor types	AC operated	UAFC40..(RA)	UAFC50..(RA)	UAFC65..(RA)	UAFC70..(RA)
Rated insulation voltage U_i acc. to IEC 60947-4-1		690 V		1000 V	
acc. to UL / CSA		600 V			
Rated impulse withstand voltage U_{imp}		6 kV		8 kV	
Pollution degree		3			
Ambient air temperature close to contactor					
Operation		-40...+70 °C			
Storage		-60...+80 °C			
Climatic withstand		Category B according to IEC 60947-1 Annex Q			
Maximum operating altitude (without derating)		3000 m			
Mechanical durability		UAFC..RA: 3 millions operating cycles, UAFC: 10 millions operating cycles			
Number of operating cycles					
Max. switching frequency		3600 cycles/h			
Shock withstand acc. to IEC 60068-2-27 and EN 60068-2-27					
Mounting position 1					
	Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position			
	A	25 g			
	B1	25 g closed position / 5 g open position			
	B2	15 g			
	C1	25 g			
	C2	25 g			
Vibration withstand acc. to IEC 60068-2-6		5...300 Hz 3 g closed position / 3 g open position			

MAGNET SYSTEM CHARACTERISTICS

Contactor types	AC operated	UAFC40..(RA)	UAFC50..(RA)	UAFC65..(RA)	UAFC70..(RA)
Coil operating limits acc. to IEC 60947-4-1	AC supply	At $\theta \leq 60^\circ \text{C}$ 0.85...1.1 x U_c At 70°C U_c			
AC control voltage					
Rated control circuit voltage U_c	50 Hz	24...415 V AC			
	60 Hz	24...480 V AC			
Coil consumption	Average pull-in value at 50 Hz	150 VA			236 VA
	at 60 Hz	151 VA			260 VA
	Average holding value	20 VA / 6 W			
Drop-out voltage		$\leq 60\%$ of U_c min.			
Operating time (-40°C ... +60°C)					
Between coil energization and:	N.O. contact closing	7...21 ms			7...22 ms
	N.C. contact opening	3...16 ms			3...17 ms
Between coil de-energization and:	N.O. contact opening	4...14 ms			5...16 ms
	N.C. contact closing	6...19 ms			7...21 ms

MOUNTING CHARACTERISTICS AND CONDITIONS FOR USE

Contactor types	AC operated	UAFC40..(RA)	UAFC50..(RA)	UAFC65..(RA)	UAFC70..(RA)
Mounting positions					
		Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-pole contactor UAFC40... (RA) ... UAFC70... (RA)			
Mounting distances		The contactors can be assembled side by side			At $\theta < 60^\circ \text{C}$, the contactors can be assembled side by side At $\theta \leq 70^\circ \text{C}$, contactors must be spaced by 5 mm
Fixing					
On rail according to IEC 60715, EN 60715		35 x 7.5 mm or 35 x 15 mm			35 x 15 mm
By screws (not supplied)		2 x M4 or 2 x M6 screws placed diagonally			

UAFC15..(RA) ... UAFC70..(RA) 3-pole contactors for capacitor switching

Technical data

CONNECTING CHARACTERISTICS

Contactor types		AC operated	UAFC15..(RA)	UAFC20..(RA)	UAFC25..(RA)	UAFC30..(RA)	UAFC40..(RA)	UAFC50..(RA)	UAFC65..(RA)	UAFC70..(RA)
										
