HAFCO METALMASTER



Edition : 1
Date: (09/26)

Instruction Manual

ELECTRIC TAPPING ARM

HMT-24

Order Code: (T0001)

MACHINE DETAILS

MACHINE.	ELECTRIC TAPPING ARM
MODEL NO.	HMT-24
SERIAL NO.	
DATE OF MANF.	

IMPORTED BY

AUSTRALIA

HARE&FORBES MACHINERYHOUSE

www.machineryhouse.com.au

NEW ZEALAND

MACHINERYHOUSE

www.machineryhouse.co.nz

NOTE:
This manual is only for your reference. At the time of the compiling of this manual every effort to be exact with the instructions, specifications, drawings, and photographs of the machine was taken. Owing to the continuous improvement of the HAFCO Metalmaster machine, changes may be made at any time without obligation or notice. Please ensure the local voltage is the same as listed on the specification plate before operating any electric machine.

SAFETY SYMBOLS:
The purpose of safety symbols is to attract your attention to possible hazardous conditions

⚠WARNING Indicates a potentially hazardous situation causing injury or death

⚠CAUTION Indicates an alert against unsafe practices.

Note: Used to alert the user to useful information

NOTE:
In order to see the type and model of the machine, please see the specification plate. Usually found on the back of the machine. See example (Fig.1)

FIG.1



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1.1 SPECIFICATIONS

Order Code	T0001
MODEL	**HMT-24**
Tap Capacity	M6 - M24
Power	1200W
Alignment	Vertical
Horizontal Working Range	1180mm
Vertical Work Area	370mm
Motor Speed	0 - 200rpm
Tap Holder	ISO / DIN / JIS
Net Weight	48kg

1.2 PACKING LIST

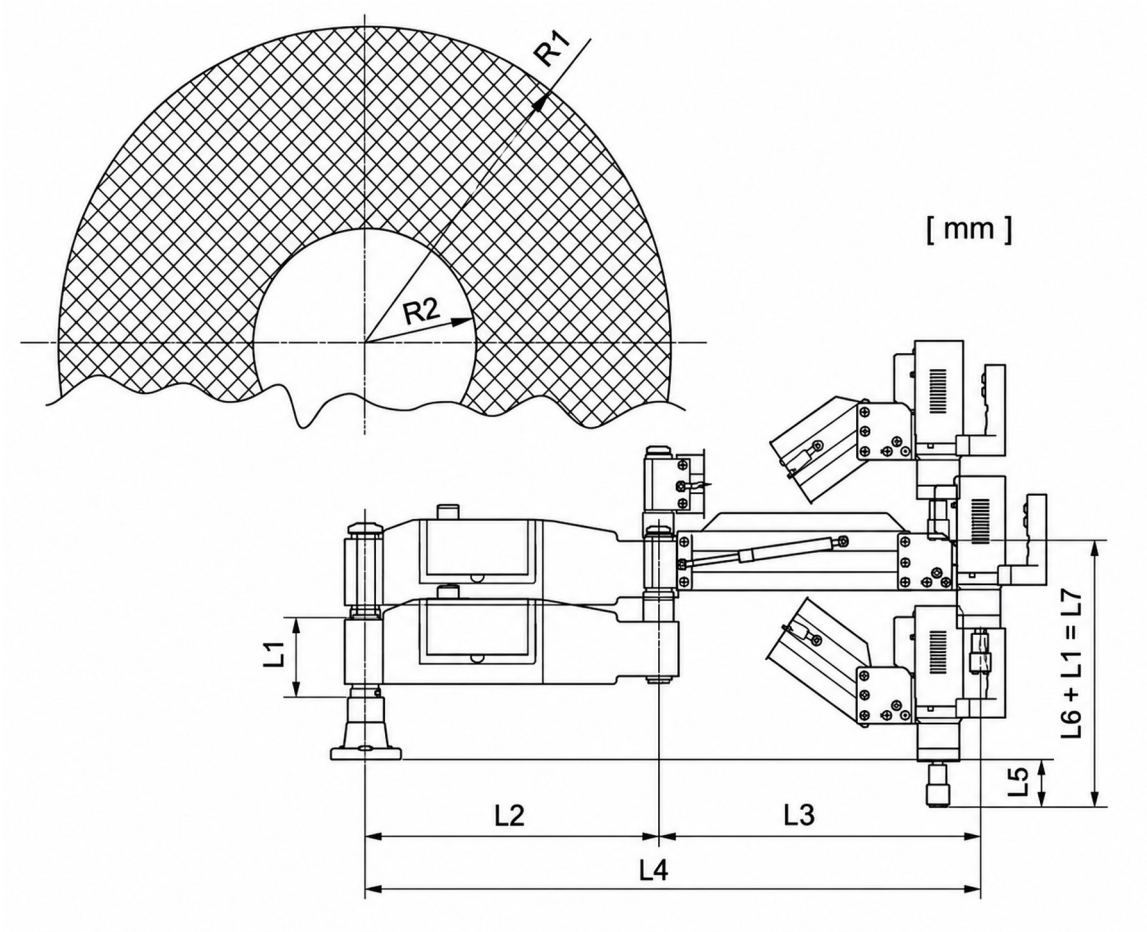
1. Includes 9 collets (M5-6, M8, M10, M12, M14, M16, M18, M20, M22-24)
2. Includes 12mm mounting plate
3. 4 x M10 socket head bolts - 30mm long thread (including washer and spring washer)
4. 4 x M16 socket head bolts - 50mm long thread (including washers & nuts)
5 HMT-24 Machine (Not Shown)

