

FILM CAPACITORS · POWER FACTOR CORRECTION

GRIDCAP

Power Capacitors

Self-healing metalized polypropylene film capacitors engineered for power factor correction in industrial and commercial installations — built to IEC 60831-1 & IEC 60831-2 (2014) and designed to integrate directly into Forte GRIDFIX compensation systems.

230V – 900V

5 – 40 KVAR

SELF-HEALING MKP

OVER-PRESSURE DISCONNECTOR

IEC 60831-1&2

ROHS COMPLIANT

IP20 INDOOR

900 V

MAXIMUM
NOMINAL VOLTAGE

40 kVar

MAXIMUM
POWER RATING

100k hrs

EXPECTED LIFE
AT $\leq 40^{\circ}\text{C}$
-5/+5 %

CAPACITANCE
TOLERANCE

Designed and type tested to IEC 60831-1 & IEC 60831-2 (2014). Type test certificate available on request.

ENGINEERED FOR FORTE GRIDFIX SYSTEMS



GRIDCAP – SELF-HEALING MKP

THE GRIDCAP SERIES

Reliable film capacitors for PFC systems

The GRIDCAP series consists of self-healing metalized polypropylene film (MKP) capacitors manufactured to IEC 60831-1 & IEC 60831-2 (2014) standards. Designed specifically for power factor correction panels, GRIDCAP capacitors work in conjunction with GRIDTUNE detuned reactors and CSM100 thyristor modules to form complete GRIDFIX compensation systems.

With nominal voltages from 230 V to 900 V and power ratings from 5 to 40 kVAr, GRIDCAP covers all standard industrial voltage levels. Available in three connection types — Delta (D) for 3-phase systems, Star/Wye (Y) for 800 V and 900 V configurations, and Parallel (P) for single-phase or 230/250 V applications.

Self-healing technology ensures continued operation after minor dielectric breakdowns. An **over-pressure disconnecter** opens the circuit if internal pressure rises at end of life. Epoxy resin filling provides moisture and vibration resistance. RoHS compliant, mercury-free, non-PCB construction meets all current environmental regulations.



WARNING — Do NOT touch within 5 minutes after the power is cut off. Capacitors retain charge.

UYARI — Enerji kesildikten sonra 5 dakika boyunca dokunmayınız. Kondansatörler yüklü kalır.



GRIDCAP — SELF-HEALING MKP FILM CAPACITOR

900 V

MAXIMUM NOMINAL VOLTAGE

40 kVAr

MAXIMUM POWER RATING

>100,000 h

EXPECTED LIFE AT $\leq 40^\circ\text{C}$

-5/+5 %

CAPACITANCE TOLERANCE

KEY FEATURES

What makes GRIDCAP the right choice



Self-healing technology

Metalized polypropylene film isolates micro-faults automatically, keeping the capacitor in service and extending operational life.



Over-pressure disconnecter

Internal disconnecter opens the circuit if pressure rises at end of life — prevents can rupture. Standard on every unit.



Wide voltage range

From 230 V single-phase to 900 V star-connected. Covers every standard voltage level in industrial power factor correction.



Three connection types

Delta (D), Star (Y) and Parallel (P) to match any system topology, from single-phase panels to 900 V detuned banks.



Built-in discharge resistors

Every unit discharges after disconnection. Observe the 5-minute waiting period before any work on the panel.



GRIDFIX integration

Designed to work with GRIDTUNE detuned reactors and CSM100 thyristor modules in complete GRIDFIX compensation panels.

TECHNICAL SPECIFICATIONS

GRIDCAP – full specification

All parameters for Forte GRIDCAP film capacitors. Standard range covers 5 to 40 kVAr at 230–900 V.

PARAMETER	SPECIFICATION
Dielectric	Self-healing metalized polypropylene film (MKP)
Filling material	Epoxy resin
Safety device	Over-pressure disconnecter
Discharge device	Built-in discharge resistors
Nominal voltage U_n	230 ... 900 V AC
Nominal frequency	50 · 60 Hz
Capacitance tolerance	-5 / +5%
Nominal output Q_n	5 ... 40 kvar
Insulation level	3 / 8 kV
Connection types	D – Delta (3-phase) · Y – Star (3-phase) · P – Parallel (1-phase)
Dielectric losses	0.5 W/kvar (dielectric · 0.7 W/kvar incl. discharge resistor) · 0.2 W/kvar (dielectric · 0.5 W/kvar incl. discharge resistor)
Max. AC voltage (V_{max})	$V_n + 10\% - 8 \text{ h/day} \cdot +15\% - 30 \text{ min/day} \cdot +20\% - 5 \text{ min/day} \cdot +30\% - 1 \text{ min/day}$
Max. AC current (I_{max})	$1.1 \times I_n$ (continuous · short-time $1.5 \times I_n$, max. 1 min/day on average)
Max. inrush current	$200 \times I_n$ (millisecond-scale withstand limit – non-normal, infrequent)
Max. switchings / year	5,000 / year (thyristor zero-crossing switching · 1,000/year with AC contactor)
Test voltage, terminal–case	4,000 V / 10 s (terminal to case)
Terminals	Bolted terminal block, IP20 – max. cable 25 mm ²
Mounting	M12 or M16 bottom bolt – M8/M10 connection bolts
Mounting position	Upright / inverted / horizontal
Enclosure	IP20, indoor installation
Ambient temperature	-25 ... +55 °C
Max. hotspot temperature	+65 °C (case surface · ambient +55 °C)
Hotspot rise above ambient	≤ 10 K (above ambient)
Temperature category	-25/D
Storage temperature	-25 ... +55 °C
Cooling	Natural air cooling
Humidity	< 85% (non-condensing)
Max. altitude	< 2,000 m
Max. short circuit	≤ 10 kA (with current-limiting fuse · withstand ≤5 ms)
Over-pressure operating point	0.2 MPa
Can expansion on operation	30 mm (can expansion when the over-pressure disconnecter operates)
Free space above unit	≥ 40 mm (free space to be left above the unit inside the panel)
Standard	IEC 60831-1 & IEC 60831-2 (2014)
Type test certificate	Cert. R 50708806 0001
Compliance	RoHS compliant · Mercury free · Non-PCB · Toxic heavy metal free
Quality system	ISO 9001 – current certificate available
Routine testing	100 % routine test – capacitance · loss · case withstand · inter-electrode withstand
Warranty	12 months (subject to warranty conditions)