			Screw terminals with cable clamp				Screw terminals with double connector 2 x (9.3 width x 7.9/10.3 depth)		Screw terminals with double connector 2 x (12.4 width x 9.3/11.1 depth)	
Connection capacity (min. ... max.)										
Main conductors (poles)										
	Rigid	Solid ($\leq 4 \text{ mm}^2$)	1 x	1...6 mm ²	2.5...10 mm ²		6...35 mm ²		6...70 mm ²	
		Stranded ($\geq 6 \text{ mm}^2$)	2 x	1...6 mm ²	2.5...10 mm ²		6...35 mm ²		6...50 mm ²	
	Flexible with non insulated ferrule		1 x	0.75...6 mm ²	1.5...10 mm ²		4...35 mm ²		6...50 mm ²	
			2 x	0.75...6 mm ²	1.5...10 mm ²		4...35 mm ²		6...50 mm ²	
	Flexible with insulated ferrule		1 x	0.75...4 mm ²	1.5...10 mm ²		4...35 mm ²		6...50 mm ²	
			2 x	0.75...2.5 mm ²	1.5...4 mm ²		4...35 mm ²		6...50 mm ²	
	Bars or lugs		L <	9.6 mm	12.5 mm		9.2 mm		12.2 mm	
Connection capacity acc. to UL/CSA		1 or 2 x		AWG 16...10	AWG 14...8		AWG 10...2		AWG 10...1	
Rigid		Solid ($\leq 4 \text{ mm}^2$)	1 x	AWG 16...10	AWG 14...8		AWG 10...2		AWG 10...1	
		Stranded ($\geq 6 \text{ mm}^2$)	2 x	AWG 16...10	AWG 14...8		AWG 10...2		AWG 10...1	
Stripping length				10 mm	14 mm		16 mm		17 mm	
Tightening torque				1.5 Nm / 13 lb.in	2.5 Nm / 22 lb.in		4 Nm / 35 lb.in		6 Nm / 53 lb.in	
Auxiliary conductors										
(built-in auxiliary terminals + coil terminals)										
	Rigid Solid/Stranded		1 x	1...2.5 mm ²						
			2 x	1...2.5 mm ²						
	Flexible with ferrule		1 x	0.75...2.5 mm ²						
			2 x	0.75...2.5 mm ²						
	Flexible with insulated ferrule		1 x	0.75...2.5 mm ²						
			2 x	0.75...1.5 mm ²						
	Lugs		L <	8 mm						
Connection capacity acc. to UL/CSA		1 or 2 x		AWG 18...14						
Rigid Solid/Stranded		1 x		AWG 18...14						
		2 x		AWG 18...14						
Stripping length				10 mm						
Tightening torque										
Coil terminals				1.2 Nm / 11 lb.in						
Built-in auxiliary terminals				1.2 Nm / 11 lb.in						
Degree of protection										
acc. to IEC/EN 60947-1 and IEC/EN 60529										
Main terminals				IP20			IP10 ⁽¹⁾			
Coil terminals				IP20						
Built-in auxiliary terminals				IP20						
Screw terminals				Delivered in open position, screws of unused terminals must be tightened						
Main terminals				M3.5	M4		M6		M8	
		Screwdriver type		Flat Ø 5.5 / Pozidriv 2	Flat Ø 6.5 / Pozidriv 2		Flat Ø 6.5 / Pozidriv 2		Hexagon socket (s = 4 mm)	
Coil terminals				M3.5						
		Screwdriver type		Flat Ø 5.5 / Pozidriv 2						
Built-in auxiliary terminals				M3.5						
		Screwdriver type		Flat Ø 5.5 / Pozidriv 2						

(1) For IP20 degree of protection, use LT terminal shroud accessory.

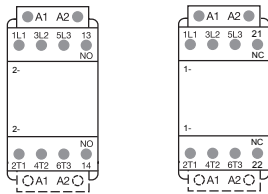
Other technical characteristics are the same as those of standard A contactors.

UAFC..RA contactors

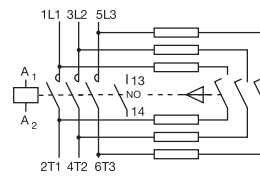
Terminal marking and positioning

UAFC..RA contactors - AC operated

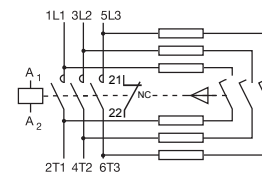
Standard devices without addition of auxiliary contacts



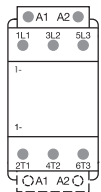
UAFC15-30-10RA UAFC15-30-01RA



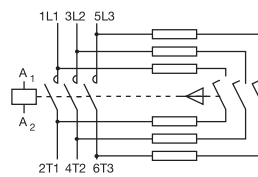
UAFC15-30-10RA



UAFC15-30-01RA

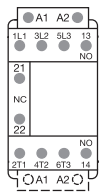


UAFC40 ... UAFC70-30-00RA

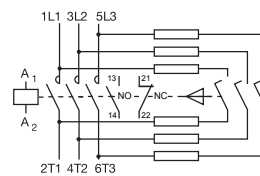


UAFC40 ... UAFC70-30-00RA

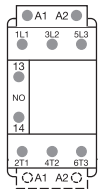
Standard devices with factory mounted auxiliary contacts



