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Charlotte Schade | Manual material processing
Textbook
1. Auflage 2014
Artikelnr.: 97421 | ISBN 978-3-86522-934-2

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Manual material processing
Documentation for the trainer

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1. General information

This booklet is part of the METINA (methodenintegrierte 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.

Filing 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**
- **Sawing**
- **Chiselling**
- **Drilling, countersinking, reaming**
- **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.

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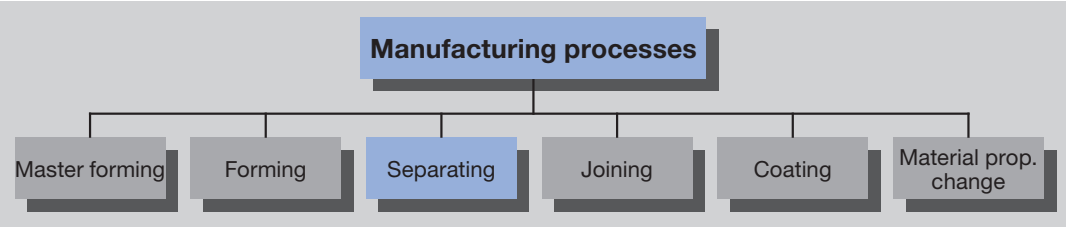
2. Categorisation of filing

2.1 Manufacturing processes

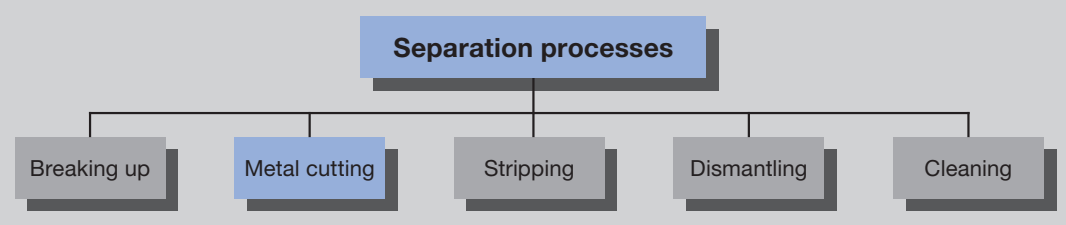
The manufacturing processes have been divided into 6 main groups according to DIN 8580.



F I

2.2 Separation processes

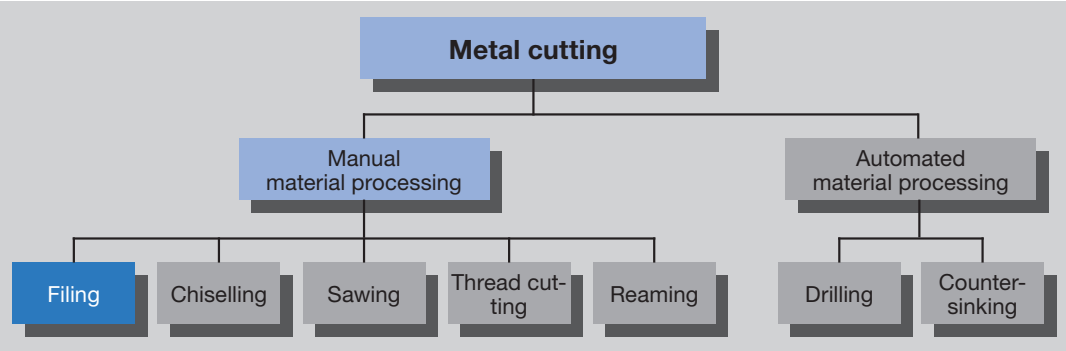
Separation processes are divided into 5 sub-groups according to DIN 8580.



