

Editor's Desk

Dear Readers,

During the last 4 decades, Deki has been able to bring innovation, offer "disruptive" technology to capacitors for several segments of the electronics, electrical and power industry.

We recently showcased our 'game changing' approach for "fan capacitors". We're over whelmed by the support and the "share of business" received from leading manufacturers of the fan industry.

It is now time to present to you yet another innovative offering. This time, its for all you, manufactures of washing machines.

Deki capacitors feature a dual-element design, unlike conventional concentric models, ensuring even electrical stress distribution, improved durability, and better endurance under voltage fluctuations.

In this edition of Charge, we are delighted to present an in-depth discussion on film capacitors used in washing machines. We sincerely hope you find this information useful.

As always, we are eager to hear your thoughts and suggestions on how we can continue to improve Charge to better serve you.

Shanker Raj



Deki at ELECRAMA 2025: Powering Innovation Forward

Deki Electronics made a powerful impact at ELECRAMA 2025, the premier global event for the electrical and allied electronics industry, held from 22nd to 26th February 2025 at India Exposition Mart, Greater Noida. This monumental five-day exhibition brought together visionaries, innovators, and key decision-makers from across the globe to showcase cutting-edge technologies and shape the future of power and electronics.

A Grand Platform for Global Exposure

Positioned in Hall No. 11, Stall No. B83, Deki's exhibit stood out for its vibrant design, interactive product displays, and knowledgeable team. From industry veterans to young engineers, our stall welcomed a constant stream of visitors eager to learn about Deki's innovative range of film capacitors designed for consumer electronics, automotive, renewable energy, and industrial applications.

What Made ELECRAMA 2025 Special for Deki

- **Live Product Demonstrations:** Visitors experienced firsthand the performance and efficiency of our film capacitors, including solutions engineered for extreme temperature and voltage environments.
- **Meaningful Industry Conversations:** We engaged in rich discussions around energy efficiency, custom capacitor requirements, and emerging market trends with professionals from over 15 countries, including Germany, USA, Korea, UAE, Thailand, and Brazil.



- **Customer-Centric Solutions:** The event gave us the opportunity to understand customer challenges more deeply and propose tailored solutions for a wide range of applications.
- **Thought Leadership:** Our participation reaffirmed Deki's position not just as a manufacturer, but as a technology partner driving the energy transition with reliable and sustainable solutions.

Beyond the Booth

ELECRAMA 2025 was more than a product showcase—it was a hub for collaboration and future-ready discussions on smart grids, electric mobility, and energy systems, where Deki shared valuable insights on capacitor technology.



Deki is proud to contribute to powering tomorrow—one capacitor at a time.
B-19 & 20 Sector 58, NOIDA 201 301. Phone +91 120 2585457, 2585458
E-mail pant@dekielectronics.com
www.dekielectronics.com

FILM CAPACITOR FOR WASHING MACHINE APPLICATION

Washing machine is a household appliance designed to clean clothes efficiently. It uses water, detergent, and mechanical agitation to remove dirt and stains. Modern washing machines come with advanced features such as multiple wash cycles, steam cleaning, and smart connectivity for remote control and monitoring.

The washing machine runs on an electrical power supply and includes a monitoring and control circuit to regulate its operation. It is equipped with high-speed spinning motors that drive the rotation of the washing drum for cleaning and the drying drum for moisture removal. These components work together to ensure effective and energy-efficient laundry processing.

Washing machines are available in two main types based on their technology: Semi-Automatic and Fully Automatic.

- Semi-Automatic Washing Machines require manual intervention during the washing process. For instance, users need to transfer clothes from the wash tub to the spin tub for rinsing and drying.
- Fully Automatic Washing Machines operate with minimal user involvement. They feature a single tub that handles both washing and drying, making the process more convenient and efficient.

FILM CAPACITORS FOR WASHING MACHINE

The AC-to-DC power supply consists of a Class-X2 capacitor (for differential mode noise suppression), a Class-Y2 capacitor (for common mode noise filtering), a general-purpose bypass capacitor for transient suppression, a DC link capacitor for energy storage and voltage stabilization, and a snubber capacitor to reduce voltage spikes and switching noise.

The spinning motor utilizes a motor run capacitor for phase shifting, ensuring efficient motor startup and operation.