WARNING!
If the tapping machine is not used as intended or if the safety directives or the operating instructions are ignored the liability of the manufacturer for any damages to persons or objects resulting hereof is excluded and the claim under guarantee is becoming null and avoid!



WARNING!
These machines must be connected to a permanent earth wiring system. Due to the complexity and high voltage, the installation MUST be done by a qualified electrician, or qualified service personnel.

1.3 WORK AREA



MODEL	R1	R2	L1	L2	L3	L4	L5	L6	L7
HMT-24	1180	370	160	550	630	1180	175	545	**705**

R1 - Maximum working radius

R2 - Minimum working radius

L1 - Height adjustment

L2 - Distance of the forearm shaft

L3 - Distance of the upper arm shaft

L4 - Maximum working radius

L5 - Maximum working depth

L6 - Stroke range of the thread cutting head

CAUTION!

It must be determined by the operator that the materials being processed through the machine are NOT potentially hazardous to operator or personnel working nearby.

2. SAFETY

2.1 GENERAL METALWORKING MACHINE SAFETY

DO NOT use this machine unless you have read this manual or have been instructed in the use of this machine in its safe use and operation.

WARNING!

This manual provides safety instructions on the proper setup, operation, maintenance, and service of this machine. Save this manual, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury, including amputation, electrocution, or death.

The owner of this machine is solely responsible for its safe use. This responsibility includes, but is not limited to proper installation in a safe environment, personnel training and authorization to use, proper inspection and maintenance, manual availability and comprehension of the application of the safety devices, integrity, and the use of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



- ✓ Always wear safety glasses or goggles.
- ✓ Wear appropriate safety footwear.
- ✓ Wear respiratory protection where required.
- ✓ Gloves should never be worn while operating the machine, and only worn when handling the work piece.
- ✓ Wear hearing protection in areas > 85 dBA. If you have trouble hearing someone speak from one metre (three feet) away, the noise level from the machine may be hazardous.
- ✓ DISCONNECT THE MACHINE FROM POWER when making adjustments or servicing.
- ✓ Check and adjust all safety devices before each job.
- ✓ Ensure that guards are in position and in good working condition before operating.
- ✓ Ensure that all stationary equipment is anchored securely to the floor.
- ✓ Ensure all machines have a start/stop button within easy reach of the operator.
- ✓ Each machine should have only one operator at a time. However, everyone should know how to stop the machine in an emergency.

