

Leseprobe

Christiani

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Operational training · Metal working

Manual material processing

Scribing, punching, marking



Text book

Dr.-Ing. Paul Christiani GmbH & Co. KG
www.christiani.de

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1. General information

This booklet is part of the METINA (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.

Scribing, punching and marking 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:

- ▶ **Testing: measuring and gauging**
- ▶ **Drilling, countersinking, reaming**
- ▶ **Sawing**
- ▶ **Chiselling**
- ▶ **Filing**
- ▶ **Thread production**

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. Categorisation of scribing, punching and marking

2.1 General information about scribing

Scribing is the transfer of shapes and dimensions from drawings to the workpiece to be processed. Shapes and dimensions can also be transferred using templates or based on specifications.

2.2 General information about punching

Punching involves driving tapered recesses into workpieces. These recesses are known as punched holes.

2.3 General information about marking

Workpieces, components and assemblies have to be permanently marked for the purposes of assembly and disassembly. They can either be stamped with ID numbers or inscribed with an electric engraver.

3. General principles

Scribing is used:

- ▶ to manufacture workpieces to dimension
- ▶ as a way of checking workpieces during manufacture

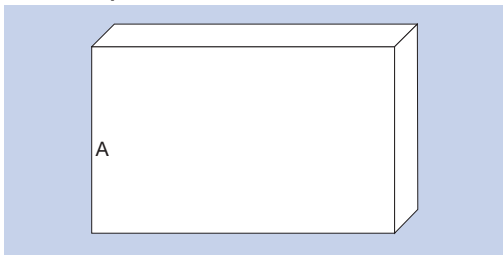
Scribing workpieces so that they are accurate in terms of their shape and dimensions makes them easier to process.

The reference plane

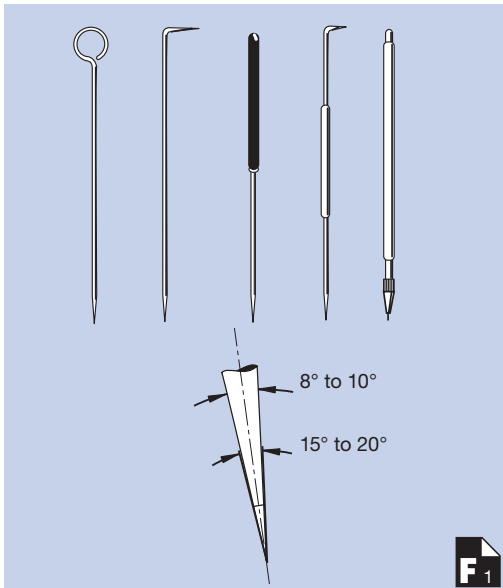
The reference plane is a surface or edge of a workpiece that is used as a basis for measuring and scribing all dimensions.

The reference plane can be marked with letters and must not be worked on any further.

Reference plane



Scribing



3.1 Scribing tools and equipment

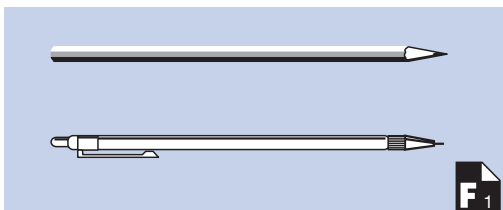
Steel needles

For scribing hard materials.

Brass needles

For scribing materials with surfaces which must not be damaged.

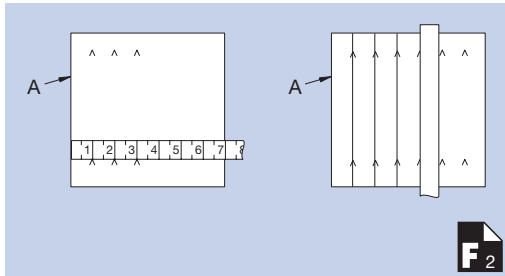
Pencils



Pencils

For marking very soft materials with surfaces which must not be damaged.

Steel ruler

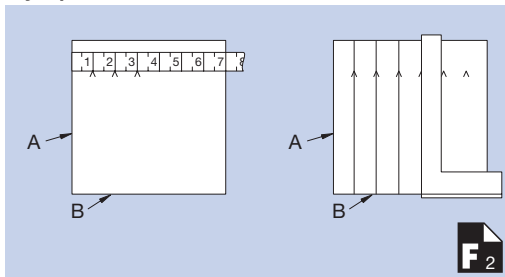


Steel ruler

For transferring dimensions and drawing short marks.

A = reference plane

Try square

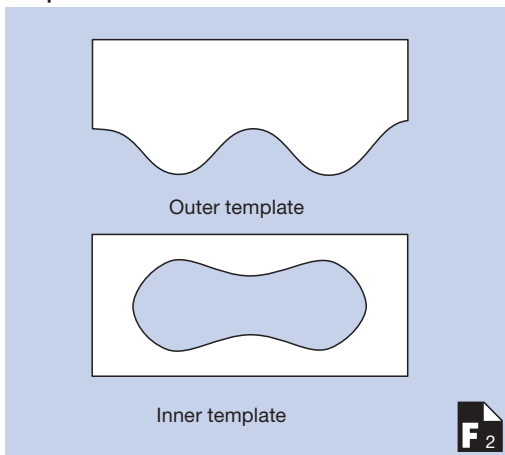


Try square

For scribing at right angles to a second reference plane.

A and B = reference planes

Templates



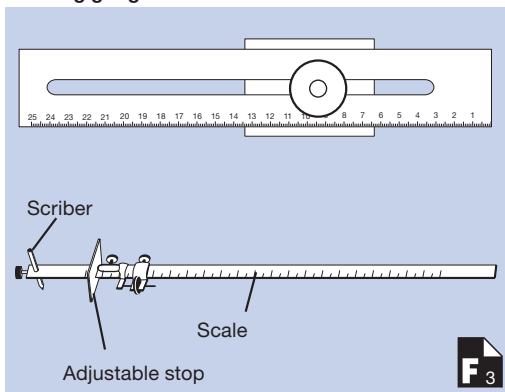
Templates

For transferring recurring shapes.

▶ Outer

▶ Inner

Marking gauge



Marking gauge

For scribing lines parallel to the reference edge