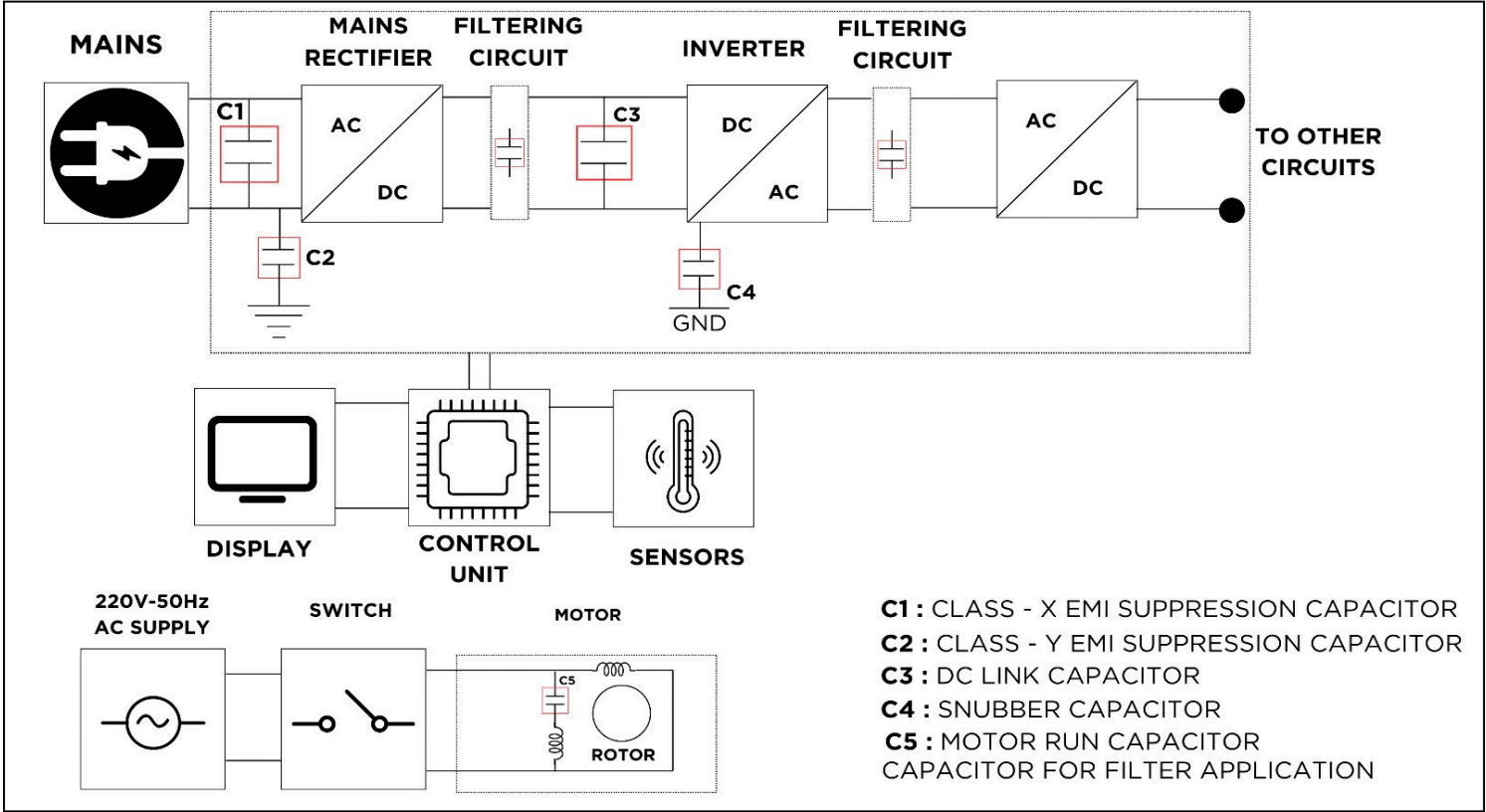
BLOCK DIAGRAM AND BASIC FUNCTION

- Reference the block diagram, Major Sections and their functions as below.
1. Input Mains or Power Section:
 - EMI Filtering – Filters the interference noise.
 - AC/DC Conversion ripple filtering – Rectifier circuit to convert AC to DC

- DC Link section – Connection between two DC stages in power conversion systems, acting as an energy storage stage.
- Motor – To rotate washing and/or rinsing tub.

