ICS 01.110

Descriptors: Quality preplanning, purchased parts suppliers

Contents





Earlier editions: 05-07

Revision: VN 1632 changed to VN 1631.

## 1 Objectives of quality preplanning

Quality preplanning is the foundation for fault prevention and continuous improvement of new and modified products and processes in the planning phase.

The objective is to examine all major points in the planning of a new or modified product and to take appropriate measures to secure the suitability of series-manufactured deliveries and the production of high-quality goods in compliance with all specifications for series production.

For this purpose, the supplier should be involved in the development of parts / prototypes at the earliest possible stage in order to jointly define the requirements for series production and secure their feasibility at this early stage.

Quality preplanning encompasses all phases of project planning and implementation, including the first feasibility analysis, examination of the technical documents and the system FMEA-product, the production of the system FMEA-process, monitoring plan, planning and manufacture, as well as verification of the suitability of tools, gauges, equipment, the specification of statistical processes control (SPC), packaging/transport/handling, and also the monitoring of parts, processes and services from suppliers.

## 2 Scope of application

This Voith standard applies to suppliers to Voith Turbo and to internal Voith production facilities, specifically to the market segment Road, and to all locations and Voith Turbo companies in conjunction with the respectively valid order and delivery specifications.
This Voith standard replaces the quality directive QRar030 of the market segment Road within Voith Turbo.



## 3 Definition of terms

| | |
|---|---|
| MFU | Machine qualifying examination |
| PVA | Process instructions |
| PFU | Process qualifying examination |
| QVP | Quality preplanning |
| VN | Voith standard |

## 4 Responsibilities

The QVP for suppliers encompasses the quality planning for all manufactured parts (internal) and purchased parts (external) of the supplier. All steps of planning described below must be conducted for each respective new part. The supplier provides feedback using the “Quality Assessment Checklist“. A status must be given to manufactured and purchased parts of the supplier (blanks, external machining, subsuppliers) which summarises the individual assessments and which emphasises critical items individually. A status must also be determined for complex components consisting of several individual parts.

The supplier is obliged to report the planning timeline and the status of the QVP to the QA departments of the factories regularly upon request using the enclosed form. For particularly critical parts (high customer requirements with high technical process and/or development risk), the status of the QVP will be verified on the supplier’s premises.

The supplier will be supported as necessary by the development/design, value analysis and QA departments of the factories and by the purchasing department in conducting the QVP (for purchased parts).

## 5 Selection / assessment of suppliers

A QM system forms the basis for the installation of quality-assured processes. As evidence of the existence and functionality of this trust-forming basis, a supplier should produce a copy of a valid certificate to DIN EN ISO 9001 or a higher QM system qualification (such as VDA 6.1, QS 9000, ISO TS 16949).

If the supplier is not certified but an assessment of his QM system by one of his customers exists, the most recent audit results are adopted as evidence.

For new suppliers or if requested by the purchasing department, an assessment of the supplier will be conducted by the Supplier Quality functions of the market divisions.

All evidence of the QM system must be sent to the responsible Supplier Quality departments of the market divisions.

## 6 Requirements on the product and process, feasibility analysis

Drawings made by the Voith development and design departments or by the supplier himself must be analysed by the supplier in the course of contract examination. This analysis includes the economical and process feasibility (methods, materials, tolerances etc.) and forms an instrument of Simultaneous Engineering. This assessment makes it possible for the supplier to add his experience, recommendations and future expectations to the mutual benefit.
The requirements on the product and the process must comply with the requirements of the market and the expectations of Voith. The product must be competitive.

The documentation of the analysis is conducted using the form sheet in Appendix 1, which lists the activities required of the supplier.

The feedback report of the feasibility analysis must be presented together with the quotation at the latest.

## 7 Product and process development planning (QM plan)

The fundamental planning for the development and/or manufacture of the product on the basis of the requirements of Voith must have been completed when a quotation is submitted, which must then be substantiated after the order has been accepted and must be documented in a product and process development plan. Existing technical and human resources must be taken into account and extensions of these must be planned.

