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Mannesmann M53250-B

Brüder Mannesmann M53250-B Thread Cutting Tool Set

Instruction Manual

1. INTRODUCTION

This manual provides essential information for the safe and effective use of your Brüder Mannesmann M53250-B Thread Cutting Tool Set. Please read these instructions carefully before using the tools. Proper understanding and adherence to these guidelines will ensure optimal performance and longevity of your set.

2. PRODUCT OVERVIEW AND COMPONENTS

The Brüder Mannesmann M53250-B is a comprehensive 32-piece thread cutting tool set, crafted from durable CV Steel, designed for both internal (tapping) and external (die cutting) thread creation and repair. The set comes in a robust metal case for organized storage and protection.

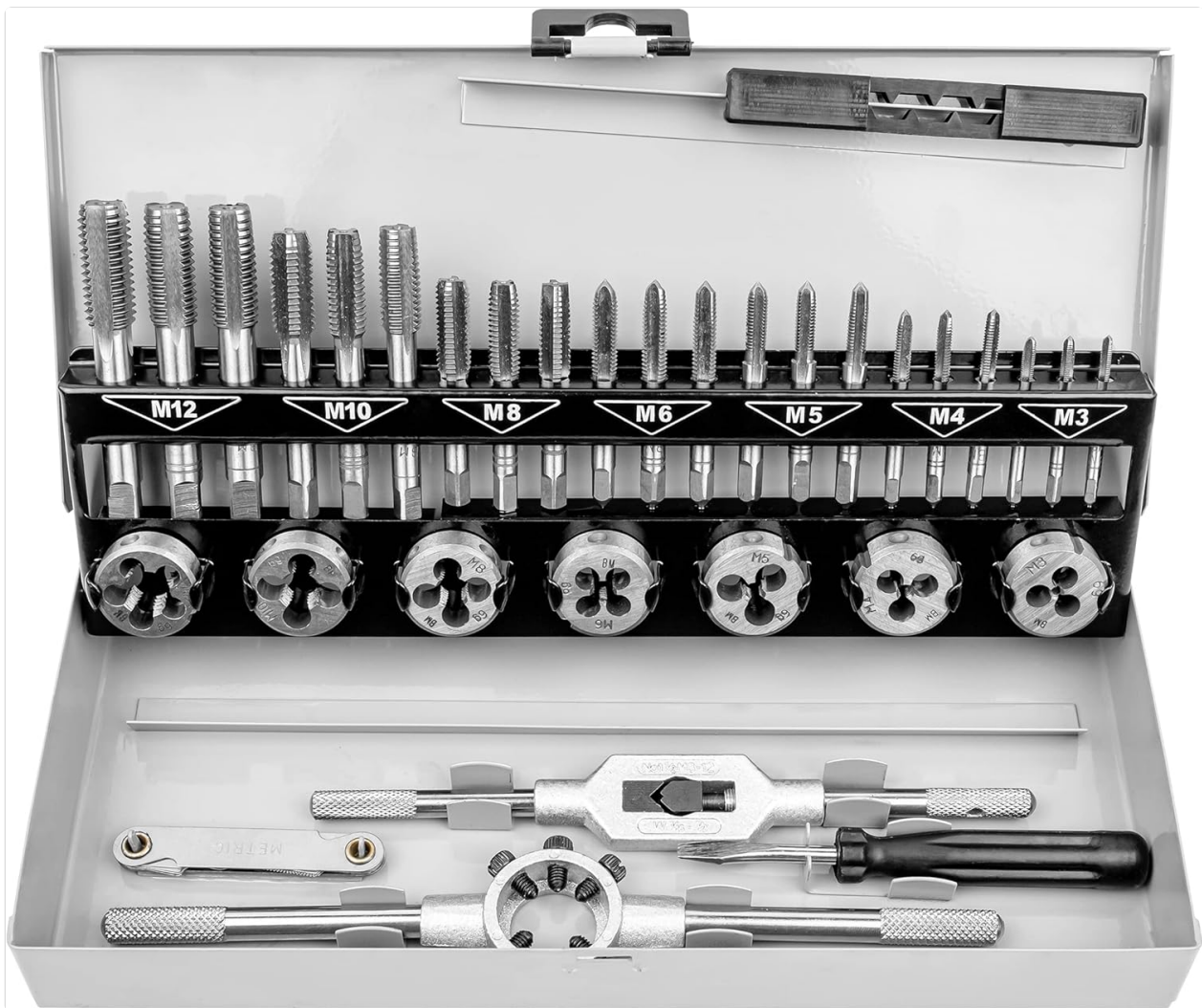


Figure 2.1: The complete 32-piece thread cutting tool set, neatly arranged in its metal storage case.

Set Contents:

- 21 Taps (Gewindebohrer) for internal threads, in sizes M3, M4, M5, M6, M8, M10, M12 (3 taps per size: pre-cutter, mid-cutter, finish-cutter).
- 7 Dies (Gewindeschneider) for external threads, in sizes M3, M4, M5, M6, M8, M10, M12.
- 1 Tap Wrench (Windeisen) for holding taps.
- 1 Die Stock (Schneideisenhalter) for holding dies.
- 1 Screwdriver for adjusting the tap wrench and die stock.
- 1 Thread Gauge (Gewindelehre) for checking thread pitch.