CRITICAL CAPACITORS USED IN WASHING MACHINE

1. EMI Filter X2 & Y2 Capacitors – THB grade and Non-THB grade
 2. DC Filter Capacitors – THB grade and Non-THB grade
 3. DC Link capacitors – Low loss and high stability capacitors. A high reliable replacement for commonly used electrolytic capacitors.
 4. Motor Run capacitors – Class of safety S-0, S-2, S-3 with Class-B of operation.
1. EMI suppression capacitors are very critical for across-the-line & Line to ground applications as it has a very important role to play in suppressing the interference generated in the mains. We have successfully tested and developed a new design for a THB grade X2 filter capacitor– **It guarantees a long life of up to 12 years.**
 2. After the bridge it is necessary to use a capacitor for filtering and smoothening. The filter capacitor should be highly stable and reliable for a long period. We have developed a special metalized film capacitor for high reliability. It is successfully tested for stringent conditions and THB grade. **It features a very low ESR and ESL.**
 3. After DC filtering and smoothening it is required to convert this high voltage DC voltage to a lower level DC, for this DC conversion stage we offer a high stability and low loss DC link capacitor. It features a very low ESR and ESL. This film capacitor will be a better replacement of existing electrolytic capacitors in the circuit. **It is a cost-effective solution with Stable Electrical Parameters. ***
 4. Motor Run capacitors are essential to create and maintain a phase shift between the current in the main and auxiliary windings, which is crucial for generating a rotating magnetic field that drives the motor's rotor. We have a complete range of Motor run capacitors for washing machine applications which include **the S-0, S-2, and S-3 class of safety and offer Class-B of operation.** It has a life of 10,000 hours ensuring seamless operation without failing.



*ADVANTAGES OF FILM CAPACITORS OVER ELECTROLYTIC CAPACITORS

- Film capacitors have unique Self-healing property which removes a fault or short circuit in the dielectric film by vaporizing the metallization near the defect
- Very long life (typically 10 to 12 years) compared to Electrolytic capacitors (typically 1000 to 10000 hours)
- Very low ESR and ESL
- Higher Current ratings
- Higher voltage ranges
- High reliability.

WHAT MAKES DEKI SUPERIOR?

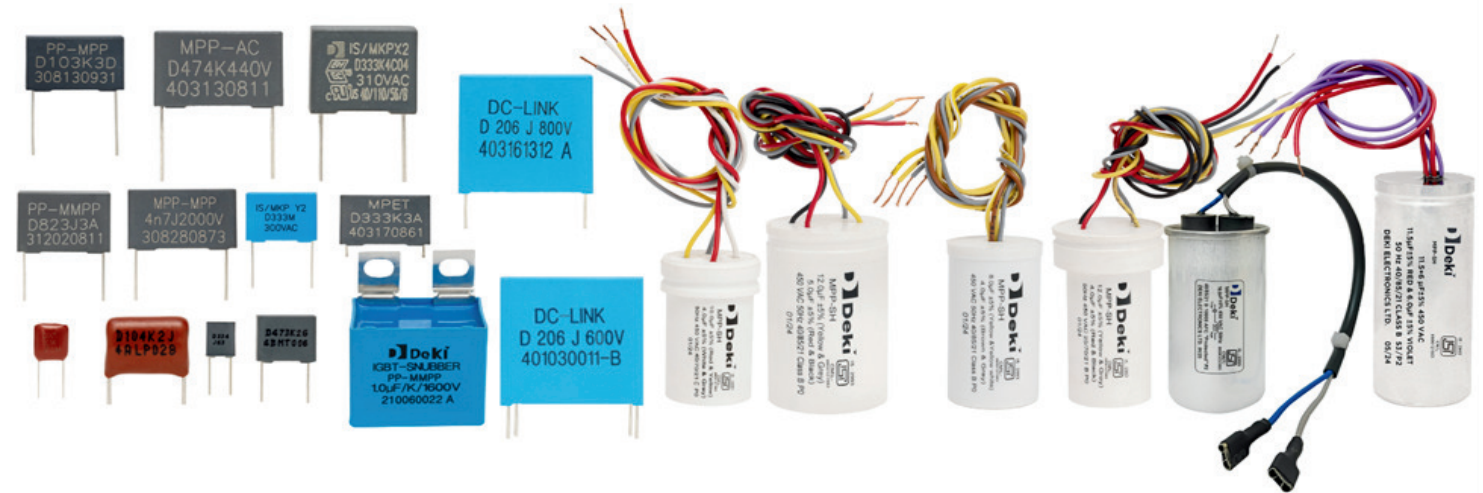
The Deki Technical Centre has been recognized as an 'In-house R&D Unit' by the Department of Science & Industrial Research, Government of India, since June 2011. The centre is primarily responsible for consistently introducing new types of film capacitors to the market that are in line with updated technologies.

Our engineers have achieved this thanks to the design and testing facilities available at Deki, which enable continual improvements in our designs, increasing the quality and longevity of our products.