In the substantiation of all tasks, objectives and deadlines, interdisciplinary co-operation between all interacting departments must be employed and all tasks and responsibilities must be explicitly defined.

The people responsible for the project in the technical departments such as development, design of purchasing at Voith will provide the supplier with a project-specific time schedule. This time schedule specified the deadlines which must be upheld for feedback reports using the respectively designated forms.

If the supplier is not in possession of the forms enclosed in the appendix, he should refer to the Procurement Management department or Supplier Quality of the market division.

## 8 Process and work planning

Work plans must be made for all components and assemblies. These must contain all information on process steps, internal / external transport, means of transport and the employed machinery and equipment.

The process to manufacture the ordered product must be documented with all stages of value gain in so-called process flow diagrams, which must be submitted during the master sample inspection to the QS departments of the factories in compliance with submission stages 2 and 3.

## 9 Product and process system FMEA

The product risks must be made clear by interdisciplinary co-operation, including such between Voith and suppliers, and suitable measures must be taken to reduce these continuously.

For complex parts or fully functional systems, a product system FMEA must be conducted in co-operation with the responsible Voith project team to examine the possible risks (see VDA Volume 4). These risks must be minimised by the introduction of measures. If requested by the Voith development departments, an interface FMEA must be completed jointly with Voith.

Other comparable analytical techniques must be agreed with Voith.

For example, the following must be taken into account:

- Customer requirements/specification leaflet / Voith requirement profile
- Function, safety, reliability, service friendliness, important properties
- Environmental aspects
- Inclusion of all affected departments of Voith and the supplier
- Results of trials
- Product-specific measures from the process system FMEA

The FMEA must be completed and revised on the following occasions:

- Development/production of new parts
- Introduction of new production processes
- Changes in processes

**9.1 Product system FMEA**

A product system FMEA must be conducted for all components for whose design the supplier is responsible.

With the product system FMEA, design-related weak points of the components are determined and assessed. In many cases, tests can then be avoided by optimisation of the design. Components with a high remaining risk require more accurate certainty by testing .

**9.2 Process system FMEA**

A process system FMEA must be conducted for all processes required for the delivery of the component to Voith as specified in the drawings. The results of the product system FMEA and the quality features designated by Voith (specific features) must be taken into special account.

The features important to the process resulting from the process system FMEA must be entered in the test plans and work documents and must be clearly marked as such. These features must be specially monitored during series production in the same way as the special features.

**9.3 Implementation of the measures**

High risks revealed with the aid of an FMEA must be minimised by suitable measures. Deadlines and responsible persons must be specified for the implementation of measures. Voith must be informed without delay of necessary design modifications.



**10 Production control plan**

The production control plan is a planning aid for preventive process assurance. It is created by a systematic analysis of procurement, production, assembly and testing processes by a team. This team should be composed of staff from the planning, production and quality assurance departments as well as other affected departments. The basis of the analysis is formed by process flow diagrams (see Chapter 8), any product system FMEA, the results of the process system FMEA taking account of the special features, experience with similar processes and with the application of improvement methods.

The production control plan (to DIN EN ISO 8402/3.13) is a dynamic document and must be produced/updated for new/modified products and/or processes and new critical faults.

The production control plan must be completed for the following phases:

**10.1 Pre-series phase**

A description of the dimension, material and function tests to be conducted before series production must be contained in the production control plan and must be agreed with the Voith development departments.

**10.2 Series phase**

Extensive documentation of the product and process features, the process control measures, the tests and the measuring systems used during series production must be contained in the production control plan and must be agreed with the Voith development departments and the responsible QA departments.

This information must include:

- Definition and marking of the test and quality features
- Production of the test process plan
- Provision of equipment and facilities
- Predictive provision of instrumentation in due time
- Tests at appropriate points in product implementation
- Clarification of acceptance criteria

**11 Production equipment planning**

Production equipment planning encompasses the planning and production / procurement of all production equipment necessary to manufacture the component. Production equipment must be subjected to machine qualifying reference examinations.

