

## **EMC filters**

Quality and environment

Date: August 2022

## **Corporate goals**

Our aim is to play a leading role among the world's most competitive companies in the sector of electronic components. This aim is shared by the quality and environment management system from TDK Electronics:

### **1 TDK Electronics quality management**

#### **1.1 Our commitment to quality**

The quality of all TDK products and services represents a key constituent of our corporate strategy, whose principal aim is customer satisfaction.

To us quality means supplying products and services to our customers across the world, offering them the greatest benefits, while understanding the needs and expectations of all interested parties. Quality also means ensuring competitiveness by maintaining the knowledge of our organisation and continually further developing it, in order to secure our future success.

The continual use of our quality management system results in flawless products and a high level of benefits for the users of our components. It guarantees the outstanding quality of our products as well as the corresponding logistics and services and offers an attractive price/performance ratio.

Our quality management system is continuously oriented to the international standards that stipulate the highest requirements.

#### **1.2 Quality management system**

The quality management system is applied throughout the company and is used to implement the TDK Electronics quality policy according to the requirements of ISO 9001 and IATF 16949 standards.

#### **1.3 Certification**

The quality management system from TDK Electronics forms the basis for the certification to ISO 9001 and IATF 16949 that includes all TDK Electronics plants and sales organisations.

The certificates are stored on TDK Electronics Internet ([www.tdk-electronics.tdk.com](http://www.tdk-electronics.tdk.com)).

Our production sites which serve automotive engineering apply the standard according to IATF 16949. IATF certificates confirm adherence of the requirements of a quality management system, which reflects the requirements of the automobile industry.

TDK Electronics has always operated a policy based on meeting individual agreements with regard to customer-specific requirements (CSR). Even if the standard according to IATF 16949 may give the impression that it supports the recognition of single-sided requirements, we would like to emphasise that only mutually agreed requirements are and can be implemented in our quality management system. We would like to clarify that such obligations are only legally binding if they are individually agreed.

#### **1.4 Production sequence and quality assurance**

The sites implement the corporate specifications for quality management in procedural and work instructions referred to products and processes.

#### **1.5 Final inspection/approval for shipment**

Final inspection verifies the major properties of the end products batch by batch, usually by means of fully automated selection tests.

Approval for shipment helps to ensure that products shipped comply with technical specifications. It includes:

- Testing of principal parameters
- Identification check and visual assessment
- Examination of accompanying papers.

#### **1.6 Useful life**

The useful life in the sense of reliability is the time occurring between random failures, i.e. the product life during which the failure rate remains essentially constant (excluding early failures and the end of service life). Its value depends greatly on the conditions of use.

#### **1.7 Reliability**

A variety of endurance tests and environmental tests are conducted to confirm the high reliability of filters and chokes. These tests are derived from the extremes of expected application conditions, which may be exposed to components during application, with test conditions intensified to obtain authoritative results within a reasonable period.

The reliability testing programs of TDK Electronics are based on the test plans of international standards and customer requirements.

TDK Electronics performs reliability tests to qualify new component families and for periodic requalification.

#### **1.8 Barcode label and traceability**

The packaging cartons for the filters and chokes are marked with a packaging label as standard. In addition, the information is displayed in barcode 39. This enables secure, fast and error-free identification up to the customer. In addition, the content of the barcode can be shown in plain text.

Upon request by the customer, different labels are possible for larger quantities which would incur a fee.

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The following image shows the basic structure of the barcode label. In practice, barcode labels may vary slightly for different types, depending on certification and production site.