EXPECTED OPERATING LIFE

Temperature vs. service life

HOTSPOT TEMPERATURE	EXPECTED LIFE
≤ 40 °C	≥ 100,000 h
45 °C	≈ 70,000 h
50 °C	≈ 50,000 h
55 °C	≈ 35,000 h

Ventilation matters. Ensure adequate ventilation inside PFC panels. Every 10 °C reduction in hotspot temperature roughly doubles expected life – the single most effective way to extend service intervals in a compensation panel.

Expected life figures are valid at the stated hotspot temperature only. They are not a warranty period. End-of-life criterion: measured capacitance ≤ 70 % of rated value. Shelf life ≤ 18 months in dry, dust-free storage.

SELECTION GUIDE

Voltage & connection selection guide

CODE	NOMINAL VOLTAGE	CONNECTION	TYPICAL APPLICATION
230	230 V	P (Parallel)	Single-phase, 230 V systems
250	250 V	P (Parallel)	Single-phase, 250 V systems
440	440 V	D (Delta)	Standard 400 V industrial (most common)
480	480 V	D (Delta)	480 V export / US standard
525	525 V	D (Delta)	With p = 7% detuned reactor at 400 V
800	800 V	Y (Star)	With p = 14% detuned reactor at 400 V
900	900 V	Y (Star)	With p = 7% detuned reactor at 525 V

Note. When using detuned reactors, the capacitor voltage must be higher than the network voltage to compensate for the voltage drop across the reactor. 525 V capacitors are standard for p = 7% detuned systems at 400 V networks.

PRODUCT CATALOG – 440 V DELTA

Standard industrial – no detuned reactor

KVAR	I _N (A)	D×H (MM)	FORTE CODE
5	6.6	76×240	1GC440D-5-S01
10	13.1	76×240	1GC440D-10-S01
15	19.7	86×280	1GC440D-15-S01
20	26.2	96×280	1GC440D-20-S01
25	32.8	106×280	1GC440D-25-S01
30	39.4	116×280	1GC440D-30-S01

PRODUCT CATALOG – 525 V DELTA

For p = 7% detuned systems · **certified range**

KVAR	I _N (A)	D×H (MM)	FORTE CODE
5	5.5	76×240	1GC525D-5-S01
10	11.0	76×280	1GC525D-10-S01
15	16.5	86×280	1GC525D-15-S01
18	19.8	96×280	1GC525D-18-S01
20	22.0	96×280	1GC525D-20-S01
25	27.5	106×280	1GC525D-25-S01
30	33.0	116×280	1GC525D-30-S01
40	44.0	136×290	1GC525D-40-S01

ORDER CODE

1GC525D-40-S01

1GC	GRIDCAP family
525	nominal voltage V
D	connection – D delta · Y star · P parallel
40	nominal output kvar
S01	series

APPLICATIONS

Where GRIDCAP capacitors are used



GRIDFIX compensation panels

Primary application in Forte GRIDFIX thyristor-switched modular panels.



Industrial PFC systems

Motors, pumps, compressors and general industrial loads.



Commercial buildings

HVAC, elevator and lighting systems in offices, hospitals and malls.



Renewable energy

Auxiliary power factor correction for wind and solar plant electrical systems.



Motor control centres

Capacitor banks integrated into MCC for localised power factor correction.



Utility distribution

LV distribution network power factor improvement.

Need help selecting the right capacitor?

Our engineering team will recommend the optimal voltage rating, connection type and power rating based on your network analysis and compensation requirements.

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DOCUMENT IDENTIFICATION

DOCUMENT NUMBER FD-BR-00002-6	REVISION Rev A	ISSUE DATE 2026-07	SUPERSEDES —	LANGUAGE EN
DOCUMENT TYPE BR · Product Brochure	PRODUCT SCOPE GRIDCAP	FROZEN DATA VERSION PRD-GRIDCAP rev 0.1 · 2026-07-26	LEGAL ENTITY Forte Teknik Makine A.Ş.	PERMANENT URL https://fortechnic.com/capacitor.php

A document without a complete identification block is a draft (T1-A Rule 2.2). The document number is not allocated while a data gate is open (T1-A Rule 3.19).

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