

**Quality at Weidmüller**  
**Quality guideline for suppliers**

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## 1 Foreword

Weidmüller promises its customers premium quality in all areas of activity.

Weidmüller can only fulfill this promise if its suppliers also actively meet their associated responsibilities within the supply chain.

This responsibility is considered as transferred to the supplier from the moment that a supplier is appointed and remains in place for the duration of the business relationship. A systematic and consistent onboarding process involving the active integration of our partners into our mindset and processes guarantees right from the start of the partnership that we are only working with suppliers who can meet our requirements on a long-term and sustainable basis.

In practice, we support our collaboration with suppliers by means of active supplier management and corresponding target agreements based on jointly established indicators. Joint learning outcomes relating to good and improvable practices are important and regular milestones in the collaboration process, and are used to determine the mutual development program. A good partnership is based on trust, competence and target-oriented communication.

The core aspect of our quality concept in the context of a supplier relationship involves the formulation of a permanent business relationship that is beneficial to both sides. We are looking forward to a successful collaboration.

## 2 Quality by performance

### 2.1 General requirements for Weidmüller suppliers

The basic prerequisite for the Weidmüller quality standards is a fully functioning and well-organised quality management system. Weidmüller suppliers must be able to ensure this and should strive to bring about the continual improvement of this system.

Our suppliers can achieve this by complying, on a sustainable basis, with the requirements specified below:

#### General requirements

- Based on DIN EN ISO 9000
  - Quality management system as per DIN EN ISO 9001 or higher
- Financial stability of the company
- Banking and credit-worthiness, insurance



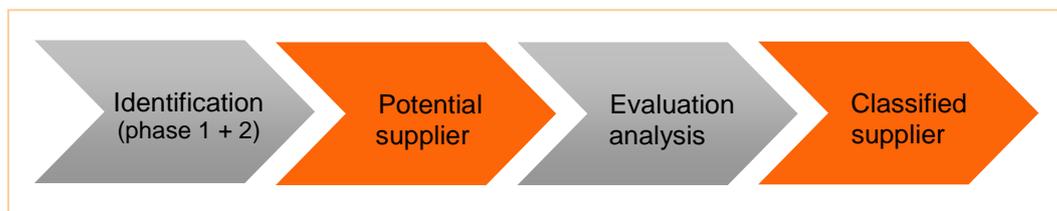
#### Weidmüller onboarding

The onboarding process forms the basis for the procedure followed by Weidmüller when appointing new suppliers. The process uses standardised methods and procedures to ensure high levels of transparency and comparability between the potential suppliers.

Before selecting a new supplier, Weidmüller carries out a risk classification based on the products to be procured.

The onboarding process at Weidmüller is supported by the **Supplier Rating System**, which also includes the supplier registration process.

Onboarding phases:



As part of the identification phase, the supplier receives an email invitation from Weidmüller to phase 1. Following a positive internal assessment, the supplier then receives an invitation to phase 2, along with the necessary access authorisations for the final registration in the **Supplier Rating System**.

## Included in the 2 identification phases:

### Phase 1

- Supplier self-assessment
- Weidmüller material data requirements
- RoHS Declaration of Conformity, REACH Statement of Commitment
- Communication skills and communication systems
  - German/English in parent company
- Not on the sanctions list (Weidmüller-internal)
- Compliance with local environmental standards and statutory requirements

### Phase 2

- Extended supplier self-assessment
- Acceptance of the Weidmüller Code of Conduct
- Acceptance of Weidmüller Terms and Conditions of Purchase
- Acceptance of the Weidmüller Quality Management Agreement (QMA)
- Acceptance of Weidmüller requirements on quality pre-planning and on product and process release, based on VDA 2

After the identification process, the supplier run through the next step of **evaluation** and **analysis** based on standardised sets of criteria.