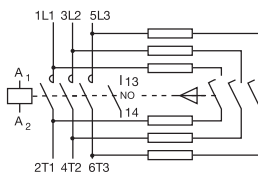
UAFC15-30-11RA



UAFC15-30-11RA



UAFC20 ... UAFC30-30-10RA



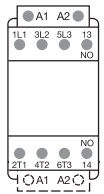
UAFC40 ... UAFC70-30-00RA

UAFC... contactors

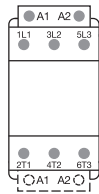
Terminal marking and positioning

UAFC... contactors - AC operated

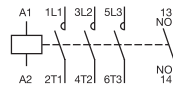
Standard devices without addition of auxiliary contacts



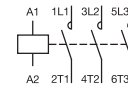
UAFC15-30-10



UAFC20 ... UAFC70-30-00

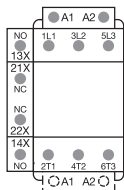


UAFC15-30-10

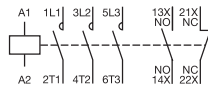


UAFC20 ... UAFC70-30-00

Standard devices with factory mounted auxiliary contacts

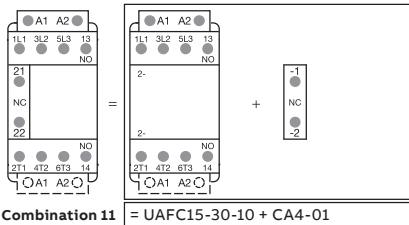


UAFC40 ... UAFC70-30-11

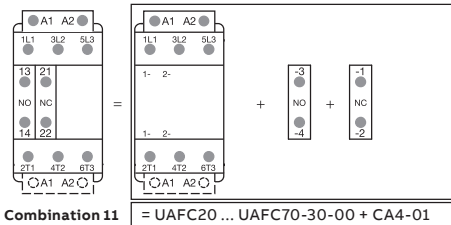


UAFC40 ... UAFC70-30-11

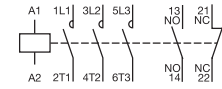
Other possible contact combinations with auxiliary contacts added by the user



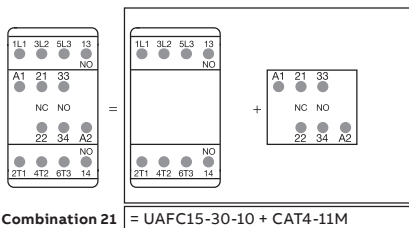
Combination 11 = UAFC15-30-10 + CA4-01



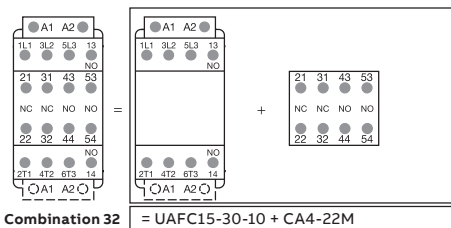
Combination 11 = UAFC20 ... UAFC70-30-00 + CA4-01



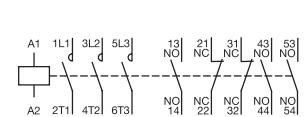
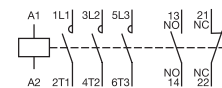
Combination 11



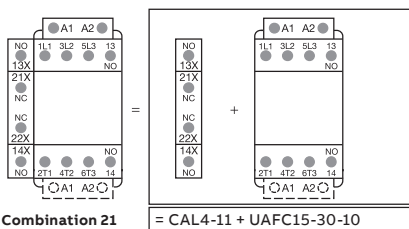
Combination 21 = UAFC15-30-10 + CAT4-11M



Combination 32 = UAFC15-30-10 + CA4-22M



Combination 21



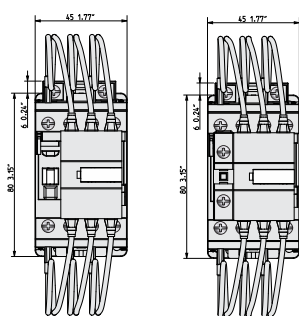
Combination 21 = CAL4-11 + UAFC15-30-10



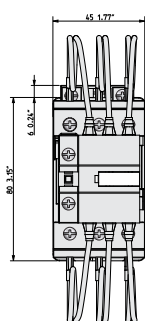
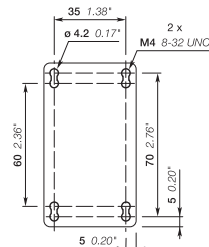
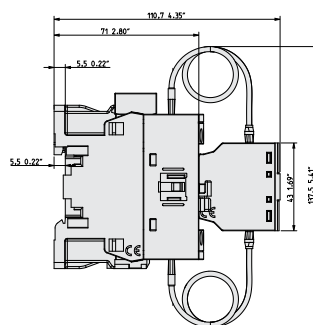
Combination 32

