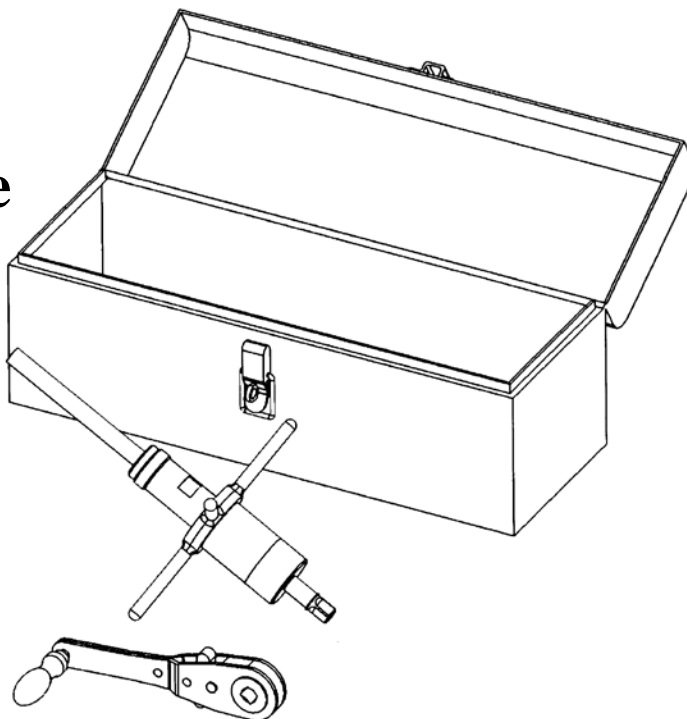
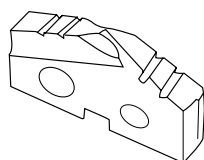


Thank you for your purchase of the 'M-1' Drilling and Tapping Machine. Please read and understand this short operation manual. Our goal is to serve you, our customer. If you have any questions, complaints or improvement suggestions please call us at 1-800-426-9341

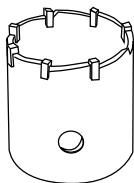
Transmate M-1™ Pipe Drilling Machine



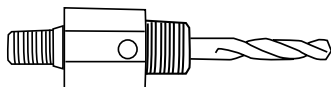
Bits, Holesaws and Adapters



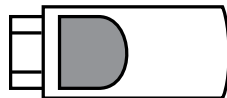
SPADE BIT: The spade bit provides a low cost alternative to the traditional twist drill bit. Spade bits are attached to the spade bit holder using the two Torx^a screws provided. Over tightening of these small screws will strip the heads. Spade bits are available in the 3/4" nominal (23/32" actual), and the 1" nominal (7/8" actual) sizes.



HOLESAWS: Four types of Holesaws are available. The Carbide Tipped holesaw is best for use on A/C, cast iron, or ductile iron pipe. The High Speed Steel holesaw is best for use with steel pipe, but may be used for ductile, cast iron and A/C as well. The HSS carbide tipped Holesaw works well on ductile iron, cast iron and A/C. The PVC holesaw is necessary for cutting into plastic pipe.



HOLESAW ARBORS: The arbor mates the end of the shaft to the holesaw being used. It accommodates 3/4" - 1" holesaws.



MACHINE ADAPTERS: Adapters are available for all 3/4" - 1" corp stops. See appendix A for listing of adapters. Special adapters can also be made at the factory. **Contact Transmate for additional information at 1-800-426-9341.**



Operating Instructions for the M1 Drilling Machine

- 1) Install the service saddle on the pipe at the desired location.
- 2) Thread the corporation stop into the saddle, open corporation stop.
- 3) Choose adapter to match corporations outlet threads and thread it onto the M1. (Appendix A lists corporations and matching adapters).
- 4) Attach the proper cutting tool, either the spade bit holder and spade bit, or the appropriate arbor and holesaw.