### **Evaluation and analysis:**

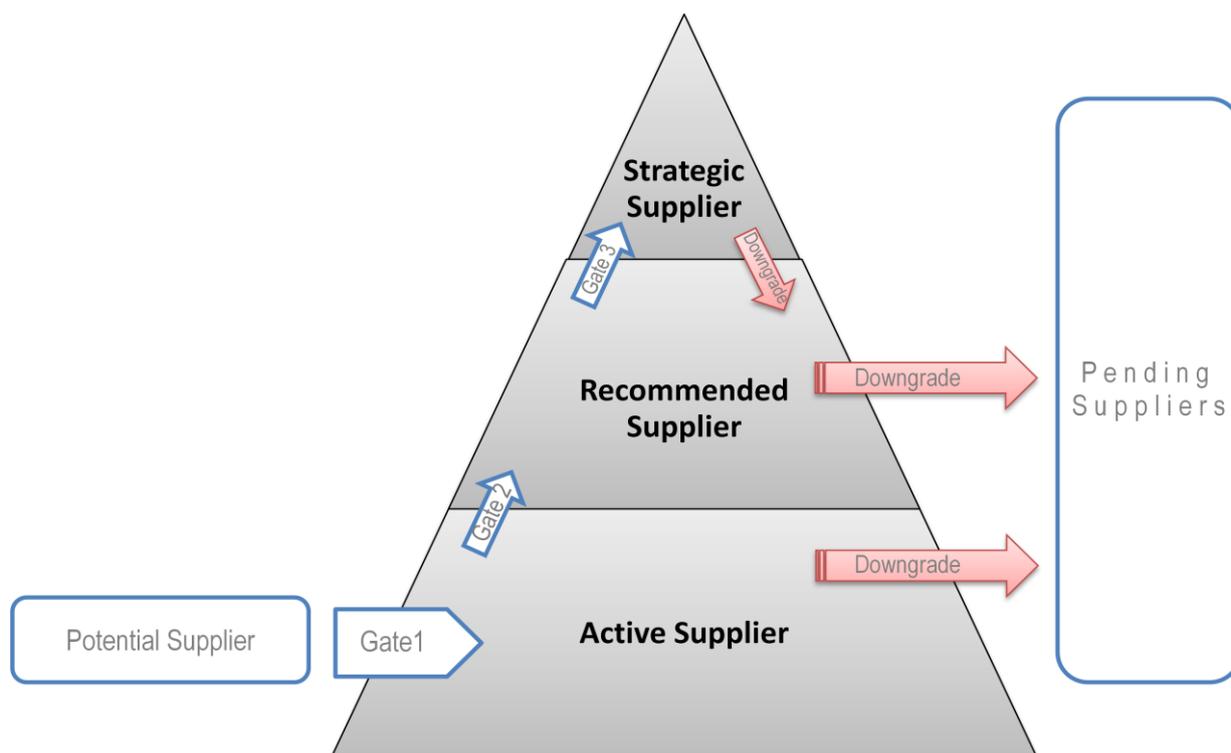
- Active evaluation of the supplier based on a cost-benefit analysis
- Supplier audit
- A "classified supplier" is entered in the database once the evaluation and analysis process is complete



## 2.2 Supplier classification

Suppliers at Weidmüller are divided into different classes, which enables them to be managed more efficiently.

The classes are as follows:



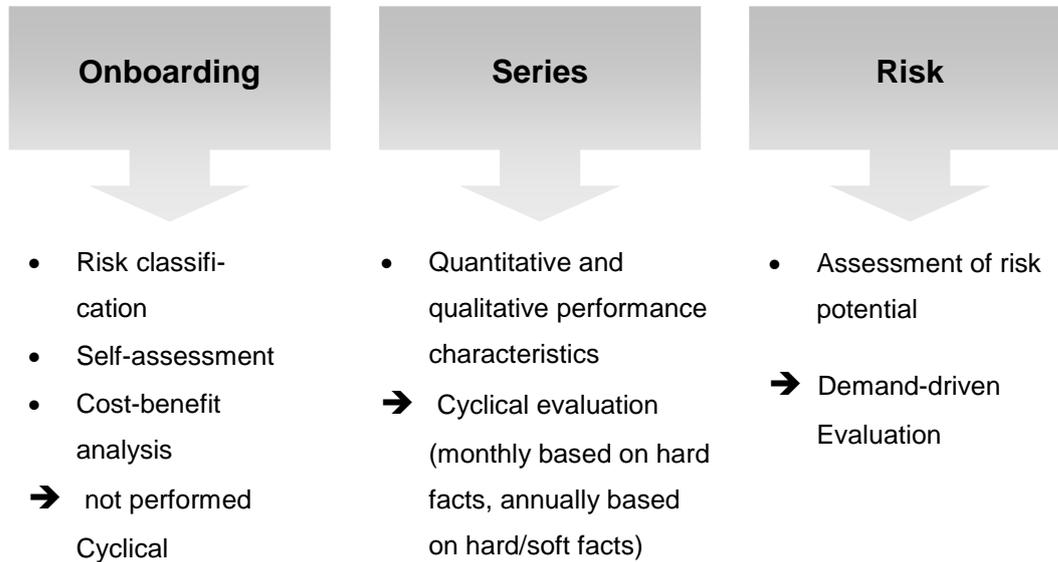
Gate 1 includes the approval of suppliers by Strategic Purchasing once the suppliers have successfully passed the onboarding stage.

The "**Active Supplier**" status has a one-year trial period. After this period, a new evaluation is performed within gate 2, after which a supplier is either approved as a "**Recommended Supplier**" or downgraded to "**Pending Supplier**".

After a year, an internal set of criteria is used within gate 3 to check whether the requirements for the status of "**Strategic Supplier**" are being met.

## The evaluation types/sets of criteria

Weidmüller suppliers are evaluated based on different sets of criteria, which form the basis for the evaluation types.



### **Onboarding/re-onboarding**

A comprehensive evaluation incorporating all evaluation dimensions takes place as part of the onboarding process. Depending on the risk potential of the product being procured, the risk analysis can additionally be performed at the supplier's premises, e.g. in the form of an audit.

### **Series**

The "Series" evaluation type is used to identify risk indicators for the current supplier performance. The evaluation results are used as a basis for the classification of suppliers within the Supplier Rating System.

Integration	(>90–100%)
Monitoring	(>80–90%)
Development	(>60–80%)
Examine alternatives	(below 60%)

The results are reported to the supplier in various formats, development goals are agreed and corrective measures are defined and introduced if necessary.

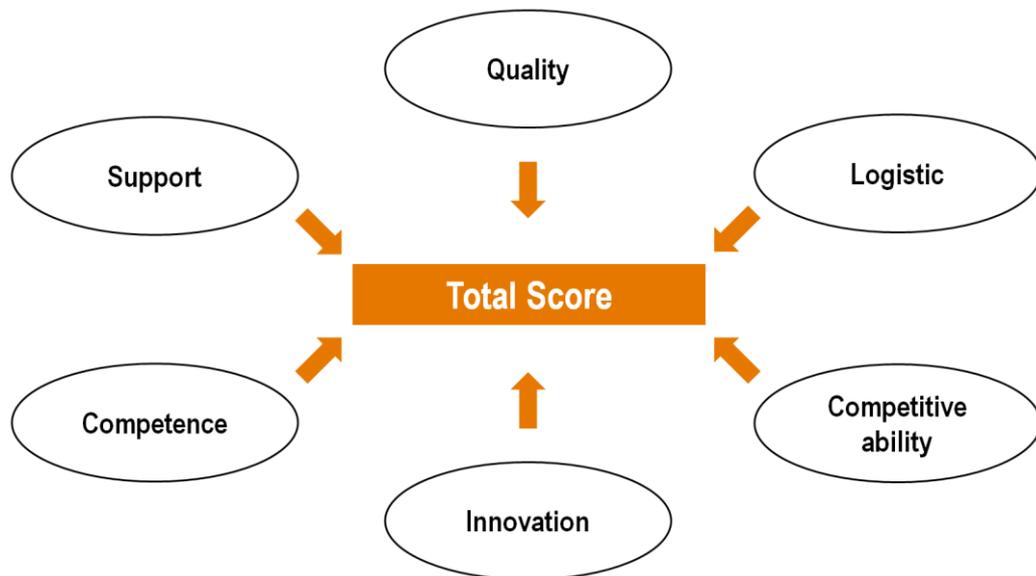
### **Risk**

The stability of our supplier relationships is of great importance to us. This evaluation type helps us to identify supplier-related risks at an early stage and to agree on joint risk-minimisation measures as required.