Figure 2.2: Key accessory tools: thread gauge, screwdriver, tap wrench, and die stock.



Figure 2.3: Assortment of dies for external thread cutting.

3. SETUP

Before beginning any thread cutting operation, ensure you have the correct tap or die for the desired thread size and pitch. Always wear appropriate personal protective equipment, including safety glasses and gloves.

3.1. Preparing for Tapping (Internal Threads)

1. Select the appropriate tap size (e.g., M6) and the correct sequence (pre-cutter, mid-cutter, finish-cutter).
2. Insert the tap into the tap wrench. Ensure it is centered and securely tightened.
3. Drill a pilot hole of the correct diameter for the desired thread. Refer to standard tap drill charts for accurate sizing.
4. Chamfer the edge of the drilled hole to facilitate tap entry.

3.2. Preparing for Die Cutting (External Threads)

1. Select the appropriate die size (e.g., M6).
2. Insert the die into the die stock. Ensure it is seated correctly and the retaining screws are tightened to hold it firmly.
3. Prepare the rod or shaft by chamfering its end to aid in starting the die. The diameter of the rod should be slightly less than the nominal thread diameter.

4. OPERATING INSTRUCTIONS

Thread cutting requires precision and care. Always apply cutting fluid to reduce friction and heat, and to improve thread quality and tool life.

4.1. Tapping Procedure

1. Position the pre-cutter tap squarely over the pilot hole. Apply light downward pressure.
2. Rotate the tap wrench clockwise (for right-hand threads) slowly and steadily. Ensure the tap enters straight.
3. After every half to full turn, reverse the tap wrench a quarter turn to break chips and clear the flutes.
4. Continue this process, applying cutting fluid regularly, until the desired thread depth is achieved.
5. Repeat the process with the mid-cutter and then the finish-cutter taps for a complete and accurate thread.

4.2. Die Cutting Procedure

1. Place the die stock with the die squarely onto the chamfered end of the rod. Apply firm, even pressure.
2. Rotate the die stock clockwise (for right-hand threads) slowly and steadily. Ensure the die starts straight.
3. After every half to full turn, reverse the die stock a quarter turn to break chips and clear the die.
4. Continue this process, applying cutting fluid regularly, until the desired thread length is achieved.
5. Use the thread gauge to verify the pitch and quality of the newly cut thread.

5. MAINTENANCE

Proper maintenance ensures the longevity and performance of your thread cutting tools.

- **Cleaning:** After each use, thoroughly clean all taps, dies, and accessories to remove metal chips and cutting fluid residue. Use a brush and a suitable cleaning agent if necessary.
- **Lubrication:** Apply a thin coat of rust-preventative oil to all metal components before storage, especially to the cutting edges of taps and dies.
- **Storage:** Always store the tools in their original metal case. The case protects the tools from damage, dust, and moisture, which can lead to corrosion and dulling of cutting edges.
- **Inspection:** Periodically inspect taps and dies for signs of wear, chipping, or damage. Dull or damaged tools should be replaced to prevent poor thread quality and potential tool breakage.



Figure 5.1: Store the tool set securely in its closed metal case when not in use.

6. TROUBLESHOOTING

If you encounter issues during thread cutting, consider the following common problems and solutions:

Problem	Possible Cause	Solution
Rough or incomplete threads	Dull or damaged tool; insufficient lubrication; incorrect pilot hole/rod size; improper technique (too much pressure, not clearing chips).	Replace tool; apply more cutting fluid; verify hole/rod size; use proper technique (turn-reverse method, clear chips).
Tool breakage (tap or die)	Excessive force; tap/die not square to workpiece; chips jamming; hardened material.	Reduce force; ensure tool is square; clear chips frequently; use appropriate tools for hardened materials.
Difficulty starting thread	No chamfer on hole/rod; tool not square; incorrect tool size.	Chamfer workpiece; ensure tool is perfectly square; verify tool size matches application.
Excessive heat/smoke	Insufficient lubrication; cutting too fast.	Apply more cutting fluid; reduce cutting speed.

7. SPECIFICATIONS

- **Model:** M53250-B
- **Brand:** Mannesmann
- **Manufacturer:** Brüder Mannesmann Werkzeuge GmbH
- **Material:** CV Steel
- **Number of Pieces:** 32
- **Weight:** Approximately 2.84 pounds (1.29 Kilograms)
- **Product Dimensions (Case):** Approximately 4.53 x 10.24 x 1.18 inches (L x W x H)
- **GTIN (Global Trade Item Number):** 04003315707547

8. WARRANTY AND SUPPORT

Brüder Mannesmann Werkzeuge GmbH provides a comprehensive warranty for this product.

8.1. 10-Year Warranty

The warranty period for this product begins on the day of purchase. Your sales receipt serves as proof of warranty. During the warranty period, Brüder Mannesmann guarantees:

- Free removal of any damage.
- Free replacement of all damaged parts.
- Free, professional service.

Warranty Conditions: Damages caused by material or production defects in the tool will be replaced or repaired free of charge, provided they are not due to improper use or unauthorized repair. For a free return of the product under warranty, please request a return slip from customer support.

8.2. Contact Information

For support, warranty claims, or inquiries, please contact:

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