The packaging label usually contains the following information:

- Manufacturer or brand name
- Name of the filter or choke Note on RoHS compatibility
- (1P): Product ordering code
- (9K): Purchase order number
- (D): Date of manufacture YYMMDD [Y = year; M = month; D = Day]
- (D): Batch number
- (Q): Quantity
- Country of manufacture

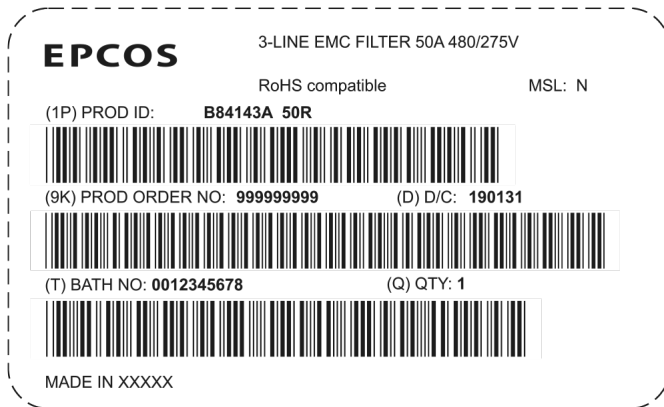


Figure 1 Example of a label on the packaging carton

### 1.9 Conditions of use

Filters and chokes may be used only as long as the technical specifications and assembly instructions are observed and in accordance with the state of the art. Non-observance of limits, operating conditions or handling guidelines can lead to interference in the circuit and additional undesired consequences, or to a higher failure rate.

Please note the "Important notes".

Should you have any application-referred questions, please contact our experts, who will be pleased to advise you.

### 1.10 Customer complaints

If a fault occurs in a product despite careful manufacture and testing, please contact your local sales organisation. They will register your complaint and forward it to the relevant technical departments for rapid handling.

TDK Electronics treats complaints according to the 8D<sup>1)</sup> methodology; i.e. with the use of interdisciplinary teams who aim to implement rapid countermeasures and sustained corrections and answer all complaints with an 8D report.

In order to be able to deal quickly and smoothly with complaints, the following data is helpful:

- Number of components subject to complaint or returned
- Fault description
- How and when was the fault detected?
- Logistics data (date code, delivery note no., order number) Operating conditions
- Operating duration up to occurrence of the fault Measurement parameters in the case of divergent technical data

In the case of transport damage, please provide a detailed description. If necessary, mark the damage so that it can be distinguished from other damage during return shipping. The original packaging should also be checked and any possible damage described. In order to prevent further damage, the original packaging should be used for returning goods.

Should you receive a damaged delivery, please document the damage and have this signed by the transport company on the delivery documents.

Please take care when repacking goods:

The capacitors in the filters can contain dangerous residual charges. So never touch the terminals! Be sure to short-circuit them reliably before packing!

1) 8D = 8 disciplines

## **2 Environmental management system**

### **2.1 Policy on the environment, energy, occupational protection and safety**

We are dedicated to preserving the environment and handle natural resources and energy consumption in a sustainable manner. This also applies to our production processes and our products. The environmental impacts of our products start to be evaluated in the development phase.

Our aim is to go beyond the legal requirements to prevent environmental pollution and reduce it to a minimum level as well as restrict energy consumption where economically and technically feasible.

Health and safety at the workplace are part of our company culture and reflect the responsibility of our employees.

#### **Directives on the environment, energy and occupational protection**

1. We are continually working on reducing the environmental impact, minimising the associated risks and lowering energy and resource consumption beyond the legal requirements.
2. We are taking suitable precautionary measures to avoid environmental hazards and prevent damage.
3. Potential impacts on the environment are evaluated and integrated as early as possible into process and product planning from the lifecycle perspective.
4. By using environmental, energy and occupational protection management, we are ensuring that this policy is being effectively implemented. The technical and organisational measures required for this purpose are regularly monitored and further developed on a continual basis. We are working on continually improving our management systems by setting our goals to improve our service in the fields of the environment, energy and occupational protection.
5. Each employee is obligated to behave in an environmentally conscious manner and follow the occupational protection rules. It is a continual obligation of the management to improve and promote a sense of responsibility for the environment, energy consumption and occupational protection and safety at all levels.
6. We are working along with our business partners to promote the adherence of similar goals. We provide our stakeholders with information on how they can minimise the negative impacts of our products on the environment or occupational protection and safety.
7. We work in a cooperative manner with the relevant authorities.
8. We inform the public about the impacts of our company and its processes on the environment and occupational protection and safety.
9. We regard a safe, healthy and pleasant working environment as the top priority in order to prevent accidents at work and damage to one's health. We observe all applicable statutory rules and all requirements to minimise OH&S risks.
10. We take preventive measures to reduce the risks for our employees and eradicate hazards. We integrate our employees into OH&S processes.
11. We support purchasing renewable energy sources and energy-efficient products, machines and services in order to improve our performance in the field of energy consumption.

