

# Leseprobe

Christiani

est.1931

Operational training · Metal working

## Manual material processing

Checking: measuring, gauging



Text book

Dr.-Ing. Paul Christiani GmbH & Co. KG  
[www.christiani.de](http://www.christiani.de)

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## 1. General information

This booklet is part of the METINA (method-enintegrierte Ausbildung (English: method-integrated training)) training concept for IMBE developed by RUHRKOHLE AG. The concept includes the following written documentation for each stage of the occupational training plan at RUHRKOHLE AG:

### 1. Theoretical information

### 2. Trainer manual

### 3. Documentation for practical exercises

### 4. Documentation for trainees

The training concept is based on the premise that the qualifications required in the Training Ordinance are taught from systematically organised documents and/or in the form of learning processes that are similar to training courses in their nature.

Checking, measuring, gauging belongs to the "Manual material processing" part of the training programme. It is offered as a training course.

Other skills included in this part of the training programme:

- ▶ **Scribing, punching, marking**
- ▶ **Drilling, countersinking, reaming**
- ▶ **Sawing**
- ▶ **Filing**
- ▶ **Thread production**
- ▶ **Chiselling**

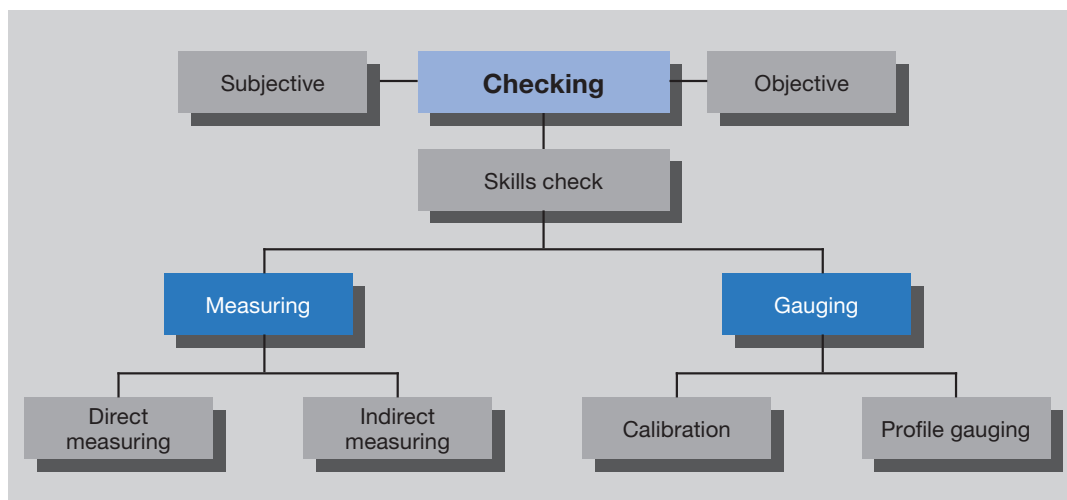
The training course is self-contained. It teaches skills and shares knowledge in a practical setting as part of an occupational training framework designed to meet the needs of industrial mechanics. In completing the exercises, trainees will learn basic skills and recognise and consolidate fundamental work techniques.

The theoretical information contained in this booklet is part of a comprehensive multimedia resource library and is readily available to both trainers and trainees in the training location.

## 2. Classification of checking: measuring and gauging

### 2.1 General information about measuring and gauging

Measuring and gauging come under the scope of skills checking according to DIN 1319.



Information about measuring and gauging is provided in DIN 1319.

## 3. General principles

### 3.1 Test engineering in production

Test engineering supports various methods of checking the quality or function of components or technical systems.

Measuring and gauging in production checks the quality of components.

### 3.2 Objective and subjective test methods

- ▶ Objective test methods must produce results that always contain a measured value (dimension value and unit of measure) or a conclusion (e.g. limit gauge) that is unequivocal. In other words, anyone carrying out the test using the same method must come to the same result.

#### Examples

Length or angular measurement; limit gauges.

- ▶ Subjective test methods lead to conclusions which can vary greatly from one tester to the next.

#### Example

Sampling surface roughness

### 3.3. Measuring and gauging

Measuring and gauging vary where the result of the test is concerned.

Measuring always produces a measurand (number and unit of measure); this is called the measured value.

#### Examples

- ▶ Length measurement in metres/millimetres.
- ▶ Angular measurement in degrees/minute.

Gauging always leads to a conclusion indicating whether the component is "good" or "not good". When coming to this decision, allowance is made for a certain deviation in terms of dimensions or form (tolerance). This means that there is no possibility of a "subjective conclusion".

The conclusion "not good" can have two consequences:

- ▶ Reject (scrap): tolerance limit has been exceeded to such an extent that reworking is not possible.
- ▶ Rework: only reworking will restore the component to a "good" state