DEKI SERIES OF CAPACITORS USED IN WASHING MACHINE

Capacitor	Function	Type	Voltage Range	Capacitance Range	Deki Capacitor Series	Deki Advantage
C1	EMI Filter between mains	Class-X2 Capacitor	310VAC	0.01µF to 10µF	207 & 151	Normal Grade for general use and THB grade for harsh environment
C2	EMI filter between line and ground	Class-Y2 Capacitor	300VAC	0.001µF to 1µF	33	Normal Grade for general use and THB grade for harsh environment
Filter capacitor	AC Filtering after rectification	General purpose Capacitors	63VDC- 630VDC for MPP-DC 100VDC- 1000VDC for MPET- DC	0.001µF to 10µF	02, 04, 06, 13, 14, 15, 16, 27	Wide range of capacitance and voltage, Low losses, Long life
C3	DC link application	DC link Capacitor	450VDC- 1500VDC	1µF to 210 µF	91	Low losses, high ripple current handling, long life
C4	Reduce High voltage spikes	Snubber Capacitor	700VDC- 3000VDC	0.0001µF to 0.01µF 0.047µF to 5.6µF	134, 121, 150	High voltage and current capability, long life
C5	Provide phase shift	Motor Run	450VAC	1µF to 100µF	203, 201, 301	Class-B, S-0 dual capacitor design, S-2 single capacitor design, S-3 design

THE DEKI RANGE OF FILM CAPACITOR FOR WASHING MACHINE APPLICATION





Celebrating the Incredible Women of Deki Electronics

On the occasion of International Women's Day, Deki Electronics proudly celebrated the strength, dedication, and achievements of the exceptional women who contribute to our success every day.

The event was marked by engaging in activities such as "Blow Balloon" and Drop Ball in a Basket competitions, where winners were awarded exciting gift hampers. These light-hearted games brought energy and laughter to the celebration.

A special moment of the day was the inspiring addresses by Mrs. Radha Singh (PPC Head) and Mrs. Sangeeta (Purchase Head), who shared their thoughts on women's empowerment, encouraging everyone to pursue excellence with confidence and resilience.

A sincere appreciation goes to Ms. Shailja from HR for organizing this memorable event in collaboration with the PPC and Purchase departments.

The celebration concluded with refreshments and an atmosphere of appreciation and camaraderie.

Here's to the unstoppable women of Deki — empowered, strong, and inspiring every single day.



External Customer Satisfaction Survey

At Deki Electronics, the External Customer Satisfaction Survey is a biannual initiative that has guided our continuous improvement journey for the past twenty-one years. This long-standing practice enables us to gather valuable feedback directly from our customers, helping us identify strengths and areas that require attention.

We are pleased to share the results from the most recent survey conducted in June 2024, based on responses from our valuable customers. We are proud to report an overall customer satisfaction score of 92.48 percent. This improvement reflects significant progress in key areas including quality, delivery, professionalism, the willingness of customers to recommend Deki, and the overall perception of the company.

One of the most encouraging outcomes is a Net Promoter Score (NPS) of 93 percent, indicating a strong level of customer loyalty and satisfaction. As we approach the milestone of twenty-one years of conducting this survey, we remain committed to learning from our customers and enhancing our performance to serve them better.

We thank all our customers for their trust and continued support. Their feedback is the foundation on which we build our future.



Employee Satisfaction Survey – February 2025

The Employee Satisfaction Survey conducted in February 2025 revealed encouraging trends in workplace engagement across all employee levels. Covering leadership, work-life balance, career growth, compensation, and workplace culture, the survey reflected growing satisfaction and a high level of employee involvement.

Executive Employees:
Satisfaction rose from 77% (Aug 2024) to 79% (Feb 2025).
Participation rate: 95%.
The increase reflects the positive impact of initiatives implemented following prior feedback.

Non-Executive Employees (including apprentices):
Participation rate: 98%, showing high engagement.
Satisfaction score: 87%.
Key focus areas included work instructions clarity, training, compensation, culture, career growth, grievance redressal, and workplace conditions.

The survey underscores strong overall engagement and satisfaction, reaffirming the organization's commitment to ongoing improvement guided by employee feedback.



Cancer Awareness and Screening Camp at Deki

As part of its ongoing commitment to employee health and workplace wellness, Deki Electronics Ltd. organized a **Cancer Awareness and Screening Camp** under the CHARGE initiative (Corporate Health Awareness and Responsible Growth for Employees).

The camp aimed to educate employees about the importance of early detection and prevention of cancer. Conducted in collaboration with certified healthcare professionals, the event offered:

- Free on-site cancer screening and health check-ups
- Awareness sessions on types of cancer, risk factors, and lifestyle modifications
- One-on-one consultations with medical experts
- Distribution of informative materials promoting preventive healthcare practices

This initiative reflects Deki's dedication to fostering a healthier work environment through proactive healthcare measures. It was well-received by employees and marked a meaningful step towards promoting long-term well-being across the organization.