2.1 GENERAL METALWORKING MACHINE SAFETY Cont.

- ✓ Ensure that keys and adjusting wrenches have been removed from the machine before turning on the power. Appropriate storage for tooling should be provided.
- ✓ Ensure that all cutting tools and blades are clean and sharp. They should be able to cut freely without being forced.
- ✓ Stop the machine before measuring, cleaning or making any adjustments.
- ✓ Wait until the machine has stopped running to clear cuttings with a vacuum, brush or rake.
- ✓ Keep hands away from the cutting head and all moving parts.
- ✓ Avoid awkward operations and hand positions. A sudden slip could cause the hand to move into the cutting tool or blade.
- ✓ Return all portable tooling to their proper storage place after use.
- ✓ Clean all tools after use.
- ✓ Keep work area clean. Floors should be level and have a non-slip surface.
- ✓ Use good lighting so that the work piece, cutting blades, and machine controls can be seen clearly. Position any shade lighting sources so that they do not cause any glare or reflections.
- ✓ Ensure there is enough room around the machine to do the job safely.
- ✓ Obtain first aid immediately for all injuries.
- ✓ Understand that the health and fire hazards can vary from material to material. Make sure all appropriate precautions are taken.
- ✓ Clean machines and the surrounding area when the operation is finished.
- ✓ Use proper lock out procedures when servicing or cleaning the machines or power tools.

DO NOT

- × Do not distract an operator. Horseplay can lead to injuries and should be strictly prohibited.
- × Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewellery that can become entangled in moving parts. Confine long hair.
- × Do not handle cuttings by hand because they are very sharp. Do not free a stalled cutter without turning the power off first. Do not clean hands with cutting fluids.
- × Do not use rags or wear gloves near moving parts of machines.
- × Do not use compressed air to blow debris from machines or to clean dirt from clothes.
- × Do not force the machine. It will do the job safer and better at the rate for which it was designed.



CAUTION!

It is impossible to cover all possible hazards Every workshop environment is different. These are designed as a guide to be used to compliment training and as a reminder to users prior to equipment use. Always consider safety first, as it applies to the individual working conditions.

2.1 GENERAL METALWORKING MACHINE SAFETY Cont.

HAZARDS ASSOCIATED WITH MACHINES include, but are not limited to:

- Being struck by ejected parts of the machinery.
- Being struck by material ejected from the machinery.
- Contact or entanglement with the machinery.
- Contact or entanglement with any material in motion.

Health Hazards (other than physical injury caused by moving parts)

- Chemicals hazards that can irritate, burn, or pass through the skin.
- Airborne items that can be inhaled, such as oil mist, metal fumes, solvents, and dust.
- Heat, noise, and vibration.
- Ionizing or non-ionizing radiation. (X-ray, lasers, etc.)
- Biological contamination and waste.
- Soft tissue injuries (for example, to the hands, arms, shoulders, back or neck) resulting from repetitive motion, awkward posture, extended lifting, and pressure grip.

Other Hazards

- Slips and falls from and around machinery during maintenance.
- Unstable equipment that is not secured against falling over.
- Safe access to/from machines. (access, egress)
- Fire or explosion.
- Pressure injection injuries from the release of fluids and gases under high pressure.
- Electrical Hazards, such as electrocution from faulty or ungrounded electrical components.
- Environment in which the machine is used. (in a machine shop, or on a work site)



WARNING!

The machine is the sole responsibility of the owner for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training, proper inspection and maintenance, manual availability and comprehension. The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



WARNING!

Machines are safeguarded to protect the operator from injury or death with the placement of guards. Machines must not be operated with the guards removed or damaged.

2.2 SPECIFIC SAFETY FOR ELECTRIC TAPPING ARM

DO NOT use this machine unless you have been instructed in its safe use and operation and have read and understood this manual



Safety glasses must be worn at all times in work areas



Long and loose hair must be contained.