## 2.3 Supplier evaluation in series

Our suppliers are assessed in terms of their performance by means of a special evaluation procedure covering a range of different dimensions.

**The 6 evaluation dimensions of the supplier evaluation:**

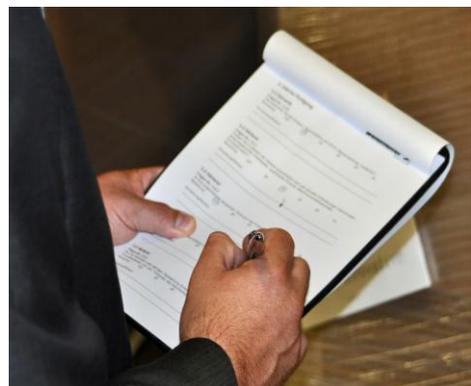


As well as the traditional dimensions such as quality and logistics, we also evaluate the competitiveness, innovative capability, competence and support of our suppliers. In order to ensure that our supplier evaluation is comprehensive and objective, it is carried out by trained evaluators from the relevant departments at Weidmüller on an inter-disciplinary basis.

### **Evaluation of the product quality and delivery reliability criteria**

The criteria of product quality and delivery reliability are key components of the **Supplier Rating System**. Due to their high importance in terms of the impact that they have on the supply chain, they are evaluated separately on a monthly basis, and suppliers are divided into A, B and C suppliers accordingly.

- A supplier: 100-98 points
- B supplier: 97–92 points
- C supplier: < 92 points



**Product quality:**

The results of the incoming goods inspections for individual deliveries are evaluated as follows:

- Flawless: 100 points
- Minor defects: 81 points
- Major defects: 31 points
- Critical defects: 1 point

Points can be subtracted for complaints from downstream processes (e.g. a customer complaint).

**Delivery reliability:**

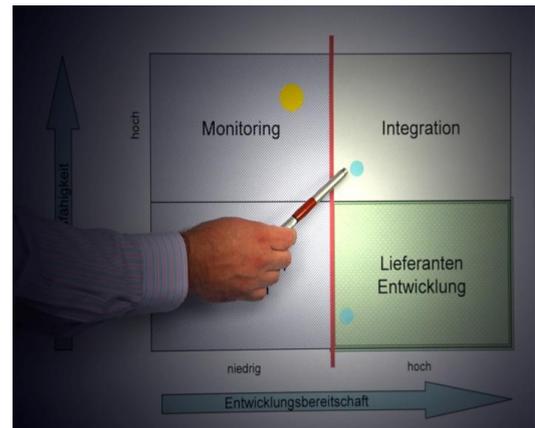
Delivery may be made up to **7 days** before the confirmed date, but must not be even one day late.

If delivery is made outside of this delivery window, this will also lead to a negative evaluation.

- Delivery window achieved: 100 points
- Delivery window not achieved: 1 point

## 2.4 Supplier development

Based on the findings from up-stream processes, corrective measures are implemented by the supplier as required. Depending on the complexity and importance of these measures, the supplier will be supported in this process by experts from Weidmüller.



## 2.5 Supplier audit

In order to maintain and increase the existing quality level, Weidmüller runs an audit program for suppliers. The audits are based on the requirements of VDA Volume 6.3. Weidmüller makes a distinction between scheduled and unscheduled audits here.

**Scheduled audits** are defined once a year in the audit program, and are performed independently of any current quality and delivery problems. They are primarily designed to ensure the continual improvement of processes and quality systems on both sides of the business relationship.

**Unscheduled audits** are primarily used in the event of problems, for the purposes of defect analysis and defect prevention, and to stabilise existing logistics and production processes. Onboarding audits are usually carried out in order to evaluate the suitability of new suppliers.

