Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference. 23a

PITTSBURGH®

40Pc. Carbon Steel Tap and Die Set



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When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

Specifications

Tap & Die Scale	Metric
Material	Carbon Steel
Tap & Die Sizes	3-0.5mm 7-0.75mm 3-0.6mm 7-1.0mm 4-0.7mm 8-1.0mm 4-0.75mm 8-1.25mm 5-0.8mm 10-1.25mm 5-0.9mm 10-1.5mm 6-0.75mm 12-1.5mm 6-1.0mm 12-1.75mm 1/8 in. NPT pipe tap

IMPORTANT SAFETY INFORMATION

1. Wear ANSI-approved safety goggles and heavy-duty work gloves during use.
2. Keep work area clean and well lit.
3. Keep bystanders out of the area during use.
4. Do not use when tired or when under the influence of alcohol, drugs or medication.
5. This product is not a toy. Do not allow children to play with or near this item.
6. Use as intended only.
7. Inspect before every use; do not use if parts are loose or damaged. Do not use cracked or chipped tap/die.
8. Keep the handles clean, dry, and free from oil and grease at all times.
9. The flutes on these tools are sharp and can cut you. Handle with care.
10. Do not use any high-speed means, such as a lathe or drill press, to cut threads with these Taps and Dies. High-speed use will void the warranty and may overheat the tool, causing loss of heat-treatment and premature failure.
11. Taps and Dies are heat-treated, and not designed to be sharpened. After considerable use and with corrosion buildup these tools may lose their cutting edge.
12. Use clamps (sold separately) or other practical ways to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
13. Do not apply excessive force on the cutters. Allow the tool to do the work. Use cutting oil when tapping or threading hard materials.
14. Maintain product labels and nameplates. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.



SAVE THESE INSTRUCTIONS.

Operation Instructions

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this document including all text under subheadings therein before set up or use of this product.

Before using either taps or dies, test the material to determine that it is not hardened by attempting to mark it with a file.

- If the material marks with a file, material should be cuttable.
- If the material will not mark with a file, do not cut threads to avoid tool damage.

Tap Instructions

TAPS are used to cut (tapping) or clean (chase) internal threads into a pre-drilled hole, such as in a nut or component part.

1. To cut an internal thread, first select the tap of the desired size and have lubricating or cutting oil ready for use.
2. The proper hole size is very important to successfully cut good threads. An oversized hole will result in shallow threads, and poor holding power. An undersized hole may cause the tap to wear prematurely or break.
3. Insert the square end of the Tap into the Tap Wrench, turn the threaded side of the Tap Wrench to secure the Tap firmly.
4. **Precisely align the tap with the direction of the hole. THIS IS ESSENTIAL.** The first cut will help determine the accuracy of the entire finished thread.
5. Start turning the Tap clockwise, keeping the Tap aligned with the hole. As the Tap turns, it will bite into the metal and create threads.
6. After every 1/4 to 1/2 turn of progress, depending on material hardness, rotate the Tap counterclockwise an equal amount to prevent chips from building up in the hole and breaking the tap.
7. Lubricate amply with cutting oil while tapping. Proper lubrication will result in smoother threads, and increased tool life. Continue tapping until the Tap passes through the workpiece, or the desired thread depth is reached.
8. Carefully thread the tap out backwards and clean out any chips from the hole.

Die Instructions

DIES are used to cut (threading) or clean (chase) external threads, such as on a screw or threaded rod.

NOTE: It will be easier to start the Die correctly if the end of the work material is slightly chamfered with a grinder or file (not included).

1. Select the proper Die size for the rod to be threaded. The Die can be no larger than the rod stock, and should be .005″ to .010″ smaller. Oversized rod stock may damage the die, and will make turning it difficult. Slightly undersized rod stock makes turning the die easier, and will result in good threads for most applications.
2. Secure the workpiece in a vise or other fixture (not included). Ensure that the workpiece will not move or turn while it is being threaded. Note that the workpiece may be damaged by the vise during the threading process. When possible, thread the workpiece before cutting it to the final length to eliminate the damaged area.
3. Insert the Die into the Die Wrench. Align the groove on the side of the Die with the Screw on the Die Holder. Tighten the screw using the included Screwdriver. Use the Screw on side of the Die Wrench to secure the Die firmly in place. See Figure A.

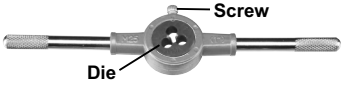


Figure A

4. Place the chamfered side of the Die onto the workpiece, being careful to **precisely align the Die perpendicular to the rod**.
5. Begin turning the Die clockwise. The cutting edges will begin to bite into the material, and the Die will begin to thread itself onto the rod.
6. As you progress, apply lubrication, using a high-quality cutting oil. As with the Tap, reverse the Die to clear the shavings after every 1/4 to 1/2 turn of progress, depending on material hardness. Continue this forward and back process, using proper lubrication, until you have cut the desired length of threads.
7. Then turn the Die counterclockwise completely off the rod.

Maintenance and Servicing

1. Clean immediately after use and apply a light layer of oil or grease to prevent corrosion.
2. Store tools in the provided case in a secure location, out of the reach of children, to protect them from moisture.

Note: The carbon steel parts of this set are susceptible to corrosion. Even light corrosion may reduce effectiveness.

Record Serial Number Here:_____

Note: If product has no serial number, record month and year of purchase instead.

Specify UPC 193175498410 when ordering.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS DOCUMENT AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Limited Lifetime Warranty

Harbor Freight Tools warrants to the original purchaser that this product shall be free from defects in materials and workmanship for its useful life.

If your product does not perform in accordance with this warranty, Harbor Freight Tools will, at its option and expense, repair or replace (or elect to refund the purchase price if we cannot repair or replace), your product, which shall be your sole and exclusive remedy. To obtain warranty service, products must be returned with proof of purchase to a Harbor Freight Tools retail store or returned by mail after contacting Harbor Freight Tools Product Support at 1-888-866-5797 and receiving a return authorization.

This warranty excludes normal wear and tear and does not apply to products subjected to misuse, use or operation other than for the intended purpose or not in accordance with the product manual, abuse, accident, modification or alteration, unauthorized repair, improper storage, neglect, or lack of maintenance. This warranty is in lieu of all other warranties. Harbor Freight Tools is not liable for incidental, indirect, special, consequential, or punitive damages or costs arising from the use of this product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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