Gloves must not be worn when using this machine.



Sturdy footwear must be worn at all times in work areas



Close fitting/ protective clothing must be worn



Rings and jewellery must not be worn.

Before activating the tapping machine, double-check to make sure that there are no dangerous conditions for the operator or persons nearby, and that operating the machine will not cause damage to equipment.

- The worktable or mounting surface must be connected to the floor and secured before installation.
- Children must not touch the machine.
- Do not work in a dusty, flammable or explosive environment.
- Always secure the workpiece on the table before operating the machine!
- Wear safety goggles when operating this tapping machine.
- Do not wear any jewelery or loose clothing during operation.
- Do not work on the tapping machine if your concentration is reduced, for example, because you are taking medication.
- Use the prescribed personnel protective equipment. Ensure you wear close-fitting clothing and, if necessary, a hairnet.
- Do not wear gloves when operating this machine.
- Keep your hands away from the motor chuck and the tap when operating the motor.
- Do not make any changes or modifications to the motor or the tap unit yourself.
- Keep your hands free of pinch points on the tapping unit during operation.
- If a hazard is detected, switch off the power switch to stop the spindle rotation and feed.
- Disconnect the mains plug before starting maintenance and repairs.
- All machine parts as well as all dangerous voltages are switched off. Excepted are only the positions which are marked with the adjoining pictogram.
- Attach a warning sign to the machine when servicing the machine.

3. POWER SUPPLY

3.1 ELECTRICAL REQUIREMENTS

Place the machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure there is access to a means of disconnecting the power source. The electrical circuit must meet the requirements for 240V. To minimize the risk of electrocution, fire, or equipment damage, these machines should be hard wired with installation work and electrical wiring done by a qualified electrician.

NOTE : The use of an extension cord is not recommended as it may decrease the life of electrical components on your machine.

ELECTRICAL REQUIREMENTS

Nominal Voltage	240V
Cycle	50 Hz
Phase	Single Phase
Power Supply Circuit	10 Amps

3.2 USING EXTENSION LEADS

Always fully uncoil extension leads before use and avoid overloading them to prevent dangerous overheating and electrical fires.

Uncoil completely: Fully unwrap the cable from any reel or coil before turning it on. Coiled wires trap heat and can melt insulation or start a fire.

Never daisy chain: Avoid plugging one extension lead into another. Joining leads causes voltage drops and overloads the circuit.

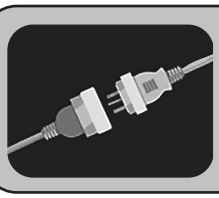
Extension leads are meant for temporary use. For permanent needs, have a licensed electrician install extra wall sockets.

Keep away from water and heat: Do not run cords through water, and never place them under rugs or carpets where heat can build up.

Check for damage: Before plugging the lead into the wall socket, regularly run your hands along the cord to feel for cuts, cracks, frayed wires, or soft spots in the insulation. Discard damaged leads immediately.

Examine the plug: Look for bent pins, loose casing, or scorch marks. Discoloration or a hot plug means the lead is overloaded or failing.

Match ratings: Ensure the extension lead's amp and wattage rating meets or exceeds the requirements of the tool or device you connect.



WARNING!

Always disconnect the power to the machine before doing any adjusting or maintenance to the machine.

4 SET-UP

4.1 UNPACKING

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. If items are damaged, please contact your distributor.

NOTE: Save all the packaging materials until you are completely satisfied with the machine and have resolved any issues with the distributor, or the shipping agent.

When unpacking, check the packing list to make sure that all parts shown are included. If any parts are missing or broken, please contact your distributor.

4.2 CLEAN - UP

The unpainted surfaces of the machine have been coated with a waxy oil to protect them from corrosion during shipment. Remove the protective coating with a solvent cleaner or a citrus based degreaser.

Optimum performance from your machine will be achieved when you clean all moving parts or sliding contact surfaces that are coated with rust preventive products.