It must be ensured that production equipment must be available in adequate capacities at the beginning of the production of series parts for the master sample inspection date at the latest (machine qualifying reference is required). All equipment, internal and external transport facilities must also be taken into account. The personnel must be trained in the correct use of the production equipment.

## 12 Test planning

A test plan must be made to attain an insight into tests, their contents (test criteria), sequence, test equipment and the responsibilities for critical and important product and process features. The features must be classified according to their respective significance (see VN 1631). Furthermore, the test frequency and the means of documentation of the results must be stipulated in the test plan. It must contain information on statistical qualifying references which must be conducted before, after the beginning and during series production.

In the test equipment planning, i.e. before the test equipment is made or procured, it must be ensured that all test and quality features with regard to all specific (pert-related) gauges, test equipment and facilities are suitable in their accuracy and ruggedness and can be monitored.

The test plan must be completed before tools, equipment and particularly test equipment are procured.

The tests listed in the test plan must be documented wherever necessary in test instructions, which must also be adopted as specifications in the test plan.

### 12.1 Test equipment qualification (measuring system analysis)

A test equipment qualifying reference must be provided for all test equipment. The entire measuring process and the tolerance of the tested feature must be taken into account.

### 12.2 Process analysis before series runs

The supplier must supply evidence of his mastery of the process at least for all specified test and quality features (marked in the drawing). This may be conducted by a short-term qualification (MFU) or by other suitable methods. The schedule planning must be made such that all qualifications are available at the master sample inspection date at the latest. The execution of the MFU is regulated by VDA Volume 4.0.

### 12.3 Process analysis after series runs

The execution of a long-term process qualification examination (PFU) must be planned for at least all test and quality features monitored by SPC during series production. Apart from the expense of training, the planning must take account of the SPC training of his staff and the provision of the SPC workplaces. A regular assessment of the SPC records (automatically if possible) must be conducted from the start of series production at the latest. The execution of the PFU is regulated by VDA Volume 4.0.

## 13 Planning of preventive maintenance

A system of preventive maintenance for production equipment must be developed to ensure the delivery capability. Apart from the specification of preventive maintenance intervals, an emergency strategy must be developed for the processes which have an influence on the delivery capability, such as for machines at bottlenecks and special tools.

A maintenance plan must be made which contains the maintenance intervals and the extent of maintenance work. Consistent execution must be documented in writing.

## 14 Logistics

### 14.1 Packaging planning

The specification of the type of packaging, transport and handling/storage has an influence on the requirements on the product and also on the supplied quality and passage times from the supplier to the Voith production departments and must therefore be adequately examined and agreed with the responsible Voith departments before series production in the course of the master sample inspection.

Methods of packaging and transport (extending for suppliers beyond the specification by Voith) must be defined such that all parts can be supplied directly and punctually to the production machines and assembly lines of Voith without damage, changes and avoiding all quality risks.

Agreements and specifications made by the supplier with Voith must be made and documented directly with the responsible order centre / logistics department of Voith.

If packaging materials are provided by Voith, their suitability, useage and circulating quantities must be jointly defined.

### 14.2 Preservation

All products which can be impaired by interaction with the environment must be suitably protected. The planned means of preservation (if necessary) must be agreed with the QA departments of the recipient Voith factories on the initiative of the supplier in due time before the beginning of series deliveries.

### 14.3 Subsupplier planning

Each supplier is responsible for ensuring that all products and services which he obtains from subsuppliers and used for Voith products comply with the Voith regulations. Each supplier must implement his own instructions accordingly.
If subsuppliers are nominated by Voith, the supplier is also obliged to enforce the Voith regulations with the subsupplier.

Changes in subsuppliers must be reported to Voith Turbo in due time and require approval. A production process and product approval according to VN 3205 must be conducted.
Voith Turbo reserves the right to audit subsuppliers. However, this does not release the supplier from his responsibilities to the subsupplier and Voith Turbo.

## 15 Personnel

### 15.1 Qualifications

All employees must be further qualified by regular training. The existing qualifications must be recorded. A correspondingly arranged training plan must be made on this basis. The main focus should be on reading drawings, SPC, controller board technology and handling operating materials.

