## 1. Purpose

This working instruction describes the characteristics of the different feature types and also serves to unify the language used in the company and the communication with the suppliers.
Furthermore the identification of characteristics in drawings serves for

- notice for users
- indicates possible risks
- basis for the quality planning  at the definition of test intervals
- basis for developing of the supplier
- basis to form the process control more efficient (focus on key features)
- basis for the work planning (coordination of working processes)
- basis for ordering the equipment

## 2. Scope

Design, Quality Management, Supplier

## 3. Implementation

**Definitions**

To differentiate between the different feature types and –markings applies the following definition. These have to be used according on the drawings by the design department.

### 3.1. Test Criteria's

Test criteria's by definition within the meaning of this standard can be

- all geometry-depending dimensions, see further definitions regarding dimensions at chapter 3.3
- Relevant functional information, such as leakage, performance, noise, etc.
- decorative property details
- surface texture information
- shape and position tolerances
- heat and material information
- thread information etc.
- surface treatment information
- welding information
- work piece edge information
- other information

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Date/ Signature Date/ Signature

### 3.2 Definitions

For systems or component parts the important characteristics arise from the customer requirements or from internal requirements. The size of the test criteria's has to be agreed between the design department, quality planning and production.

Please note:

Regarding the test criteria's you can – depending on the requirements – differ between:

a) critical (requiring documentation) characteristic, if

- safety aspects or
- compliance with legal requirements

are affected.

b) important (significant) characteristic, for example, if

- the mounting capability
- the function
- the appearance
- the quality of subsequent operations

are affected.

### 3.3 Dimensions

A measure is a physical size, resulting from a measure and a unit composed. Extent within the meaning of this standard length measurements are given in units of length and angle measurements, specified in angular units.

#### 3.3.1 Auxiliary dimension

An auxiliary dimension is a dimension, which is not required for the geometric determination of a part. It is not considered as part of the contract.

According DIN 406-10 auxiliary dimensions are set in parentheses.

Example: (50)

#### 3.3.2 Gross

A mass is a measure, based on the initial state of an object refers to. Mass are in accordance with DIN 406-10 in square brackets.

Example: [50]

#### 3.3.3 Pre-work dimensions

A pre-work dimension is a measurement, which defines a processing intermediate state of a form element, e.g. the measurement before grinding or before coating.

Pre-work dimensions are in accordance with DIN 406-10 also in square brackets.

Example: [49.98-0,02]

#### 3.3.4 Non-dimensional scale marked

For non-dimensional scale is marked with a size underscore.

Example: 45,5

#### 3.3.5 Function measurements

A function measurement is a measure for determining the shape, size or position of form elements or spaces for the function of individual parts or groups.

Important function measurements within the meaning of this standard are marked with the symbols for test criteria's identified in section 4.

### 3.3.6 Theoretically exact dimensions

A theoretically accurate measure is a measure to indicate the geometrically ideal (theoretically exact) position or form of dimensioned sketches of the form element.

Theoretically exact dimensions are in the form and position tolerance according to DIN EN ISO 1101 for position, inclination and profile shape tolerances required and have to be marked with a rectangular frame.

Theoretically exact dimensions are always dimensions without tolerances.

Example: 


### 3.3.7 Further definitions

Definitions of nominal dimensions, actual dimensions, tolerances and fits see DIN ISO 286-1.

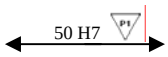
## 4. Labelling of test criteria's in the technical product documentation

### 4.1 Marking according customer specification

If a requirement by the customer exists, the identification of test criteria occur in accordance with the customers' specified kind of marking.

### 4.2 Internal marking

If a requirement by the customer does not exist, the marking of the test criteria in drawings occurs with the subsequently described symbols close to the test criteria which have to be marked.

Example: 


The marked features are in each case with a tolerance to it.

The marking of the symbols of test criteria's is supplemented with the registration of the inspection severity in accordance with the following definition added.

**Test severity**

P1 = Proof of the **process capability in production** (Cpk) or 100% test method. Information of the form of the range and histogram. Lot of measurements for the calculation basis ≥ 100 pieces for random sizes of 5 pieces (if applicable in agreement with QM-HJS).
Guideline is Cpk ≥ 1,33 provided that the customer requires no other value.
(This includes to proof the machine **interim process** capability Cmk / Ppk ≥ 1,67).

P2 = Proof of actual values and average is required. (variably / measuring inspection)
Test size ≥ 5 parts per shift or in agreement with QM-HJS.

P3 = Proof of actual values one-off for the EMPB / PPAP (test size ≥ 5 parts),
afterwards proof of an attributive test (ok- / nok-test), for example by a gage.
Test size in agreement with QM-HJS.

**Note:**

Test criteria's which are omitted from the drawing during the life time due to different reasons, have to be marked in the drawing with the change level.