Suitable corrective measures are discussed and implemented together with the supplier based on the results of these audits.

## 3 Supplier project management

### 3.1 Quality pre-planning

In order to form robust processes and products, systematic planning is required right from the product development phase in order to ensure compliance with the Weidmüller requirements. This also applies in the event of product or process changes over the entire product lifecycle.

Weidmüller calls for quality pre-planning based on the APQP (Advanced Product Quality Planning) Standard of the automotive industry (QS 9000 Manual APQP/VDA 4).

Weidmüller provides the supplier with a quality management plan to use as a template for quality pre-planning. The contents and necessary evidence are agreed upon with Weidmüller at an early stage.

As a project progresses, regular maturity evaluations will need to be performed in the form of quality reviews, in order to assess the potential economical, technical, time-related and resource-dependent risks. The results are reviewed at each defined project milestone (gate) until the next project phase can be released.

The quality management plan for the quality pre-planning (APQP) covers the following key topics:



#### 3.1.1 Risk analysis

Weidmüller requires the supplier to perform a risk analysis/FMEA for the purpose of risk assessment and defect prevention for products and processes.

#### 3.1.2 Characteristic management

Characteristics need to be identified and evaluated during the course of a project. These characteristics are derived from the list of requirements and the risk analysis.

Weidmüller differentiates between the following important and special characteristics:

**Quality characteristics** have no significant impact on system's main functions and/or safety functions, but do have an impact on the main functions and secondary functions of an individual product.



**Special characteristics** have a significant impact on a system's main and/or safety functions, or on official regulations. These characteristics are therefore subdivided one step further (as below), and need to be agreed upon with Weidmüller:

**SC** (significant characteristic)

If an SC is not complied with, this causes a significant failure of a main function within the system/application, but does not lead to safety-critical behaviour.

**CC** (critical characteristic)

If a CC is not complied with, this causes safety-critical behaviour or the violation of legislation or official guidelines.

### 3.1.3 Assessment of manufacturability

The manufacturability of products by means of robust processes must be checked and evaluated by the supplier in advance, in relation to the list of requirements (LOR). The supplier is responsible for recording the specifications in the list of specifications (LOS). Once they have been submitted and reviewed, the specifications are approved by Weidmüller.

### 3.1.4 Analysis and evaluation of capabilities

The capability reviews listed below correspond to Weidmüller's **general specific requirements**. Any deviating values must be agreed upon separately with Weidmüller. Unless requirements exist to the contrary, the following values apply:

#### Short-term analysis:

It is important to analyse the influencing factors originating from the production facilities.

This analysis is a fundamental prerequisite for the release of production facilities.

Machine capability index:	<b>Cmk ≥ 1.33</b>	<b>SC</b>
	<b>Cmk ≥ 1.67</b>	<b>CC</b>

#### Provisional process capability:

The robustness and stability of the process must be reviewed prior to the product and process approval.

Provisional process capability index:	<b>Ppk ≥ 1.00</b>	<b>SC</b>
	<b>Ppk ≥ 1.33</b>	<b>CC</b>

#### Long-term capability:

The process must be monitored and examined on an ongoing basis, and the findings presented to Weidmüller on request.

Process capability index:	<b>Cpk ≥ 1.00</b>	<b>SC</b>
	<b>Cpk ≥ 1.33</b>	<b>CC</b>

### 3.2 Product and process approval procedure (PPAP)

The quality pre-planning is a prerequisite for successful product and process approval under series conditions.

The PPAP (Production Part Approval Process) defines the general requirements for the product and process approval. As part of the up-stream APQP process, the requirements and their documentation are jointly defined by the supplier and Weidmüller, using the quality management plan.

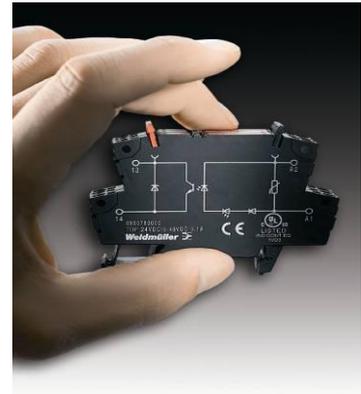
This documentation is used to assess whether all requirements have been met in full and whether the manufacturing process demonstrates stable and consistent production in line with these requirements.