UAFC..RA 3-pole contactors for capacitor switching

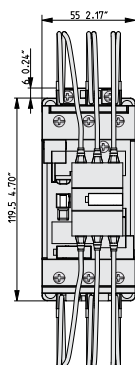
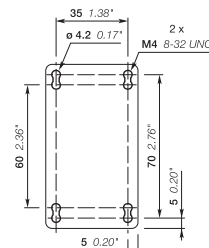
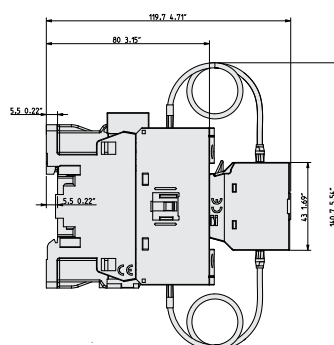
Dimensions



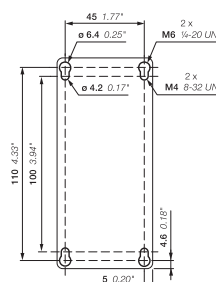
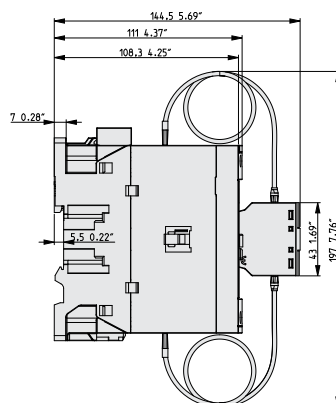
UAFC15-30-10/01RA UAFC15-30-11RA



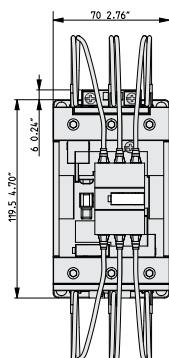
UAFC20..RA, UAFC25..RA, UAFC30..RA



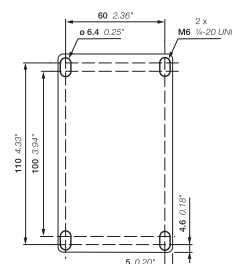
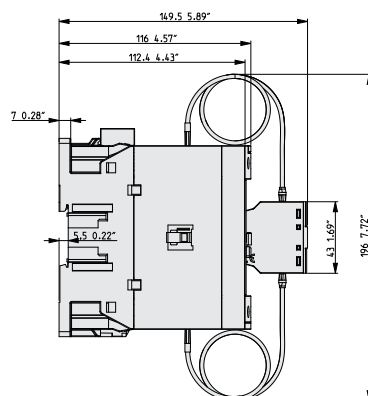
UAFC40..RA, UAFC50..RA



