

Supplier Guideline for Initial sampling



Objective and purpose

The guideline is intended to support a smooth process between the supplier and WILO for the initial sampling of purchased parts. Our prime objective is to release initial sample in the first run, this saves time and resources for WILO and the supplier. By delivering initial samples to WILO the supplier must comply with the rules and regulations of this guideline.

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1. Definition of initial samples

Initial samples are those products completely manufactured by means of the equipment, resources and processes used for series production under series production conditions.

With the **initial sample presentation**, it will be confirmed, that the supplier has fully understood the requirements and specifications defined by WILO and that he can guarantee for a serial delivery which is free from disturbances.

Provided initial samples must be qualified by supplier internally and come from stable production process with internal scrape rate within defined targets.

Other sample states (A-state, B-state, C-state) that have not been produced under series conditions cannot be used for initial sample presentation and are intended purely for prototype construction.

| Sample State | Condition | Manufacturing |
|-----------------------|---|--|
| A-State | Restricted function in regard to customer and internal specification e.g. operation temperature, look, dimensions Not suitable for endurance testing | <u>Special production</u> (prototype building) modification of existing products or parts Final materials only partially used Examples: stereolithography parts, milled from a solid block |
| B-State | As A-State, but suitable for the first trials in the final product and test bench Most of the installation dimensions meet the serial specifications Meet not all specifications for sure | Partly parts out of <u>experimental tools</u> As far as possible final materials are used Examples: Parts out of aluminum/soft tools |
| C-State | As B-State Meet mostly all specifications | Parts out of <u>serial tools</u> and near-serial process Final materials used |
| Initial Sample | Meet all specifications Quality requirements (statistically) secured Final packaging used/available | Parts out of <u>serial tools</u> serial processes and mounted and tested under serial conditions |
| Serial part | Released initial samples Serial parts, serial state released | <u>Series production</u> Parts out of <u>serial tools</u> serial processes and mounted and tested under serial conditions |

Note: In case of existing deviations to specifications (even after all improvement actions have been implemented), WILO must be contacted prior to delivery of IS and transmission of the documents.

2. Reason for initial sampling

Initial sampling applies, but is not limited to the following

WILO:

- New products
- New supplier
- Product modifications (e. g. material changes, dimension)
- Modifications of the technical documentation
- Alterations to legal requirements
- Re-sampling in case of limited release or rejection

Supplier:

- Change in production process (process, fixture, tool, casting die / pattern, etc.)
- Change of production site (e.g. Relocation of machines / relocation of production site)
- Change of material or sub-components (e.g., electronic parts)
- Change of a sub-supplier
- Suspension of production > 1 year

The above reasons must be communicated by the initiator. In the above cases, the supplier is obliged to inform WILO in proper timing. This is necessary to assess the effects in detail and to determine the need and the scope of sampling.

3. Identification of the initial samples

The initial samples (incl. packaging) must be clearly and permanently marked. This can be done by means of tags, labels or similar. The delivery notice and transport label (in addition to series requirements) must contain the remark "**initial sample**".

Template shown in the **attachment 1** can be used.

The samples (single parts) must be numbered consecutively (e.g., by marking).

4. Requirements and scope of initial sampling inspection

Initial samples are requested by WILO via a special initial sample order including a target delivery date.

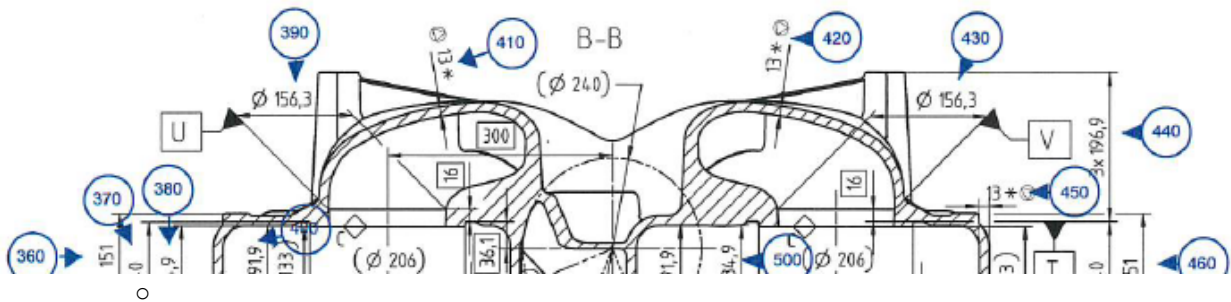
Documentation

- Coversheet (inspired by VDA Band 2) incl. the reason for the initial sampling
- Verification of all dimensions and specification of drawings and datasheets
- Documentation of all individual values for each sample part (incl. numbering)
 - For new parts, all dimensions and specifications (incl. the weight of part) must be checked / for modified drawings, only the affected dimensions
 - For multiple cavity tools sampling and documentation is mandatory for each cavity.
- For dimensions where machine capability is required, proof of capability must be provided. See description of symbols and requirements in chapter "*Special Characteristics in drawings and their meaning for initial sampling*"
- Documentation of tolerance per position (incl. general tolerances)
- Documentation of the used measurement equipment and its uncertainty of measurement result per position
- Self-evaluation of all results (OK/NOK)

