

Leseprobe

Christiani

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Operational training · Metal working

Manual material processing

Sawing



Text book

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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.

Sawing 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**
- ▶ **Measuring and checking**
- ▶ **Drilling, countersinking, reaming**
- ▶ **Chiselling**
- ▶ **Filing**
- ▶ **Thread production**

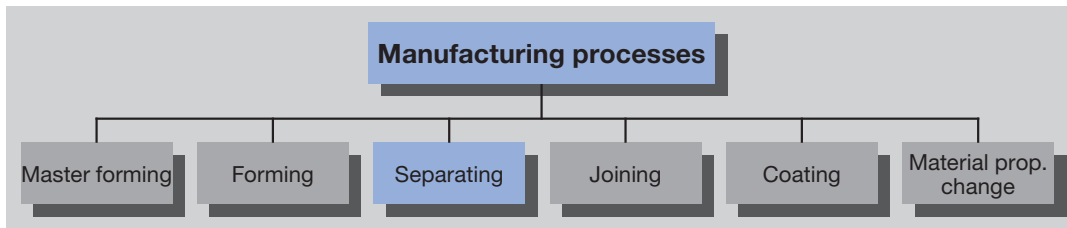
The training course is self-contained. It teaches skills and shares knowledge in a practical setting as part of an occupational training framework designed to meet the needs of industrial mechanics. In completing the exercises, trainees will learn basic skills and recognise and consolidate fundamental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

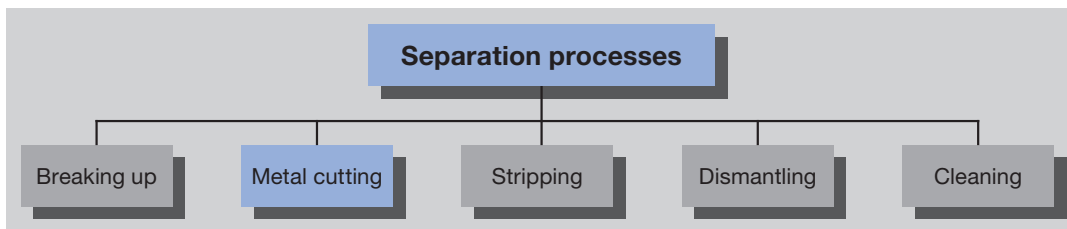
2.1 Manufacturing processes

The manufacturing processes have been divided into 6 main groups according to DIN 8580:



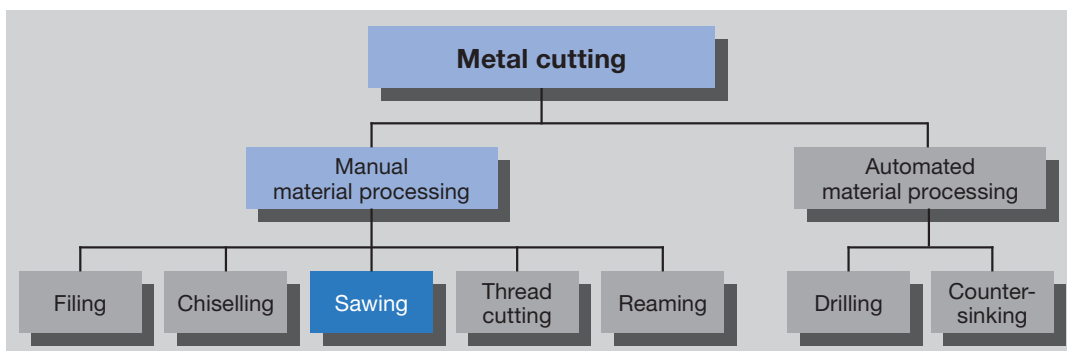
2.2 Separation processes

Separation processes are divided into 5 sub-groups according to DIN 8580:



2.3 Metal cutting

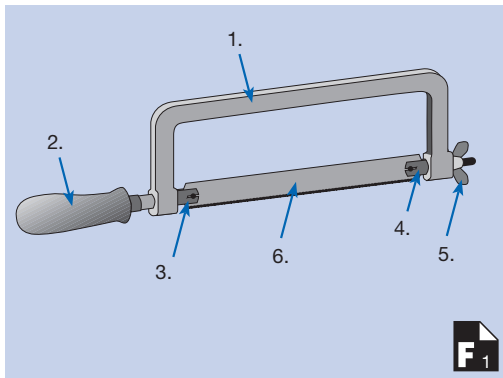
Metal cutting processes are divided into the following skills:



In the field of manual material processing, sawing is a cutting process. According to DIN 8580, it is a separation process.