UAFC40, UAFC50

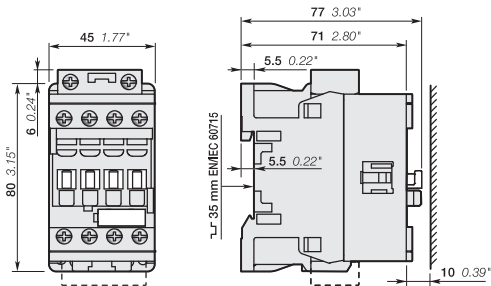


UAFC65..RA, UAFC70..RA

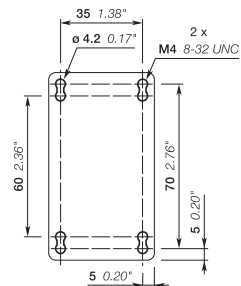


UAFC.. 3-pole contactors for capacitor switching

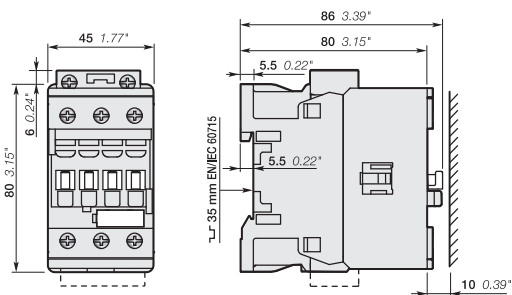
Dimensions



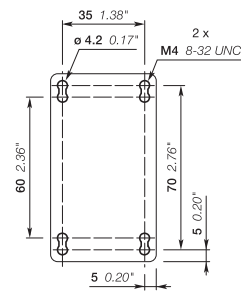
UAFC15



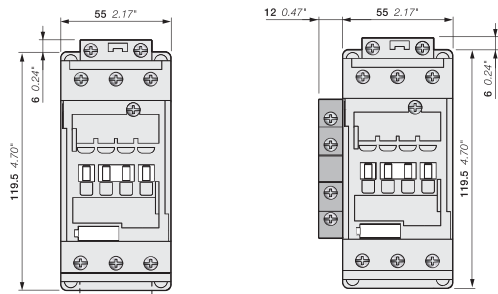
UAFC15



UAFC20, UAFC25, UAFC30

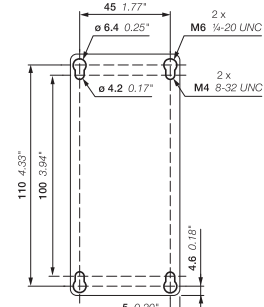
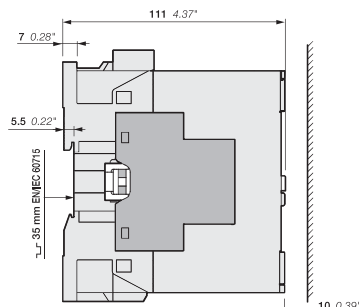


UAFC20, UAFC25, UAFC30

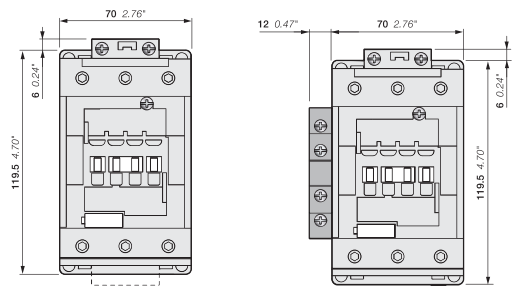


UAFC40, UAFC50-30-00

UAFC40, UAFC50-30-11

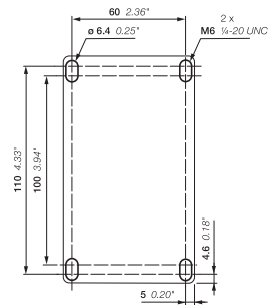
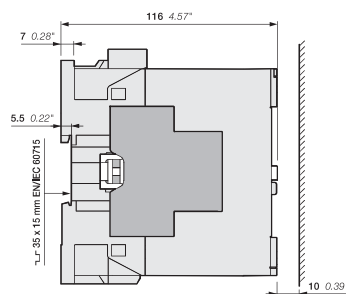


UAFC40, UAFC50



UAFC65, UAFC70-30-00

UAFC65, UAFC70-30-11



AF 3-pole contactors for capacitor switching

Single step - Peak current $\hat{I} \leq 30$ times the rms current

The AF(C)09...AF(C)96 3-pole contactors are suited for capacitor bank switching for the peak current and power values in the table below.

"The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors " are making.

In this conditions, electrical durability of contactors is equal to 100 000 operating cycles.