Whenever a new workplace is introduced or an employee changes his workplace, each employee must be trained according to the new circumstances and requirements. Apart from the general focuses described above, particular attention must be paid to the workplace and the manufactured product during training. Corresponding records must be maintained.



### 15.2 Capacity

A sufficient capacity of qualified personnel must be planned to manufacture the additional scope of production. The planning must be conducted such that a sufficient capacity is available when production begins at the latest.

## 16 Workplace approval

Before production commences, an internal approval of all production and assembly workplaces must be conducted by the supplier. At least the items listed below must be examined:

- Qualifying reference fulfilled
- Fault detection ensured and documented
- Work documents with valid index complete and available
- Operating equipment available
- Maintenance plans available
- Test equipment available and suitable
- Sufficient number of suitable transport facilities available
- Material provision with index-related documents appropriate

Approval to begin production must only be given when all items have been successfully examined. This approval must be conducted by all responsible persons from the quality assurance, production, planning and any other affected departments by suitable means (e.g. checklist ) and must be documented with the date and signatures.

## 17 Agreement of series monitoring (test and quality features)

Test and quality features are features which require special monitoring. They are specified by Voith Turbo in the drawing (marked according to VN 1631) and are agreed with the supplier.

The planned series monitoring of these test and quality features by the supplier must be agreed with the responsible QA departments of the Voith factories.

In the course of series production, the monitoring of these features is a process control facility. For this purpose, evidence of mastery of the quality features resulting from the process process is usually produced with short-term qualification (MFU) and long-term qualification (preliminary process qualification, SPC). Other suitable evidence, such as an examination of the attributes of tool-related dimensions, are only permissible if approved by the responsible Voith Turbo QA departments.

The documentation of the selected test methods is made in the production control plan. This must be submitted fully completed during the master sample inspection with the master sample documentation.

**18 Prototype manufacture**

For prototype parts, a prototype test report for the first and last part (measurement report, material and function if appropriate) must be submitted with the first delivery and/or modification (index / part number). The VDA master sample form must be used for this purpose. In this report, all drawing features and the extent of the modifications must be proven on at least two parts.
The test and quality features in the prototype phase must be documented to 100% of the ordered quantity. The test and quality features are marked in the drawing or must be agreed by the supplier with the development and design departments of Voith Turbo. The measured parts must be marked and allocated to the sequential numbers in the measurement report.

**19 Production process and product approval**

The process and the product must be approved before production begins.
The supplier is bound to VN 3205 “Production process and product approval (master sample approval)“ in this respect. Approval to commence series production may only be granted after positive tests of all items demanded by VN 3205 and a master sample approval has been submitted by the Voith factories.

Apart from the information required in the master sample inspection report, the following documents are required according to the demanded submission stage:

- Process flow diagram (steps of production and testing)
- Production control plan (Control Plan, see Appendix C)
- Test equipment list (product-specific)
- Evidence of short-term qualification
- Evidence of compliance with statutory and customer-specific requirements as agreed with Voith Turbo (e.g. the environment, safety, recycling)
- List of all employed subsuppliers with allocation to the part and the process

**20 Process qualification assessment (PFU)**

The assessment of the PFU must be submitted for the first time when at least 25 random samples exists, each with 5 measured values.

The execution of the PFU is regulated by the corresponding VDA directives.
The results of the PFU must also be submitted with each supplementary sample inspection and if requested.

**21 Associated documents**

(in the current version)

Source for standards:
Beuth Verlag GmbH
Postfach 1145
10772 Berlin

| | | |
|---|---|---|
| 01 | DIN EN ISO 9000 | Quality management, terms |
| 02 | DIN EN ISO 9001:2000 | Quality management systems, requirements |
| 03 | DIN EN ISO14001 | Environmental management systems |
| 04 | DIN 55350-11 | Terms of quality assurance and statistice |