F II

2.3 Metal cutting

Metal cutting processes are divided into the following skills and include:



F III

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

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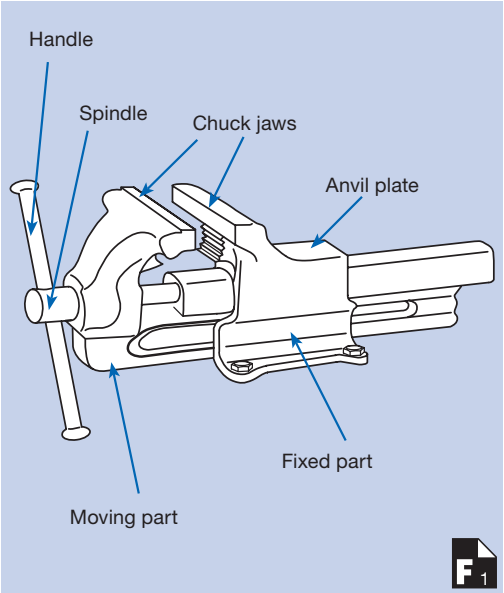
3. General principles

3.1 Parallel vice

Parallel vice



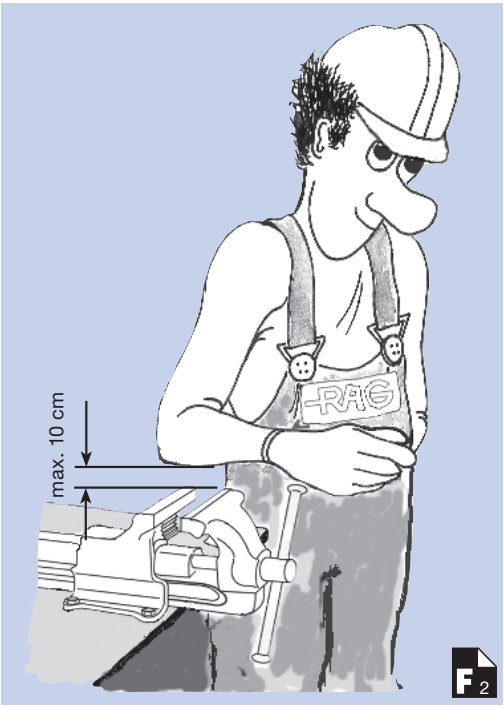
Workpieces are clamped into a parallel vice for filing. The parallel vice is tightened solely by hand. The chuck jaws are arranged so that they are in parallel whatever their position.

A parallel vice consists of:

- Fixed part
- Moving part
- Spindle
- Handle
- Hardened chuck jaws
- Anvil plate

3.2 The height of the vice

Vice height



The height of the vice is very important for correct physical posture.

The vice is at the ideal height when the distance from the elbow to the upper edge of the vice is no more than 10 cm.

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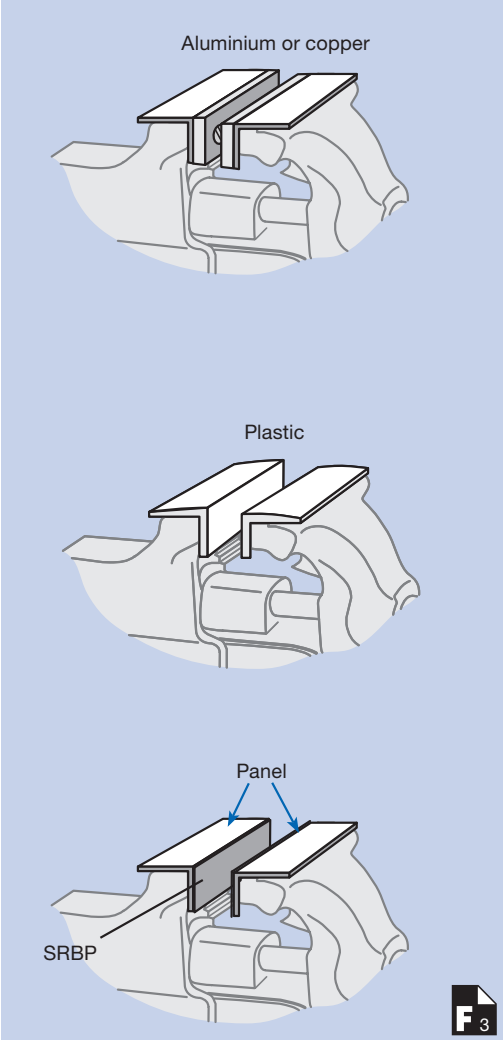
Jaw protectors