AF(C)09 ... AF(C)96 3-POLE CONTACTORS

Contactor types		AF(C)09	AF(C)12	AF(C)16	AF(C)26	AF(C)30	AF(C)38	AF(C)40	AF(C)52	AF(C)65	AF(C)80	AF(C)96	
AC-6b Utilization category													
For air temperature close to contactor													
Rated operational power AC-6b													
 Single-step capacitor bank scheme	θ ≤ 40 °C	230-240 V	5 kvar	6.5 kvar	7 kvar	11kvar	12.7 kvar	13.7 kvar	15.0 kvar	22.0 kvar	24.7 kvar	27.7 kvar	34.5 kvar
		400-415 V	8.5 kvar	11 kvar	12.5 kvar	19 kvar	22 kvar	24 kvar	26 kvar	28 kvar	43 kvar	48 kvar	60 kvar
		440 V	9.0 kvar	12 kvar	13.7 kvar	20.7 kvar	24 kvar	26 kvar	28.5 kvar	41.7 kvar	47 kvar	52.7 kvar	66 kvar
		500V-550 V	10.5 kvar	14 kvar	15.5 kvar	23 kvar	28 kvar	33 kvar	35 kvar	48 kvar	54 kvar	60 kvar	75 kvar
		690 V	14.5 kvar	19 kvar	21.5 kvar	32 kvar	38 kvar	43 kvar	46 kvar	65 kvar	74 kvar	80 kvar	82 kvar
	θ ≤ 60 °C	230-240 V	5 kvar	6.5 kvar	7 kvar	11kvar	12.7 kvar	13.7 kvar	15.0 kvar	22.0 kvar	24.7 kvar	27.7 kvar	34.5 kvar
		400-415 V	8.5 kvar	11 kvar	12.5 kvar	19 kvar	22 kvar	24 kvar	26 kvar	28 kvar	43 kvar	48 kvar	60 kvar
		440 V	9.0 kvar	12 kvar	13.7 kvar	20.7 kvar	23 kvar	24 kvar	28.5 kvar	41.7 kvar	47 kvar	52.7 kvar	66 kvar
		500V-550 V	10.5 kvar	14 kvar	15.5 kvar	23 kvar	28 kvar	33 kvar	35 kvar	48 kvar	54 kvar	60 kvar	75 kvar
		690 V	14.5 kvar	19 kvar	21.5 kvar	32 kvar	38 kvar	43 kvar	46 kvar	65 kvar	74 kvar	80 kvar	82 kvar
	θ ≤ 70 °C	230-240 V	4 kvar	5.5 kvar	6 kvar	8.7 kvar	10.7 kvar	11.5 kvar	11.5 kvar	19.7 kvar	22.5 kvar	23.7 kvar	30.5 kvar
		400-415 V	7 kvar	9.5 kvar	10 kvar	15 kvar	18.5 kvar	20 kvar	20 kvar	34 kvar	39 kvar	41 kvar	53 kvar
		440 V	7.7 kvar	10.5 kvar	11 kvar	16.5 kvar	18.5 kvar	20 kvar	22 kvar	37 kvar	42.7 kvar	45 kvar	58 kvar
		500V-550 V	9 kvar	12 kvar	12 kvar	19 kvar	23 kvar	23 kvar	25 kvar	42 kvar	48.5 kvar	51 kvar	70 kvar
		690 V	12 kvar	16.5 kvar	16.5 kvar	26 kvar	32 kvar	32 kvar	34.5 kvar	58.5 kvar	67 kvar	70 kvar	75 kvar
Max. permissible peak current I		Ue ≤ 500 V	0.5 kA	0.6 kA	0.7 kA	1.6 kA	1.9 kA	2 kA	2.1 kA	2.3 kA	2.5 kA	2.6 kA	4 kA

AF 3-pole contactors for capacitor switching

Single step - Peak current $\hat{I} \leq 30$ times the rms current

The AF116 ... AF1650 3-pole contactors are suited for capacitor bank switching for the peak current and power values in the table below.

The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

In this conditions, electrical durability of contactors is equal to 100 000 operating cycles.