Marking in Documentation

- Original WILO drawings have to be used for the initial sampling
- Checked dimensions and specifications have to be consecutively marked in the drawing/datasheet
(e.g., by using a hand stamp)

- Example:



Further mandatory evidence:


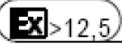


- Demonstrating compliance with the RoHS/Reach Directive (using a document)
- Proof (e.g., by the use of a photo documentation) that the products will be delivered according to the agreed packaging specification and or the general "DELIVERY INSTRUCTIONS for deliveries to locations of the WILO Group"

Further Requirements will be agreed between the supplier and WILO in the document "SQR - Supplier Quality Requirements". If the document is not available before the initial sample order, the supplier must proactively request this from WILO.

5. Special Characteristics in drawings and their meaning for initial sampling

Within the external drawing review all details of drawings / specifications will be determined. Detailed requirements for validation during initial sampling will be fixed in the "SQR - Supplier Quality Requirements".

Initial sample validation records must include evidence demonstrating proper compliance of the special characteristics marked on the drawings with following symbols.

| Symbols | Description | Possible evidence during initial sample validation |
|---|---|--|
|  Safety characteristics | Relevant for personal safety or for compliance with laws and regulations dealing safety aspects | $Cm-Cmk^{(1)} > 1,67$ |
|  Ex-Requirements | Same requirements as for safety characteristics | |
|  Functional characteristics | Relevant for product/system primary functionality | $Cm-Cmk^{(1)} > 1,33$ |
|  Process Control characteristics | Relevant for process controls | $Cm-Cmk^{(1)} > 1,33$ |

Beside capabilities the following actions could be agreed as evidence:

- 100% single part testing of characteristic or function
- 100% assembly or product testing of the relevant function (e.g., End of Line Testing)
- Depending on the manufacturing process other actions (e.g., process design actions to prevent deviations) can be discussed and fixed

IMPORTANT: The required targets must be met in a sustainable manner in series production using Ppk/Cpk⁽²⁾⁽³⁾. The targets must be part of the control plan. If Cpk/Ppk⁽²⁾⁽³⁾ cannot be met, Wilo must be informed, and measures must be initiated to meet the targets again sustainably.

- (1) Cm-Cmk: Machine capability index calculated from X parts made in a consecutive way without adjustment change. To make as soon as the equipment is operational. Typically, 30 consecutive parts are removed from the process for this purpose. The chronological sequence of the parts is documented to identify any trends.
- (2) Cp-Cpk: Operational capability index calculated from a sample taken in a batch (for example first series) or from X measurement recorded on the control charts. As a guideline, take 30 random samples of five parts each.
- (3) Pp-Ppk: Operational capability index calculated from a proper long-term production in serial conditions recorded on the control charts by effective results of parameters. The ideal case is to take random samples distributed over 20 days of production.

6. Possible decisions and their consequences

Approved: This means that all requirements are met without restriction. Approval for series production is granted. The release does not release the supplier from the responsibility for the quality of the parts.

Approved for tool lifetime: This means that all requirements are fulfilled without restriction and that existing deviations are accepted for the tool lifetime (a condition for this is a completed and released "IS deviations list" document). The release for series production is given. The release does not release the supplier from the responsibility for the quality of the parts.

Approved with concession (Quantity/time deviation release): This means that the requirements are not completely fulfilled. The delivery of the product may be limited in time or quantity in consultation with WILO (deviation approval required). The supplier is obliged to define and demonstrably implement corrective measures within an agreed period. A further run of the sampling procedure must take place in due time before expiry of the specified time/quantity limit. The release does not release the supplier from the responsibility for the quality of the parts.

Rejected: This means that the requirements are not met. Approval for series production is not granted. Re-sampling is required. The supplier must communicate corrective actions to WILO before resubmitting samples.

Canceled: The initial sampling was canceled.

7. Supplier Evaluation

Releasing initial samples in the first run saves time and resources for WILO and the supplier. Therefore, the initial sampling performance will also be used in the context of supplier evaluation. Focus is primarily on the needed runs (caused by the supplier) to finally release an initial sample.

Attachment 1

Template for Delivery label of Initial samples

| | | | |
|---|---|--|-------------------------|
| (1) Receiver WILO Adress | (2) Dock-Gate OST (in Dortmund) | | |
| (3) Avise Note No (N) | (4) Supplier Adress Supplier Adress | | |
| | (5) Net weight 345 | (6) Gross weoght 450 | (7) No Box 01 |
| (8) Part No (P) 123654 | INITIAL SAMPLE | | |
| (9) Quantity 5 | (10) Description PH.I32/70/86x220 6/10 1.4408 M10 | | |
| | (11) Supplier Part No (30S) XY123 | | |
| (12) Supplier code (V) 366701 | (13) Date 22.11.2022 | for the attention of WILO contact person | |
| | (15) Serial No (S) | | |
| (16) Batch No | | | |