

**WARNING: Read all instructions and safety information prior to use of T1-2, T1-4 & T1M Machine**

# **T1-2, T1-4, & T1M TAPPING MACHINE**

**OWNER'S MANUAL  
and  
OPERATING INSTRUCTIONS**



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# **T1-2, T1-4 & T1M TAPPING MACHINE OPERATIONS MANUAL**

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# **T1-2, T1-4 & T1M TAPPING MACHINES OWNER'S MANUAL**

You, the customer, must establish hot tap drilling procedures, accompanied by this manual, to insure that the machines will be used in a manner that is safe and proper. Posting them in a conspicuous place within your facility is highly recommended.

Here are some regulations that should be incorporated into your safety and program.

- A. Never allow an untrained operator to use this machine.
- B. If the machine is not working properly, STOP proceeding and advise supervisor IMMEDIATELY.
- C. Never alter machine from original design.
- D. Always use proper fittings, valves, and equipment intended for this machine.
- E. Never use this machine unless all fittings, valves, and equipment have been fully tested before each tap is made.
- F. Always use proper safety clothing and accessories for the environment in which you are to work.
- G. Always use this machine in accordance with OSHA's regulations.
- H. Always use ground fault interrupter between outlet and drill.
- I. Safety goggles are required at all times. Earplugs are suggested. Rubber boots and gloves are required in damp areas.
- J. DO NOT plug in motor until everything checks out, and you are ready to start drilling.
- K. Always disconnect power cord when changing cutters, adaptors, and servicing equipment. Keep alert at all times and stand in an area with sure footing. Don't let spectators stand too close.

## **I. INTRODUCTION**

The T1-2, T1-4 & T1M Tapping Machines were designed by people who use them in the field for Hot Tapping 1/2" – 3" outlets and for the preparation of line stop access of 3/4" – 4" stopping equipment.

## 1.0 SAFETY REQUIREMENTS

The T1-2, T1-4 & T1M Tapping machines are lightweight pieces of field equipment that will perform “pressurized” drilling operations on pipelines and tanks within the limitations set forth in this manual.

**DANGER** – under pressure gas and/or fluids both flammable and non-flammable could result in death and /or possible serious injury if operator personnel of this machine are not properly trained and thoroughly familiar with the use and maintenance of the T-14 Tapping Machine

## 2.0 WARRANTY

Products sold to our customers are guaranteed to be of the quality as described in the contents of this owner’s manual. Any product may be returned within 30 days, with customer’s receipt, and 2LBin will provide full compensation to the customer less shipping, packaging, possible restocking fees, if required, usage, and any damage.

### **Standard warranty for machinery is provided below**

2LBin warrants its products to be free of defects in both workmanship and materials, under normal use and service, when used for the purposes and under the conditions for which they are intended. Obligation under this Warranty is limited, at 2LBIN's discretion.

## 2.0 MACHINE SPECIFICATIONS

Operating pressure maximum – 300 psi @ 100°  
Operating temperature maximum -250° @ 200 psi  
Total weight of machine – 28 lbs.

**WARNING** – Work on pressurized piping systems is potentially hazardous. Proper training on this equipment is necessary.

### **3.0 TAPPING MACHINE DESCRIPTION**

#### **GENERAL DESCRIPTION**

The T1-2, T1-4 & T1M machines consist of a 3 rail frame in which a drive unit slides and operates off a grounded 115 VAC electrical outlet through a ground fault interrupt plug, “which is supplied”. Behind the drive motor, the feed assembly slides and locks into place. At the opposite end of the feed assembly is the packing housing, consisting of 2 O-rings, which seal around different length of boring bars, depending on the travel needed to complete the tap. Different size adaptors screw on to the machine, which are sealed by an existing O-ring for convenient size changes.

### **4.0 USE OF THE T1-2, T1-4 & T1M TAPPING MACHINES**

**IMPORTANT** – Prior to any attempt to perform “live “ tapping operations, the operator must be completely familiar with all aspects of the use of the T1-4 and all personnel must go through a “hands on” training program using this manual, under controlled conditions.

- 4.1 Read and understand entire operators manual prior to attempting your first tap. Each operator should practice on a dry line first, because, once you start a live tap you are committed to finishing it, and your line may not be easily shut down to repair the damage.
- 4.2 Inspect all pieces of equipment before each use. DO NOT assume that anything is still tight and in operational condition after the last tap. Insure that you are plugged into the ground fault interrupt protector, which is grounded to a properly wired outlet to protect from electrical shock!
- 4.3 Determine the type of material you are tapping into, what type of vessel or pipe, what pressure and/or temperature. Be sure you are trained in each special aspect prior to proceeding. If you need special assistance determining safety questions, please call

2LBin at the phone number listed on the front of this manual.

4.4 This motor is not explosion proof and does emit sparks. Avoid combustible areas. Do not operate in gaseous or dusty atmospheres.

