

Acceptance test specifications

Machine acceptance test

Acceptance tests will be carried out according to these specifications unless expressly agreed otherwise by Mikron and customer.

Acceptance test sequence

Preparation

The machine shall be assembled at the Mikron works and put into service as well as adjusted, using the blanks and measuring devices supplied by the customer for this purpose.

Preliminary acceptance test at the Mikron works

A preliminary acceptance test shall be carried out at the Mikron works in the presence of the customer.

Final Acceptance test at the customer's premises

After setting up the machine at the customer's premises a final acceptance test shall be carried out.

1. Preliminary acceptance test

1.1 Starting conditions

The machine shall be adjusted by Mikron in accordance with the technical specifications and made ready for a trial production run.

1.2 Check of conformity

The customer shall inspect and check design and execution of the machine for conformity with contractual requirements (according to technical specifications):

1.3 Check of machining accuracy

1.3.1 Standard procedure

Following the previous checking of the adjustment of the machine by the customer (dimensional check of workpieces produced by the machine or check of records of measurement) a trial production run of a duration of at least 1 hour but not more than 4 hours shall be performed. During this trial production run random sampling shall be carried out, volume of which shall be previously agreed by the customer and Mikron. For the definition of this volume, criteria like the number of clamping devices, the cycle time and costs of measuring shall be considered. The number of samples shall however not exceed 100 workpieces. Samples taken shall be checked by the customer using his own measuring devices for evaluation. Accuracy requirements are considered satisfied if all measurements performed on the random samples give results within the tolerance limits shown on the drawings.

1.3.2 Checking according to customer's specification

Should the customer wish to check the accuracy of the machine according to a procedure different from the one shown in paragraph 1.3.1 above, he shall submit his own specifications to Mikron at the latest with his written purchase order. Any resulting excess expenditure is at the customer's charge.

1.4 Check of theoretical rate of production

Definition: Mikron designates as theoretical rate of production the number of machine cycles per minute. Measurement: during an agreed period of time (usually 1 minute), the cycles performed by the machine are counted.

1.5 Check of machine efficiency

In order to determine machine efficiency all machine stops in the course of the trial production run are recorded, together in each case with cause and duration. Machine efficiency is computed according to the formula below:

$$h = \frac{T - SM - SA}{T - SA}$$

machine

where

T = duration of the test production run

SM = sum of durations of machine stops due to the machine

SA = sum of durations of machine stops not imputable to the machine (e.g. non availability of blanks, stops imputable to defective blanks, work interruptions, etc.).

1.6 Protocol of preliminary acceptance test

Results of the preliminary acceptance test are stated in writing in the relative protocol. Customer and Mikron confirm the validity of the data contained in this protocol by their signatures. Such protocol will be deemed to constitute acceptance of the machine by the Customer.

1.7 Measuring devices, blanks for tests

Measuring devices required for adjustments during machine setup and for the preliminary acceptance tests as well as blanks required for tests and the trial production run mentioned above, are supplied to Mikron by the customer. Exact delivery dates for these are contained in the technical specifications.

1.8 Non-compliance with requirements

Should the results of the preliminary acceptance test show that one or more contractual requirements are not satisfied, the suitable actions to be taken shall be mutually agreed upon by the customer and Mikron. The customer shall not refuse to accept the machine and to sign the preliminary acceptance test protocol because of minor imperfections, in particular of such that do not significantly impair ability to function and performance of the machine. Such minor imperfections shall be remedied immediately by Mikron. In the case of significant deviations from the contract or important

deficiencies the customer shall permit Mikron to remedy such deviations or deficiencies within a reasonable time. After adequate actions have been taken the preliminary acceptance test shall be repeated.

1.9 Preliminary acceptance test delayed due to customer

The preliminary acceptance test is deemed also performed:

- if the test cannot be performed at the scheduled date due to reasons Mikron is not responsible for,
- as soon as the customer starts to use the machine,
- if the customer refuses acceptance of the machine without being justified to do so,
- if the customer refuses to sign the acceptance test protocol.

1.10 Waiving of the preliminary acceptance test

In particular cases, the preliminary acceptance test can be waived. Such waiver shall be expressly agreed upon by the customer and Mikron.

2. Final acceptance test

2.1 Procedure

The final acceptance test of the machine is performed at the customer's premises in the presence of Mikron's representative (usually the service engineer who sets up the machine). This test includes a production run of 4 to 8 hours. The customer checks once more, using his own equipment, satisfaction of the contractual requirements (technical specifications, protocol of the preliminary acceptance test) as well as the volume of the contract.

2.2 Protocol of acceptance

By signing the protocol of acceptance the customer confirms that the machine complies with the contractual requirements.

2.3 Non-compliance with the requirements

Should the results of the final acceptance test show that one or more contractual requirements have not been satisfied, further action shall be mutually agreed upon by the customer and Mikron. The customer shall not refuse to accept the machine and to sign the final acceptance test protocol because of minor imperfections, in particular of such that do not significantly impair ability to function and performance of the machine. Such minor imperfections shall be remedied immediately by Mikron. In the case of significant deviations from the contract or important deficiencies the customer shall permit Mikron to remedy such deviations or deficiencies within a reasonable limit of time. After adequate actions have been taken the final acceptance test shall be repeated.

2.4 Beginning of the guarantee period

The guarantee period shall cover 12 months or 2500 hours of operation and shall run from the date of final acceptance, or at latest three months after delivery by Mikron.

2.5 Machine efficiency

The machine efficiency is determined in accordance to VDI norms 3423. The first 3 months of production are not considered. From the 3rd month after the final acceptance signature up to the 6th month the customer records all machine stops in the course of the production run, together in each case with cause and duration. Machine efficiency is computed in compliance to VDI norms 3423 and according to the formula below:

$$h = \frac{T - SM - SA}{T - SA}$$

machine

where

T = duration of the test production run

SM = sum of durations of machine stops due to the machine in accordance to VDI norms 3423

SA = sum of durations of machine stops not imputable to the machine (e.g. non availability of blanks, stops imputable to defective blanks, work interruptions, etc., in accordance to VDI norms 3423).

2.6 Acceptance delayed due to customer

Acceptance is deemed also valid:

- if the final acceptance test cannot be performed at the scheduled date due to reasons Mikron is not responsible for,
- as soon as the customer starts to use the machine,
- if the customer refuses acceptance of the machine without being justified to do so,
- if the customer refuses to sign the final acceptance test protocol.

3. General conditions

The Mikron General conditions of sale and delivery are applicable exclusively.

4. Training

During the period of acceptance preliminary test at the Mikron works, the customer (represented by max. 2 persons) can benefit from a short training course. This training will comprise of:

- a general introduction,
- training and instructions for operation and maintenance of the machine.

On request by the customer more extensive training can be given. Costs for such training shall be at the purchaser's charge.

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