Drilling PVC pipe demands the use of the PVC Holesaws with no pilot drill. If you have chosen to use Holesaws, check that the pilot drill is locked into place. There is a set screw on the side of the arbor that bears onto the ground flat on the pilot drill. If the pilot drill is not locked, it may just spin and not cut the pilot hole. It is recommended that you do not use a Pilot Drill on plastic pipe.

- 5) Thread the M1 machine onto the corporation stop.
- 6) Set the boring shaft length as follows:
 - a. Unscrew the bronze cap.
 - b. Loosen the small hex head screw on the clamp with the 5/32" hex wrench provided.
 - c. Thread the handle back to the starting position, with the M1 feeder and body fully extended.
 - d. Push the shaft down until it touches the pipe.
 - e. Push the clamp down until it touches the top of the machine.
 - f. Tighten the clamp set screw, (CAUTION: Do not over tighten so that you strip out the set screw hex or the wrench.)
 - g. Tighten the bronze cap onto the machine and you're ready to drill.

7) DRILLING THE PIPE:

**THE RATCHET MUST ALWAYS TURN CLOCKWISE WHEN LOOKING TOWARD THE MAIN.
REVERSING THE DIRECTION WILL DAMAGE YOUR CUTTING TOOLS.**

- a. Using the Spade Bits: The spade bit will act like a standard drill bit. Turn the ratchet handle in the back a full 360 degrees if possible. You should try to apply force so as to continually move the spade bit into the pipe.
- b. Using the Holesaws and Arbors: The holesaws will not act like a standard drill bit and the feeding rate must be changed, as described below.
- c. Overfeeding the holesaws will break the teeth off and make the cut hard work.

Holesaw manufacturers advise that more than 25 ft-lbs. of torque is enough to damage the teeth of holesaws. A holesaw **SHOULD NOT BE FORCED INTO THE MAIN**. It needs to cut a path as it goes, unlike a standard drill bit which chisels its way through the pipe wall.

Feed the holesaw so the the ratchet is always easy to turn. If the ratchet catches, reverse the feed until the holesaw is freely turning. Proceed back into the cut, then back off the feed and go a little slower. At first, the feed may seem very slow to the operator and he may be wondering how long it will take to make the cut. Please do not be impatient! You will find that a fast cut can be obtained with very little effort if you feed the holesaws as recommended.

If possible, turn the ratchet a full 360 degrees with the holesaws. Start out feeding very slowly and get

used to the cutting action of a holesaw on the pipe. As a general rule, you will feed about 1/8th of a turn on the feed nut for every two revolutions of the shaft.

DRILLING PLASTIC PIPE:

The composition and construction of plastic pipe requires the use of additional tapping techniques. Unibell, the plastic pipe manufacturers association recommends a shell cutter with at least two flutes for tapping PVC pipe. For this reason, we advise you to use the PVC holesaws when tapping into plastic. Also to avoid point loading on the plastic pipe it is recommended that you do not use the pilot drill with the holesaw.

Tapping plastic pipe uses basically the same techniques as any other tap. In addition, these instructions from the Unibell Handbook of PVC Pipe Design and Construction should be followed.

- When drilling or tapping any pressurized pipe, basic safety precautions are advised to assure personal safety to the workmen in the event of a sudden and unexpected pipe failure. Although such failures are extremely infrequent, nevertheless, the following precautions are recommended:
- A second workman or supervisor should be present in the immediate vicinity.
- In addition to normal protective clothing, goggles or face shields should be worn.
- Ladders should be provided for quick exit availability.
- A heavy protective blanket with a hole in the center to permit installation and operation of the tapping and drilling machine should be provided to cover the exposed area of the pipe.

8) Once the hole is drilled, thread the feed handle back to the starting position, unscrew the bronze cap and pull the shaft back until it stops.

9) Close the corporation stop and remove the machine.

10) CLEANING AND STORAGE:

- a. The M1 Drilling Machine™ should be cleaned after each use. Clean the threads of the M1 Body if necessary. Spray the Body with Tri Flow lubricant.
- b. Examine the cutting tool, if it is dull then replace it before the next cut.
- c. We advise the machine be stored in the tool box provided.