It is advised to avoid chlorine based solvents, such as acetone or brake parts cleaner, as they will damage painted surfaces and strip metal should they come in contact. Always follow the manufacturer's instructions when using any type of cleaning product.

4.3 SITE PREPARATION

When selecting the site for the machine, consider the largest size of work-piece that will be processed through the machine and provide enough space around the machine for operating the machine safely. Consideration should be given to the installation of auxiliary equipment. Leave enough space around the machine to open or remove doors/covers as required for the maintenance and service as described in this manual.

It is recommended that the machine is anchored to the floor to prevent tipping or shifting. It also reduces vibration that may occur during operation.

4.4 LIFTING INSTRUCTIONS

On the day that the machine arrives, make sure that a forklift or lifting device, with sufficient capacity is available to unload the machine from the vehicle. Ensure access to the chosen site is clear and that doors and ceilings are sufficiently high and wide enough to receive the machine.

⚠WARNING ***This machine is very heavy.***
Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance from another person when moving the shipping crate and removing the machine from the crate.





CAUTION

This machine may not appear to be heavy, but damage to the back or legs can occur if lifting practices are not followed. When lifting bend the knees and keep the back straight.

4.5 ASSEMBLY

The machine must be fully assembled before it can be operated. First clean any parts that are coated in rust preventative to ensure the assembly process can proceed smoothly.

To Assemble The Machine:

1. Use four M10 screws to secure the base bracket. Drill and cut 4 screw holes in a flat smooth table or workbench. (See Fig. 2)
2. Secure the base bracket and fasten the positioning nuts at the appropriate height.
3. Slide the bracket of the control unit onto the shaft of the base bracket.
4. Tighten the shaft cover.