## **2.2 Environmental management system**

An environmental management system based on ISO 14001 is used to ensure that the environmental protection principles of TDK Electronics are applied. It is posted on the TDK Electronics Intranet and is thus accessible to all employees.

## **2.3 Certification**

The TDK Electronics Group operates an environmental management system that conforms to the requirements of ISO 14001 and is mandatory for all production plants.

The corporate certificate is posted on the TDK Electronics Internet: [www.tdk-electronics.tdk.com](http://www.tdk-electronics.tdk.com).

## **2.4 RoHS**

The term "RoHS-compatible" shall mean the following:

Components defined as "RoHS-compatible" meet the requirements of Art. 4 of the 2011/65/EU ("RoHS II") directive of the European Parliament and Council for restricting the use of certain hazardous substances in electrical and electronic equipment of 8th June 2011 and implementing the provisions and requirements from RoHS II in the national law, as these provisions reflect the directive.

"RoHS-compatible" components do not contain any of the following substances with a proportion, with a proportion that exceeds the maximum concentration limit of 0.1% for lead, mercury, chromium-6, PBB, PBDE, DEHP, BBP; DBP, DIBP and 0.01% for cadmium at the level of the homogeneous material, unless the application is an exception according to Appendix III of "RoHS II".

## **2.5 REACH**

According to Art. 33 of the regulation (EC) No. 1907/2006 we are obliged to inform our customers immediately or upon request of a consumer within 45 days if we gain knowledge that a Substance of Very High Concern (SVHC) is contained in a product or its packaging with more than 0.1% weight percentage. Provided this substance is published by the European Chemical Agency via the candidates list.

TDK Electronics provides respective information on REACH on the Internet at [www.tdk-electronics.tdk.com](http://www.tdk-electronics.tdk.com). (REACH Candidates List and Information according REACH Art. 33, concerning TDK Electronics Products)

## **2.6 Banned and hazardous substances in components**

As a manufacturer of electronic components, we develop our products on the basis of sustainability.

In order to establish a standardised procedure for TDK Electronics worldwide, a material compliance management and a mandatory list of banned and declarable substances and substances of special interest (TDK Electronics BAD-SL) are part of our quality management system. The planning and development instructions include regulations and guidelines that aim to identify environmental aspects and to optimise products and processes with respect to material use and environmental compliance, to design them with sparing use of resources and to substitute hazardous substances as far as possible.

The inclusion of environmental aspects is monitored and recorded in inspections: the environmental officer offers support in evaluating the environmental impacts of development projects.

## **2.7 Material data sheets for product families**

TDK Electronics posts material data sheets on the Internet ([www.tdk-electronics.tdk.com/material](http://www.tdk-electronics.tdk.com/material)) that show typical compositions of product groups by selected representatives. The materials are listed with their percentage weight distribution referred to the respective component.

As per IEC/PAS 61906 (IEC 62474), all materials with a weight percentage exceeding 0.1% are listed. All details are typical values and may fluctuate within a product group or production batch.

The material data sheets do not represent guaranteed properties, but are merely given for purposes of information.

Please note in this connection the "Important notes".

## **2.8 Waste disposal**

All filters and chokes can be disposed of, reused or recycled depending on their type. On this point, the specifications of the country concerned must be observed.