

POWERBOX  
Mastering Power

Supplier handbook

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# Supplier handbook

## 1. Introduction

The purpose of the POWERBOX supplier handbook is to provide a general overview of POWERBOX expectations of its suppliers as regards developing an understanding of the related interactions and interfaces. As suppliers are responsible for providing quality products on time with optimal costs, this document is applicable for both contract manufacturers and suppliers that provide both design services and standard products. It is intended to provide guidance as how to build supplier operations that meet our company requirements.

The supplier handbook also clarifies requirements regarding POWERBOX environmental, sustainability and code of conduct requirements.

The supplier handbook does not overrule any signed agreements, project or product specific specification or requirements.

## 2. Code of conduct

### Scope of application

The principles in our Code of Conduct are based on the OECD's guideline for multinational companies. POWERBOX code of conduct has been adopted to underscore the principles by which the company conducts its relations with employees, business partners and other stakeholders.

POWERBOX encourage suppliers, partners, consultants and other business partners within its sphere of influence to adopt this principles. In assessment of potential and current suppliers, the principles described in this documents shall be applied.

### Business principles

Legal compliance - In every country in which it operates, the supplier shall abide by the laws and regulations of that country. In situations where the law does not give guidance, the organization applies its own standards based on its corporate values and culture. In cases of conflict between mandatory law and the principles contained in this code, the law shall prevail.

### Relations with business partners

Suppliers to POWERBOX dealings with its business partners are characterized by fairness. The supplier shall not offer customers, potential customers, governments,

agencies of governments, or any representatives of such entities, any rewards or benefits in violation of either applicable laws or reasonable and generally accepted business practices.

### Accounting and reporting

All financial transactions by the supplier must be reported in accordance with generally accepted accounting practices, and accounting records must show the nature of all transactions in a correct and non-misleading manner.

### Environmental principles

#### Resource Efficiency

Powerbox products and processes are designed in such a way that energy and raw materials are used efficiently, and waste and residual products are minimized over the products' life cycles.

#### Precautionary principle

The supplier shall support the precautionary principle by avoiding materials and methods posing environmental and health risks when suitable alternatives are available.

#### Human rights and workplace practices human rights

Within its sphere of influence, the supplier shall support and respects the protection of internationally proclaimed human rights and ensures that it is not complicit in human rights abuses.

#### Non-discrimination

The supplier shall hires and treats its employees in a manner that does not discriminate with regard to gender, race, religion, age, disability, sexual orientation, and nationality, and political opinion, union affiliation, social or ethnic origin. Workplace diversity at all levels is encouraged.

#### Labor

No form of forced, compulsory or child labor is by Powerbox. The minimum employment age is the age of completion of compulsory school. Freedom of association and the right to collective bargaining and agreements shall be respected in all operations.

#### Work Environment

The necessary conditions for a safe and healthy work environment shall be provided for all employees.

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## **3. Protection of proprietary information**

Information handled between POWERBOX and its partners shall be covered under an NDA between the parties.

## **4. Quality system requirements**

Suppliers are responsible for development, documentation, implementation and maintenance of a quality system that complies with ISO9000 and ISO14000 as a minimum quality demand. Compliance with ISO13485 / IRIS is preferred for suppliers within the Medical respectively Railway segment.

## **5. Product design**

Suppliers / partners that provide product design services shall implement and maintain a process that secure proper verification and validation of products. POWERBOX shall full access to the results from the verification and validation process.

## **6. Audits**

POWERBOX will carry out audits on regular base. The supplier is required to take action and respond to identified non conformities and observations within the stipulated time frame.

## **7. Access to production site**

POWERBOX or Customer to POWERBOX shall be able to visit supplier's/ partner's production facilities. Such visit shall be announced in advanced and be agreed by the parts. POWERBOX will always have a representative during a visit requested by an end customer.

## **8. Supplier performance measurement**

Supplier performance will be measured on regular base. Typical parameters are: delivery precision, delivery accuracy, non-conformities identified during inbound inspection, end customer complaints and response times. Suppliers that fail to meet the targets will be notified in written.

## **9. Prohibited and restricted materials**

POWERBOX requires its suppliers and partners to follows REACH, RoHS and restrictions regarding Conflict Minerals or other relevant laws and restrictions

## **10. Handling of customer owned production equipment**

Production equipment owned by POWERBOX or end customer shall be clearly marked regards the ownership.

The supplier is responsible for day to day maintenance and calibration as long as anything else not has been agreed. Equipment owned by POWERBOX shall only be used for manufacturing of POWERBOX products.

## **11. Workmanship**

All manufacturing shall be done in accordance with relevant IPC standards. POWERBOX minimum requirement is that the manufacturing process comply with the IPC 610 II if nothing else has been agreed.

## **12. ESD**

The supplier shall implement and maintain an ESD protection program that ensure that components, sub-assemblies and finished goods are fully ESD protected during the complete manufacturing process.