AF116 ... AF370 3-POLE CONTACTORS

Contactor types		AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
AC-6b Utilization category									
For air temperature close to contactor									
Rated operational power AC-6b									
$\theta \leq 40^\circ\text{C}$									
	230-240 V	40 kvar	45 kvar	50 kvar	60 kvar	75 kvar	85 kvar	100 kvar	110 kvar
	400-415 V	75 kvar	85 kvar	90 kvar	110 kvar	130 kvar	145 kvar	165 kvar	200 kvar
	440 V	75 kvar	90 kvar	93 kvar	115 kvar	135 kvar	155 kvar	180 kvar	200 kvar
	500-550 V	83 kvar	95 kvar	110 kvar	140 kvar	160 kvar	180 kvar	210 kvar	240 kvar
	690 V	80 kvar	95 kvar	110 kvar	135 kvar	170 kvar	200 kvar	240 kvar	280 kvar
	1000 V	-	-	100 kvar	140 kvar	150 kvar	155 kvar	160 kvar	170 kvar
$\theta \leq 55^\circ\text{C}$									
	230-240 V	40 kvar	45 kvar	50 kvar	60 kvar	75 kvar	85 kvar	100 kvar	110 kvar
	400-415 V	70 kvar	85 kvar	90 kvar	110 kvar	130 kvar	145 kvar	165 kvar	200 kvar
	440 V	75 kvar	90 kvar	93 kvar	115 kvar	135 kvar	155 kvar	180 kvar	200 kvar
	500-550 V	83 kvar	95 kvar	110 kvar	135 kvar	160 kvar	180 kvar	210 kvar	240 kvar
	690 V	80 kvar	95 kvar	110 kvar	135 kvar	170 kvar	200 kvar	240 kvar	280 kvar
	1000 V	-	-	100 kvar	140 kvar	150 kvar	155 kvar	160 kvar	170 kvar
$\theta \leq 70^\circ\text{C}$									
	230-240 V	35 kvar	40 kvar	42 kvar	45 kvar	57 kvar	70 kvar	85 kvar	100 kvar
	400-415 V	65 kvar	70 kvar	74 kvar	83 kvar	105 kvar	135 kvar	155 kvar	180 kvar
	440 V	65 kvar	75 kvar	80 kvar	85 kvar	110 kvar	140 kvar	163 kvar	180 kvar
	500-550 V	78 kvar	90 kvar	96 kvar	102 kvar	130 kvar	165 kvar	196 kvar	220 kvar
	690 V	75 kvar	90 kvar	110 kvar	135 kvar	160 kvar	200 kvar	240 kvar	260 kvar
	1000 V	-	-	95 kvar	120 kvar	130 kvar	140 kvar	150 kvar	160 kvar
Max. permissible peak current I	$U_e \leq 500$ V	4 kA	4 kA	4 kA	5 kA	6.5 kA	8 kA	8 kA	8 kA



Single-step capacitor bank scheme

AF400 ... AF1650 3-POLE CONTACTORS

Contactor types		AF400	AF460	AF580	AF750	AF1350	AF1650
AC-6b Utilization category							
For air temperature close to contactor							
Rated operational power AC-6b							
$\theta \leq 40^\circ\text{C}$							
	230-240 V	120 kvar	140 kvar	170 kvar	220 kvar	250 kvar	300 kvar
	400-415 V	210 kvar	240 kvar	285 kvar	400 kvar	450 kvar	500 kvar
	440 V	220 kvar	260 kvar	300 kvar	410 kvar	500 kvar	550 kvar
	500-550 V	260 kvar	325 kvar	350 kvar	490 kvar	550 kvar	600 kvar
	690 V	300 kvar	325 kvar	440 kvar	600 kvar	650 kvar	800 kvar
	1000 V	250 kvar	300 kvar	350 kvar	450 kvar	-	-
$\theta \leq 55^\circ\text{C}$							
	230-240 V	120 kvar	140 kvar	170 kvar	220 kvar	250 kvar	300 kvar
	400-415 V	210 kvar	240 kvar	285 kvar	400 kvar	450 kvar	500 kvar
	440 V	220 kvar	260 kvar	300 kvar	410 kvar	500 kvar	550 kvar
	500-550 V	260 kvar	325 kvar	350 kvar	480 kvar	550 kvar	600 kvar
	690 V	300 kvar	325 kvar	440 kvar	600 kvar	650 kvar	800 kvar
	1000 V	250 kvar	300 kvar	350 kvar	450 kvar	-	-
$\theta \leq 70^\circ\text{C}$							
	230-240 V	105 kvar	120 kvar	160 kvar	190 kvar	230 kvar	280 kvar
	400-415 V	195 kvar	225 kvar	275 kvar	370 kvar	430 kvar	480 kvar
	440 V	200 kvar	230 kvar	290 kvar	380 kvar	470 kvar	520 kvar
	500-550 V	241 kvar	300 kvar	340 kvar	435 kvar	530 kvar	570 kvar
	690 V	300 kvar	325 kvar	440 kvar	600 kvar	630 kvar	750 kvar
	1000 V	220 kvar	270 kvar	300 kvar	400 kvar	-	-
Max. permissible peak current I	$U_e \leq 500$ V	10 kA	10 kA	12 kA	12 kA	18 kA	20 kA



Single-step capacitor bank scheme



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