

LONG LIFE N₂-FILLED CAPACITORS

MKK ENERGY



MKK ENERGY capacitors are made by self-healing metallized polypropylene film with very low losses and their can is made by aluminum. The protection from any issue is given by the overpressure disconnecter. Three inner overlying capacitances are connected in delta configuration or star configuration in order to reach a high reliability during the working cycle. Their construction and tests comply with EN 60831-1/2 (DIN VDE 0560/46).

OPERATING LIFE: OVER 180.000 HOURS

The reduction of the capacitance may occur in different situations, e.g. the presence of high temperature and high voltage or the corrosion on the plates of the capacitors caused by the humidity. Thanks to the innovative process for the metallization of the PP it is possible to eliminate the corrosion, in order to maintain the same capacitance for the entire working life of the capacitor. Since the filling solution with resin may not give a complete impregnation of the PP film, the N₂-filling solution has been chosen. The nominal operating life is referred to the standard working conditions, in terms of voltage, temperature, etc. If the nominal voltage of the capacitor is increased by a 10%, the nominal operating life will raise to a 50%.

SAFETY

This new kind of technology ensures another type of safety thanks to its N₂ impregnation. In fact, the main difference between the resin and the N₂ gas is that the first one might burn and the second one cannot. In addition, their overpressure disconnecter can break the internal fuses in order to completely disconnect the capacitor from the main.

SELF-HEALING

The voltage peaks reaching 3 times the nominal voltage might occur due to the frequent switchings in the LV grid. In this case if the PP film is penetrated, the self-healing system starts working and regenerates it. After that the capacitor keeps working with a negligible reduction of the capacitance.

TECHNICAL FEATURES

- Maximum overvoltage1,1 V_n (8h/d)
- Maximum overcurrent2 I_n
- Maximum peak of current≤ 500 I_n
- Frequency50/60 Hz
- Losses (dielectric)< 0,2 W/kvar
- Capacitance tolerance-5% / 10%
- Operating life≥ 180.000 h
- Temperature range-40/+60°C
- ImpregnationInert Gas N₂ (Nitrogen)
- CertificationcUL File No. E238746; GOST
- StandardsIEC 831-1/2, UL 810 - 5th edition

PhaseCap Energy Capacitor	Power kvar	V _n V	d x h mm	Weight kg	S/N
MKK - 5 - 440 V	5	440	121 x 204	1,2	NC0054ZZ
MKK - 7,5 - 440 V	7,5	440	75 x 250	1,1	NC0074ZZ
MKK - 15 - 440 V	15	440	85 x 265	1,5	NC0154ZZ
MKK - 30 - 440 V	30	440	125 x 245	2,8	NC0304ZZ
MKK - 33 - 440 V	33	440	116 x 275	2,8	NC0334ZZ
MKK - 15 - 480 V	15	480	100 x 255	1,9	NC0157ZZ
MKK - 30 - 480 V	30	480	125 x 240	2,8	NC0307ZZ
MKK - 12,5 - 525 V	12,5	525	121 x 164	1,5	NC0129ZZ
MKK - 25 - 525 V	25	525	142 x 200	2,5	NC0259ZZ

1-PHASE AND 3-PHASE RESIN-FILLED CAPACITORS

1-PHASE MKP



3-PHASE MKP



VAR-PAK



1-PHASE MKP	Power kvar	V _n V	Cap. µF	d x h mm	S/N
MKP - 66 - 415V	3,5	415	66	53 x 142	ND0663ZZ
MKP - 77 - 415V	4,2	415	77	63,5 x 142	ND0773ZZ
MKP - 91 - 415V	5	415	91,5	63,5 x 142	ND0913ZZ
MKP - 55 - 440V	3,3	440	55	53 x 142	ND0554ZZ
MKP - 68 - 440V	4,2	440	68,5	63,5 x 142	ND0684ZZ
MKP - 82 - 440V	5	440	82	63,5 x 142	ND0824ZZ

3-PHASE MKP	Power kvar	V _n V	Cap. µF	d x h mm	S/N
MKP - 2,5 - 415V	2,5	415	3 x 15,5	63,5 x 129	NE0023ZZ
MKP - 5 - 415V	5	415	3 x 31	63,5 x 129	NE0053ZZ
MKP - 2,5 - 440V	2,5	440	3 x 13,5	63,5 x 129	NE0024ZZ
MKP - 5 - 440V	5	440	3 x 13,5	63,5 x 129	NE0054ZZ
MKP - 15 - 440V	15	440	3 x 82	85 x 280	NE0154ZZ
MKP - 30 - 440V	30	440	3 x 164	90 x 355	NE0304ZZ

GENERAL FEATURES

MKP capacitors are self-healing type and their plates are made of two thin films of metallized polypropylene that are wrapped in order to create a cylinder. The external case is an aluminium can. If any voltage transient occurs, the dielectric may be penetrated giving birth to a heat dissipation that causes the sublimation of the metal sheet close to the penetration point, without damaging the PP film and avoiding any relevant reduction of the capacitance. When the capacitor fails due to high temperature, high voltage and so on, it produces a big quantity of gas that, thanks to its overpressure, pushes the top side of the can in order to disconnect the capacitor from the main.

VAR-PAK	Q _n kvar	I _n A	W mm	H mm	D mm	S/N
VP - 2,5 - 400V	2,5	3,6	76	290	200	NF0022ZZ
VP - 5 - 400V	5	7,2	76	290	200	NF0052ZZ
VP - 7,5 - 400V	7,5	10,8	76	290	200	NF0072ZZ
VP - 10 - 400V	10	14,4	76	290	200	NF0102ZZ
VP - 12,5 - 400V	12,5	18	76	290	200	NF0122ZZ
VP - 15 - 400V	15	21,6	76	290	200	NF0152ZZ
VP - 20 - 400V	20	28,9	142	290	200	NF0202ZZ
VP - 25 - 400V	25	36,1	142	290	200	NF0252ZZ
VP - 30 - 400V	30	43,3	142	290	200	NF0302ZZ
VP - 40 - 400V	40	57,7	208	290	200	NF0402ZZ
VP - 50 - 400V	50	72,2	274	290	200	NF0502ZZ

TECHNICAL FEATURES

- Maximum overvoltage1,1 V_n (8h/d)
- Maximum overcurrent1,5 I_n
- Frequency50/60 Hz
- Losses (dielectric)< 0,2 W/kvar
- Capacitance tolerance- 5% / + 10%
- Test voltage between the terminals2,15 V_n - 10 sec.
- Operating life> 150.000 ore
- Temperature range-40/D
- ImpregnationFluido biodegradabile
- CertificationcUL
- StandardsIEC 831-1/2, UL 810 - 5th edition