## **13. Process statistics and yields**

Suppliers that manufacturer products that are designed by POWERBOX are required to provide first pass yield data from each production step on regular base as part of the suppliers work with continues improvement.

## **14. Deviations permits**

Deviations from agreed product or process specifications must be applied in written. The request shall as a minimum include: reason for the request, description of the deviation, potential impact on the product, delivery schedule and quality performance. Acceptance from POWERBOX shall be received in written before manufacturing / delivery.

## **15. Traceability**

The supplier shall establish and maintain a system for traceability of changes in documentation, products and processes. The requirements in the product unique production quality plan for products designed by Powerbox shall apply when applicable. Batch controlled traceability on component level is preferred and might occur as a requirement in specific projects.

## **16. Retention of records**

Quality records for the product delivered under the Purchase Order must be retained for a minimum of seven 10 after final delivery unless other time period has been agreed.

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## 17. Handling of non-conformance

Powerbox requires its suppliers / partners to respond on reported none conformities within the time frame that has been stipulated by Powerbox. Reporting shall be done in 8D format or in other well recognized format. The report shall as a minimum include a root cause analyze, containment action, corrective action and a preventive action.

## 18. Change control

Depending on the type of change the supplier is expected to request approval (before implementing), inform (before implementing) and maintain traceability on when the change was implemented. A guideline to when approval is requested is shown in the tables below.

Table 1, partners that provides both design and products

Type of change	No requirement	Inform	Request approval
Changed specifications		X	
Change component due to obsolescence	X		
Changed components related to root cause analyses and yield improvements.		X	
Changed manufacturing site		X	
Changed manufacturing process		X	
Changed sub suppliers for product unique parts		X	

Table 2, suppliers (CEM's) that manufacture products designed by POWERBOX

Type of change	No requirement	Inform	Request approval
Changed sub suppliers for product unique parts			X
Changed manufacturing site			X
Changed manufacturing process			X
Changed manufacturing equipment			X
Changed process material / chemicals X			
Changed organization		X	

## 19. Continues improvements

Suppliers / partners to POWERBOX shall work efficiently with their own improvements and continuously strive towards higher efficiency and lower cost.



# About Powerbox

## **Who we are**

The combination of our extensive standard product range, our custom design capability, and our service offering, is truly unique. 40+ years of designing power supplies for demanding applications has built a rock solid experience. Our "Making the complex simple" business idea runs throughout our operation, from our customer interface and cooperation to how we design our products.

## **Improving your competitiveness**

The power solution chosen for any electronics has an impact on competitiveness. Function and reliability are given basics. Size, weight and audible noise might be important. Cost is always a consideration. Standards fulfillment can open up new markets. Time to market might be critical. Well executed supply chain management can generate savings. Aftermarket support has a lasting long term impact. The list goes on.

Our extensive experience and market awareness makes it simple to explain to us what you need. Together we define which power solution will serve your application the best. This close cooperation continues from conception and design, throughout production and taking into operation, well into the aftermarket phases of your product life-cycle. We contribute to your competitiveness all the way.

## **Making the complex simple**

With our global presence we are close to you, and our knowledge and experience of working with so many different applications helps to make life easier for you. We can assist at all stages of product development, including evaluations, validations, and the writing of specifications.

We aim for simplicity in design, referring both to lean design with fewer components and to a modular approach reusing proven circuits and building blocks, maybe with some modifications.

Our services for logistics, implementation and aftermarket support makes life simpler both for you and for your customers, and our endurance makes sure it stays that way.

## **Quality assurance and follow-up**

Quality is an integrated part of everything we do. Our design process includes extensive testing, internal as well as external. Tests are also frequently run by our customers in their respective applications. In addition to the information we gain by tracking repairs and service requests, we also do regular quality follow up together with

our customers, all to ensure a long and trouble-free life for our products.

Powerbox is also certified by DNV according to ISO 9001:2008.

## **Manufacturing**

We manufacture at selected CEMs (Contract Equipment Manufacturer), where we apply rigorous process and quality requirements. We aim for long-term relationship with our manufacturing partners. A dedicated team for CEM Management and Quality Assurance work closely with them. Both when selecting a new partner and in the ongoing relationship with our existing partners we evaluate a large number of parameters, covering company profile, organization, manufacturing processes, and quality assurance.

## **Caring for the environment**

At Powerbox we take an active role in protecting our environment. Our contribution includes:

Streamlined solutions and lean design using fewer components reduces material used. RoHS, WEEE and REACH are among the standards governing choice of materials.

High efficiency reduces energy consumption both directly by reducing losses and indirectly by reducing the need for cooling.

Energy efficient transportation and well developed use of online meetings are important elements in our determination to meet or exceed international standards by sustaining ISO-14001 compliance or the equivalent.

## **Providing peace of mind**

Even the best designed power solutions might require midlife support. Components involved in the design might be discontinued, or the application might be modified or changed, requiring changes in the power solution. In situations like this Powerbox' stability and endurance, and long term approach to customer relations, are true comforts.

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