3. General principles

Hand hacksaw



3.1 Components of the hand hacksaw

The hacksaw consists of the following parts:

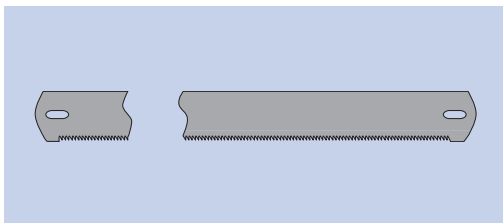
- ▶ 1. Bow
- ▶ 2. Handle
- ▶ 3. Handle jaw with cross hole and fixing pin
- ▶ 4. Face plate jaw with cross hole and fixing pin
- ▶ 5. Clamping nut
- ▶ 6. Saw blade

3.2 The saw blade

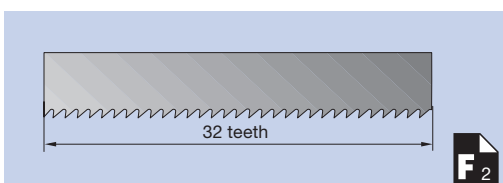
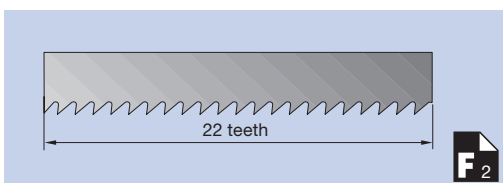
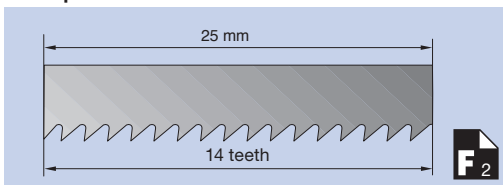
The saw blade is a cutting tool with multiple cutting edges. It consists of a large number of chisel-like cutting teeth located one behind the other. These teeth are also called saw teeth.

Saw blades are made from unalloyed tool steel or high-speed steel and are also hardened.

Saw blade



Tooth pitches

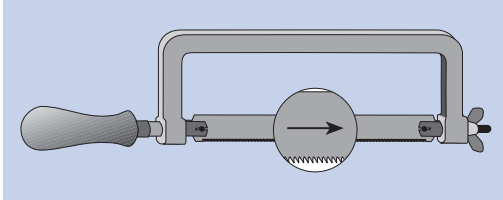


- ▶ Saw blades with a wide tooth pitch are used for soft materials or long saw kerfs as they are better able to clear chips from the workpiece.

- ▶ Saw blades with medium tooth pitch are used for hard materials or short saw kerfs.

- ▶ Saw blades with fine tooth pitch are used for thin sheets and thin-walled pipes and profiles.

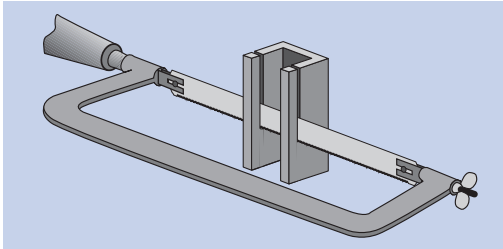
Clamping the saw blade



3.3 Clamping a saw blade

So that the hacksaw only works edge to edge, the saw blade must be clamped so that the teeth are pointing in the direction of impact (forward). Tighten the clamping nut on the face plate jaw to tension the saw blade with the retaining pins.

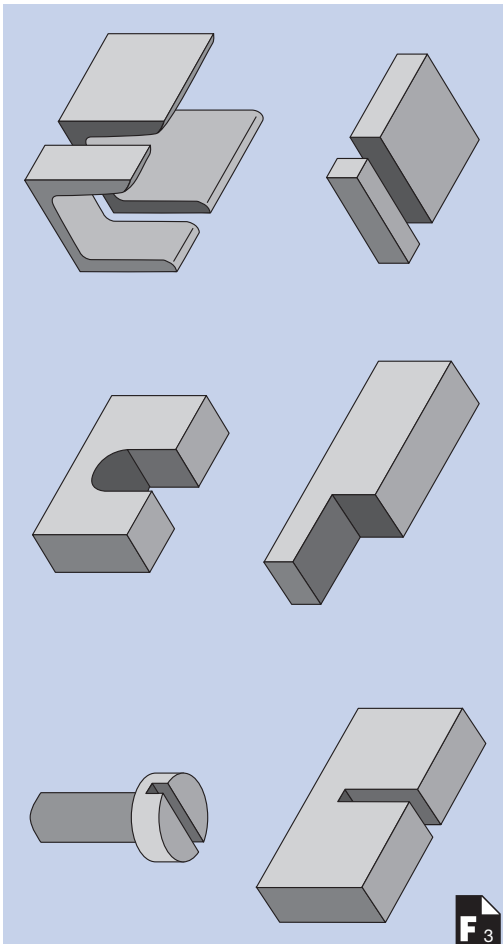
Resetting the saw blade



For deep cuts, the saw blade can be tensioned at right angles to the bow.

Lubricate the saw blade with oil to avoid friction.

Types of saw cut



A differentiation is made between:

Cutting off

Cutting out

Slitting (sawing into)