Verband der Automobilindustrie e.V. (VDA)
Source
Verband der Automobilindustrie e.V. (VDA)
Qualitätsmanagement Center (QMC)
Karl-Hermann-Flach-Str.2
D 61440 Oberursel
e-mail: info@vda-qmc.de

| | | |
|---|---|---|
| 05 | Volume 1 | Presentation of evidence |
| 06 | Volume 2 | Quality assurance of deliveries to the automotive industry |
| 07 | Volume 4 | Quality assurance before series production |
| 08 | Volume 6.3 | Process audit |
| 09 | ISO/TS 16949:2002 | Quality management systems, special requirements for the application of ISO 9001:2000 for series and spare parts production in the automotive industry |

Voith Turbo quality directives

| | | |
|---|---|---|
| 10 | QSV | Quality assurance agreements with Voith Turbo |
| 11 | VN 3205 PPF | Voith standard for production process and product approval, master sample approval |
| 12 | VN 1631 | Marking of special features |

**Appendix A**

**Part No.:** _____ **Index:** _____
**Designation:** _____ **Date:** _____
**Supplier / number:** _____ **Completed by:** _____

**1. Assessment of the individual elements of quality preplanning (QVP)**

| | **Elements of QVP** | **Assessment*** | | | | | **Date** | | **Comments** |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Start | End | |
| | | 1 | 2 | 3 | 4 | 5 | | | |
| 1. | Supplier selection / assessment | | | | | | | | |
| 2. | Feasibility analysis | | | | | | | | |
| 3. | Product / process development planning | | | | | | | | |
| 4. | Process / work planning | | | | | | | | |
| 5. | Product system FMEA | | | | | | | | |
| 5.1 | Process system FMEA | | | | | | | | |
| 5.2 | Implementation of measures | | | | | | | | |
| 6. | Production control plan (PLP) | | | | | | | | |
| 6.1 | PLP – pre-series | | | | | | | | |
| 6.2 | PLP – series | | | | | | | | |
| 7. | Production equipment planning | | | | | | | | |
| 8. | Test planning | | | | | | | | |
| 8.1 | Test equipment qualification | | | | | | | | |
| 8.2 | Process analysis MFU planning | | | | | | | | |
| 8.3 | Process analysis PFU planning | | | | | | | | |
| 9. | Preventive maintenance | | | | | | | | |
| 10. | Logistics | | | | | | | | |
| 10.1 | Packaging planning | | | | | | | | |
| 10.2 | Preservation | | | | | | | | |
| 10.3 | Subsupplier planning | | | | | | | | |
| 11. | Personnel | | | | | | | | |
| 11.1 | Qualifications | | | | | | | | |
| 11.2 | Capacity | | | | | | | | |
| 12. | Workplace approval | | | | | | | | |
| 13. | Agreement of quality features | | | | | | | | |
| 14. | Prototype production | | | | | | | | |
| 15. | Production process / product approval | | | | | | | | |
| 16. | Process qualification assessment | | | | | | | | |

**2. Overall results**

| | 1 | 2 | 3 | 4 | 5 | Comments |
|---|---|---|---|---|---|---|
| Average score | | | | | | |
| Poorest score | | | | | | |

**3. Miscellaneous**

Other comments:

* Legend

1 Green, no deviation from plan, series employment not endangered

2 Yellow, severe deviations from plan, series employment sustainable

3 Yellow, severe deviations from plan, series employment sustainable, problems possible at start, measures by supplier

4 Red, severe deviations from plan, series employment sustainable, substantial problems at start, support by Voith Turbo necessary

5 Red, severe deviations from plan, series employment unsustainable, postponement or redefinition necessary

**Appendix B**

**Feasibility analysis**
The form “Feasibility analysis“ (FBar9132) must be completed by the supplier in the course of quality preplanning for each component.

If no data from series production exists at this stage of planning, please enter values gained from experience with similar processes / components.

**Purpose**
The feasibility analysis must be conducted by the supplier at the earliest possible time in the interests of simultaneous engineering. Improvements suggested by the supplier and necessary modifications can then be taken into account in the in the development of the product.

The feasibility analysis contains an examination of the verified processes and economy of production in compliance with the drawing specifications. Experience gained with similar components must be included in this examination to exclude possible problems with the subsequent series production and to reveal potential improvements. For this reason, the supplier is requested to conduct a careful examination of the entries in the drawing under the above aspects of the verified process and economy of production.