#### Documentation and scope of sampling for Weidmüller:

Weidmüller provides the supplier an initial sample inspection report (ISIR) as a template, the contents of which predominantly comply with the VDA 2.

In joint consultation with the supplier, Weidmüller sets out the submission level and the individual content, specifying the scope of evidence, documents and samples.

Weidmüller must have issued a written approval of the initial sample inspection report (ISIR) before the first series delivery. This approval does not release the supplier from its duty of constant process monitoring.



Standard parts only need to be sampled if this is requested by Weidmüller.

## 4 Quality in series production

### 4.1 Notification requirements

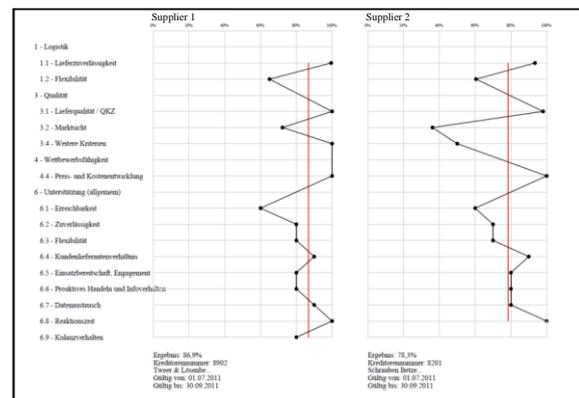
Weidmüller must be notified if:

- Quality problems occur
- The design is modified in a way that impacts on the drawing, specification and/or material of the series product
- Production processes are changed (e.g. production shifts)

Changes to products or processes require re-sampling as per the product and process approval procedure (3.2).

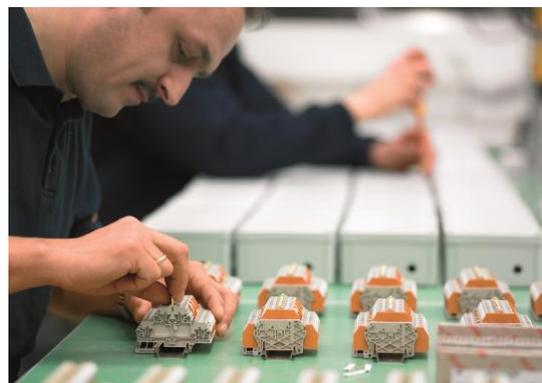
### 4.2 Target agreements with suppliers

Individual performance and development targets are agreed upon with the supplier as required. The agreed measures are stored in the Supplier Rating System, where they are followed up by Global Supplier Development.



### 4.3 Quality costs

If quality costs arise as a result of defective products from the supplier, Weidmüller is entitled to bill the supplier either as a lump sum or at cost, based on itemised proof.



## 4.4 Complaints management

Delivery defects identified by Weidmüller on receipt of goods, or by the end customer, will be immediately reported to the supplier in the form of an inspection report.

Before returning the defective goods, Weidmüller will consult with the supplier in order to establish a joint approach.

The supplier must respond to Weidmüller's complaint with a conclusive 8D report and verification of a fault-cause analysis.

The following time limits apply for the submission of reports to Weidmüller:

Confirmation of receipt by the supplier:	24 hours
Short term corrective action:	48 hours
Long-term corrective action:	10 working days
Verification of containment/corrective action:	90 working days

## 4.5 Quality Management Agreement

Weidmüller and the supplier set out the technical and organisational processes in the form of quality management agreements.

## 5 Weidmüller documents and templates

Documents and templates are available for download from the “**Purchasing and supplier information**” area of the Weidmüller homepage. [www.weidmueller.com](http://www.weidmueller.com)

Contact: [suppliermanagement@weidmueller.de](mailto:suppliermanagement@weidmueller.de) (Global Supplier Development)