3.3 Jaw protectors

Jaw protectors are used during clamping to protect the surface of a workpiece against damage.

The jaw protectors must always be softer than the workpiece to be clamped.
Jaw protectors can be made of the following materials, for example:

- Steel sheet
- Copper
- Aluminium
- Plastic
- SRBP
- Wood

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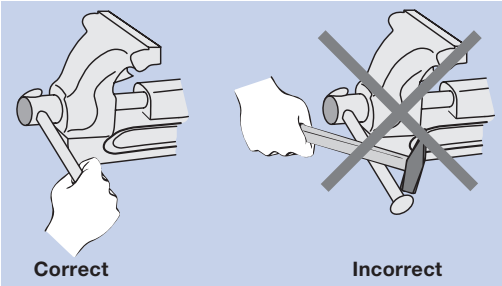
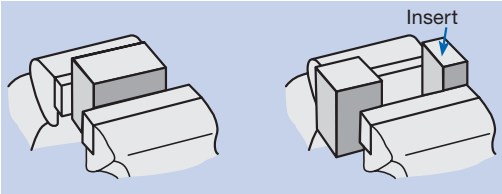
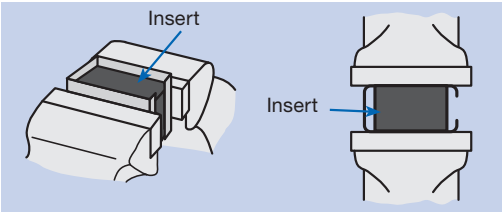
3.4 Tensioning the workpieces



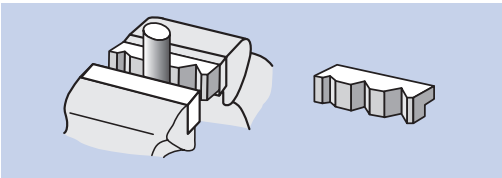
- To avoid bounce, clamp the workpieces quickly and tightly. Tighten the vice solely by hand! Hammers and extension tubes damage vice spindles and guides.



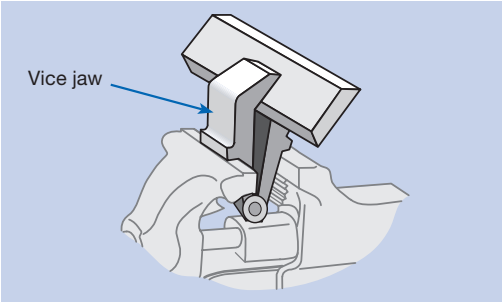
- Clamp the workpieces in the centre of the vice. If this is not possible, use inserts that are of identical thicknesses.



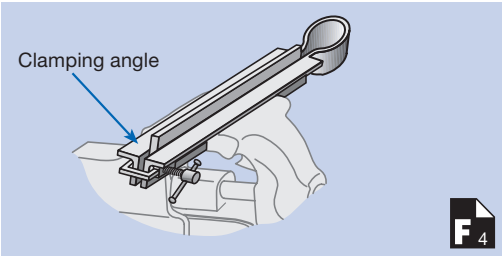
- Use an insert to protect pressure-sensitive workpieces against deformation.



- Round workpieces should generally be tensioned in prism jaws.



- When filing diagonals and chamfers, the workpiece must be tensioned in the vice jaw.



- Sheets which extend in length beyond the reach of the vice jaws must be tensioned between clamping angles.