The supplier will confirm the execution of the feasibility analysis with his signature and send the completed documents to Voith Turbo, Abteilung Beschaffungsmanagement MB-ar by the time of submission of his quotation at the latest.

**Explanations on completing the form**

**Form header**
The following entries must be made by the supplier in the provided boxes in the form header:

- Part No.: Part number of the component
- Rev. index: Revision index of the drawing
- Date: Date of the drawing revision indices
- Designation: Part designation (see drawing)
- Supplier: Name of the supplier
- Supplier No.: Voith supplier number of the supplier

Can all requirements be fulfilled? (Description on enclosed sheet)
An inquiry of the execution of a feasibility analysis for production under series conditions is made here.

During the feasibility study, all drawing specifications and further requirements made by Voith Turbo must be examined with regard to their implementation. The following documents must be observed:

- Quality assurance agreement QSV
- VN 3205 production process and product approval
- Special features (designated by Voith Turbo)
- Other Voith standards and order and delivery specifications
- All single part and blank drawings
- Specification booklets and test specifications (if existent)
- Permissible remaining residues

Please request lacking or incomplete documents from the appropriate departments of Voith Turbo.

The feasibility analysis includes the planning of the processes and all necessary facilities, e.g. equipment, machinery, technology, methods, personnel and transport.

It must be ensured that all requirements on the product can be implemented. In particular, the feasibility analysis must ensure that all drawing specifications can be measured by the supplier. Non-measurable features must be made known to Voith Turbo without delay with the answers on the form “Feasibility analysis“.

The experience and results gained with similar components must be taken into account in the feasibility analysis. The following instruments are appropriate:

- FMEAs
- Process flow diagrams
- Production control plans (QM plans)
- Qualifying reference analyses
- etc.

**Are the functions of the above specified component clearly described and have the resulting test and quality featured been identified?**
The supplier will be informed by Voith Turbo of the requirements on the function and the special features. This is conducted either with a specification leaflet, a marked drawing or test instructions.

The written documentation during the course of the project must be conducted using the form “Production control plan“ and also company-specific test and work documents.

**Is process qualification anticipated for each test and quality feature?**
The supplier must be in a position to produce all test and quality features by a qualified process.
For test and quality features for which process qualification is not anticipated, 100% testing must be facilitated to reliably sort out faulty products. Fault analyses must also be conducted and improvement measures initiated in order to achieve a qualified process for the affected feature.

**Are 100 % tests for test and quality features / processes intended in series production or can they be anticipated? (Description on enclosed sheet)**
Apart from the test and quality features, the function of a component is influenced by other features and processes. The supplier must therefore take all necessary measures to ensure that the respective component can be manufactured according to the drawing and its functions.

If 100% testing must be facilitated to fulfil these requirements and to sort out faulty products, this must be stated explicitly here. The planned tests must be described on a separate sheet if necessary. This permits a joint solution to be found if required, which may be achieved by:

- Process modification / optimisation
- Design measures
- Changed tolerances

**Are externally assigned processes planned? (Description on enclosed sheet)**
Externally assigned processes must be explicitly stated and documented on an enclosed sheet. This includes steps of work and also the full purchase of externally assigned products / processes. The subsuppliers must be stated with name and address on the enclosed sheet.

**Are there features, materials or processes for which reduced standards / modifications would lead to cost reduction and / or quality improvements? (Description on enclosed sheet)**
In the interests of simultaneous engineering, we request an examination of the requirements of the submitted drawing with regard to potential improvements. This must be conducted at the earliest possible time during development as modifications in the series are expensive.

The examination should be focussed on reduced standards or modifications to features, processes and materials leading to reduced costs.

These may be:

- Adjustment of the drawing specifications on an existing process
- Use of a comparable but more economical material
- Use of a more easily procured material

If you have specific recommendations for improvement, we request a detailed description on a separate sheet, with an estimate of the potential savings. Further handling will then be conducted exclusively by the responsible departments of Voith Turbo.