4.5 Choose the proper adaptor to mate up with the valve to be tapped and tighten it to the machine. Determine the size and type of hole-saw to be used. Use high-speed steel for non-lined steel and copper pipe, and carbide tipped for most other types of pipe. Make sure cutter is sharp! and screw cutter onto the boring bar. Make sure it passes through valve without dragging at any point.

If cutter is determined as being the right size, screw cutter onto the boring bar until it comes in contact with the mandrel. Unscrew just enough so that the cutter holes line up with the cutter set screws of the mandrel. Tighten the cutter set screws until the screw enters the cutter retaining holes, and tighten, securing the cutter to the boring bar.

4.6 Check pilot drill wires before. When wires are properly placed, you should not be able to work them loose by hand. They should hang out slightly further than the drill to act as a retainer.

The retaining wires must be installed beyond the teeth of the cutter. Note: Especially on small size on size taps; confirm that the pilot does not stick out too far beyond the cutter to where the pilot will drill through the back side of the pipe before completing the tap. Check this on every tap. Shorter pilot drills are available if necessary, please call 2LBin.

4.7 Attach tapping machine to connection, open valve, push boring bar forward, making sure the cutter and pilot have completely passed through and pilot touches the outside of pipe. Spin boring bar by hand. Make sure it has no drag. Pull boring bar back to a fully retracted position.

4.8 Pressure check assembly, packing, and valve, through outlet provided. Use a pressure gauge, and /or spray solution of soapy water on service to ensure there will

be no leaks. After the check is successful, release pressure.

- 4.9 Push boring bar forward again, make sure pilot contacts outside surface of pipe. Slide drive motor in place and secure chuck onto nuts. Make sure you have enough travel on boring bar and feed screw to complete tap.

If you are tapping vertical, on top of pipe, use the motor retention pin so that the machine will not feed itself.

- 4.10. Spray boring-bar with light oil, such as WD-40, at packing area to lubricate it.
- 4.11. **NOW!** That you are wearing safety equipment, you have sure footing, enough light to see what you are doing, everything has been tested and double checked, and you are plugged into a properly wired outlet with the ground fault interrupter in place, and have studied and familiarized yourself with procedures; **YOU ARE READY TO BEGIN.**

Remember, you are not in a race to make this hot tap. You are here to make a successful tap, which takes time and knowledge. Take it from an experienced tapper, “There is NO Rush!” “EVER!!”, or this job is not for you.

- 4.12. With the pressure check/bleed off valve slightly open, pull the trigger, and gently feed the 1/4” pilot bit into the pipe by rotating feed knob clockwise. Make sure the motor is also rotating clockwise until fluid purges out through the bleed of the valve. Now close it and continue drilling pilot. There is usually some free distance between the pilot and the hole-saw; don’t confuse this with a completed tap.

Once the cutter has touched the pipe, **STOP**, and mark 1/2 of the pipe diameter, with a piece of tape on the boring bar, to avoid making the mistake of drilling through the back, on close or size taps.

Continue feeding cutter smoothly, listening to the sound of the motor, feeding slower if the motor slows.

As you reach the end of the tap the cut may seem a little rougher, so slow down your feed. This is the final part

of the cut and there is no need for problems here. If you feed too fast, the cutter may grab, and throw you off balance. Remember, safety first.

When tap is completed, cutting and drag ceases.

Though tap is complete, feed cutter in, while motor is running, approximately 2-4 full turns to clear any stringy shavings that may pull coupon from retained position.

**Stop motor.**

At this point, push in on motor toward tapped hole to see if you can handle retracting by yourself. If the pressure seems too high for you to retract, have someone hold motor in place while you remove feed attachment carefully, while pulling trigger on motor in short intervals. Let motor come up slowly.

Make sure boring bar has come up to the same length as when you first began and has cleared the valve.

- 4.13 Close tapped valve, and bleed-off pressure, through bleed-off valve. Be sure you know where the bled-off liquid is going to go. Use a bucket or whatever is necessary to safely bleed off product.
- 4.14 At this time the valve, that has been tapped, may leak due to a chip from this procedure, and can usually be cleared by blowing out service if practical. Otherwise, blind flange, or plug, the valve until ready to run pipeline. Shavings usually are washed out after pipeline is in use.
- 4.15 Disconnect the tapping machine.
- 4.16 Remove the coupon from the hole-saw by loosening the pilot set screw and pulling out pilot bit. Then slide coupon through back of pilot so as not to damage retaining wires.
- 4.17 When tapping is completed, clean machine and spray lightly with WD-40, or an equivalent, to protect it. Replace any damaged parts NOW before your next job.



We at 2LBin want to Thank You for acquiring your T1-2, T1-4 or T1M machine.

**Please call us.**

if we can help advise you with special applications.

**We are here to help.**

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