***Specify the master sample inspection date which you can confirm.***

***Specify the series production starting date which you can confirm.***
Dependable dates must be specified by the supplier to permit reliable project planning. With the master sample inspection date, we mean the date on which the supplier is in a position to deliver the parts as per drawing for approval of the series (see VN 3205). The first parts manufactured with the tooling, which require consultation with the development departments, are designated as “miscellaneous samples”. The series production starting date should take account of the period for preparation and implementation of economical series production.

***Specify your maximum internal and external fault rates in the first year of production.***
***Confirm the feasibility of the component.***

As the result of the conducted feasibility analysis, economical production on the basis of a zero fault prognosis in the form of the anticipated internal and external fault rates must be confirmed. This prognosis is based on the planned production and test conditions.
The economy of production by optimisation of processes and minimisation of fault costs must be ensured.

If the above statement is not applicable, please defer confirmation. In this case, please make contact with the procurement management department MB-ar without delay after returning the completed form in order to solve the existing problems jointly.

**Form: Feasibility analysis (FBar9132)**

Part No.: _____ Rev. index _____
Designation: _____ Date: _____
Supplier: _____ Supplier No.: _____

**Feasibility analysis for production under series conditions**

If no data exists for series production at the current stage of planning, please enter **values gained by experience** with similar processes / components / your own estimates.

| | yes | no |
|---|---|---|
| **1.** Can all requirements be fulfilled? (E.g. drawing, specification booklet, standards, specifications, trials). If not, which? (Enclosed sheet.) | ☐ | ☐ |
| **2.** Are the functions of the above designated component clearly described and have the resulting test and quality features been identified? If so, which? (Enclosed sheet.) | ☐ | ☐ |
| **3.** Is process qualification anticipated for each test and quality feature? | ☐ | ☐ |
| **4.** Is 100% testing intended or anticipated for test and quality features / processes in series production? If so, which? (Enclosed sheet.) | ☐ | ☐ |
| **5.** From your point of view as the supplier, are there further (production-relevant) special features? If so, which? (Enclosed sheet.) | ☐ | ☐ |
| **6.** Are externally assigned processes intended and planned? If so, which? (Enclosed sheet.) | ☐ | ☐ |
| **7.** Are there features, materials or processes for which reduced standards / modifications would lead to a reduction in costs and/or quality improvements? If so, which? (Enclosed sheet.) | ☐ | ☐ |

| | | ppm |
|---|---|---|
| **8.** Specify your estimate of the maximum fault rate in the first year of production | internal | |
| Specify your estimate of the maximum fault rate in the first year of production | external | |

| | |
|---|---|
| **9.** Specify the master sample inspection date which you can confirm. | |
| Specify the series production starting date which you can confirm. | |
| Tool capacity limit | |
| Annual quantity capacity limit | |

**10.**
We hereby confirm the feasibility of the designated component:

Date | Responsible person / Department / Tel. extension / e-mail | Signature

**Form: Feasibility analysis, enclosed sheet**

| | | | |
|---|---|---|---|
| Part No.: | | Rev. index | |
| Designation: | | Date: | |
| Supplier: | | Supplier No.: | |

**Feasibility analysis for production under series conditions**

| Item | Comments | Responsible person | Date |
|---|---|---|---|
| | | | |

**Appendix C: Production control plan (FBar9009)**

| VOITH | | | Production Control Plan / QM Plan | | |
|---|---|---|---|---|---|
| | | | | | |
| Prototype | Pre-series | Series | Author/initials/tel: | Date of first approval: | Date of revision: |
| Part number/last change/date | | | QM planning team: | Date of approval by design dept: | |
| Component: | | | Supplier/location/approval/date: | Date of approval by procurement dept: | |
| Supplier/location: | Supplier No: | | Date for further approvals (if necessary): | Date for further approvals (if necessary): | |

| Part/ process No. | Process name / description of the work | Machine, equipment, device, production tool | Features | | | Classifi-cation of special features | Methods | | | | | Reaction plan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No. | Product | Process | | Product / process specification / tolerances | Employed test system | Random sample | | Control method | |
| | | | | | | | | | Scope | Frequency | | |
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