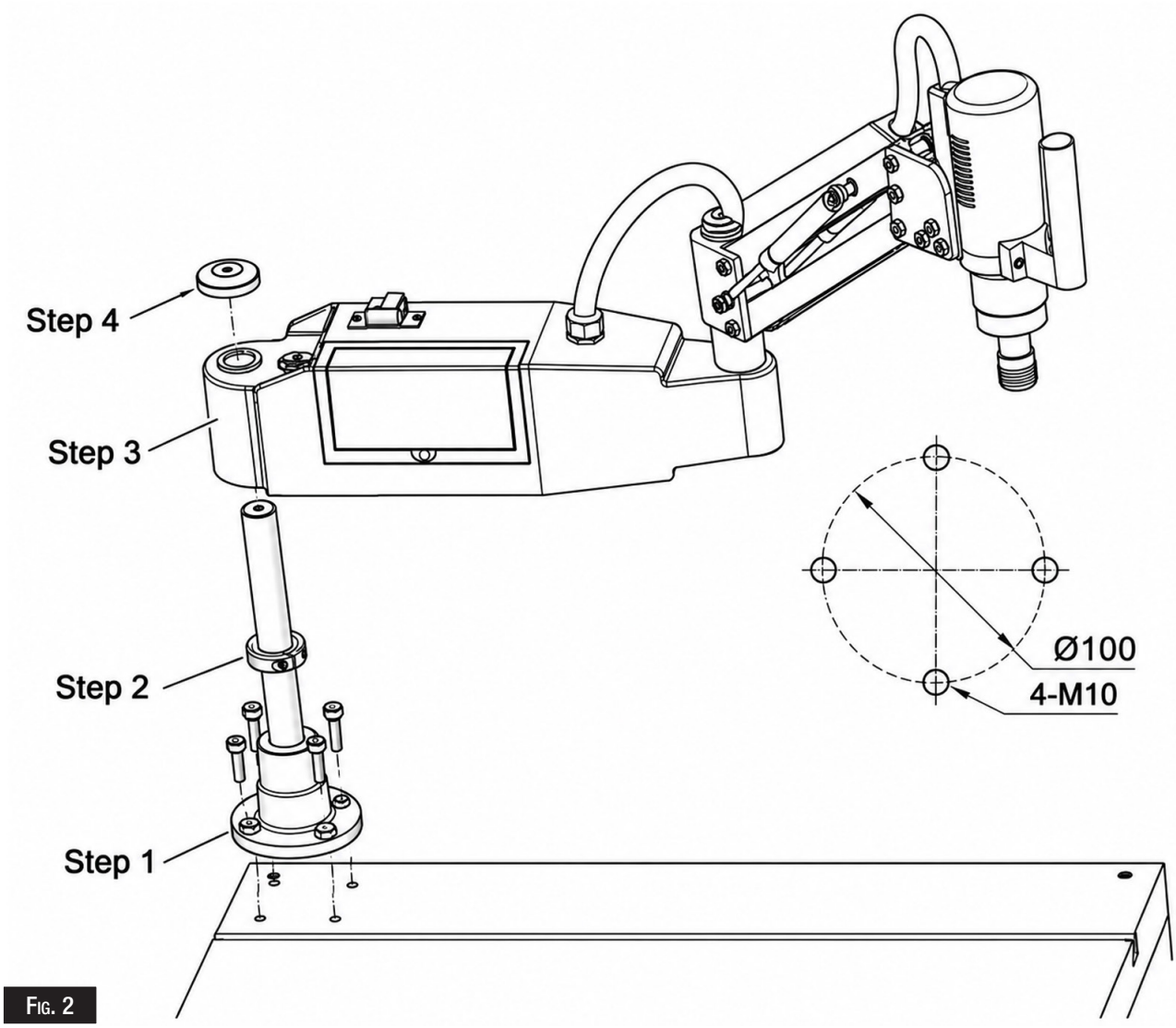


Fig. 2

WARNING!

DO NOT operate any machine before it is fully assembled and all the safety guards have been fitted and secured. Failure to do so may cause death or severe injury.

5. OPERATION

This machine may perform many types of operations that are beyond the scope of this manual. Many of these operations may be dangerous or deadly if performed incorrectly. The instructions in this section are written with the understanding that the operator has the necessary knowledge and skills to operate this machine. If at any time you are experiencing difficulties performing any operation, stop using the machine!

If you are an inexperienced operator, we strongly recommend that you read books, trade articles, or seek training from an experienced operator before performing any unfamiliar operations.

Above all, your safety should come first!

5.1 OPERATION OVERVIEW

This overview purpose is to provide a novice machine operator with a basic understanding of how the machine is used during operation, and so that if the machine controls or components are mentioned later in this manual, it will be easy to understand. The overview is not intended to be an instructional guide and is only generic in nature. To learn more about the specific operation, read this entire manual and seek additional training from an experienced machine operator. Another source of information may be found in video's on websites or by reading trade magazines.

Secure the work piece: Clamp your part firmly or place it in a vise on the machine's fixture table so it cannot shift during threading.

Check pre-drilled holes: Ensure you have drilled the correct hole size for the thread pitch you plan to cut. Select the tap and collet.

Choose the right machine tap and match it with the correct quick-change collet or adapter size.

Install the tool: Press the locking ring or plate on the chuck, insert the tap adapter until it clicks into place, and release.

Apply lubrication: Add tapping fluid or cutting oil to the hole or set up an automated lubrication line if your machine supports it.

Position the head: Maneuver the flexible arm so the tip of the tap rests directly centered over the pre-drilled hole. The articulated arm keeps the tool at a true 90-degree angle.

Configure settings: Use the digital touchscreen to input your thread size (e.g., M6, M8), RPM speed, and torque limits to prevent breaking taps.

5.2 CONNECTION TO POWER

Always wear safety goggles and take appropriate safety precautions when thread cutting.

Wearing gloves is not recommended.

Connect the machine to an earthed 240V ~50Hz power source.

The circuit is protected by a fuse in the back of the socket. In the event of a power supply fault, the fuse in the plug connection should be checked. (Fig. 3)

CAUTION!
The mains plug must always be disconnected when carrying out repairs to the machine.

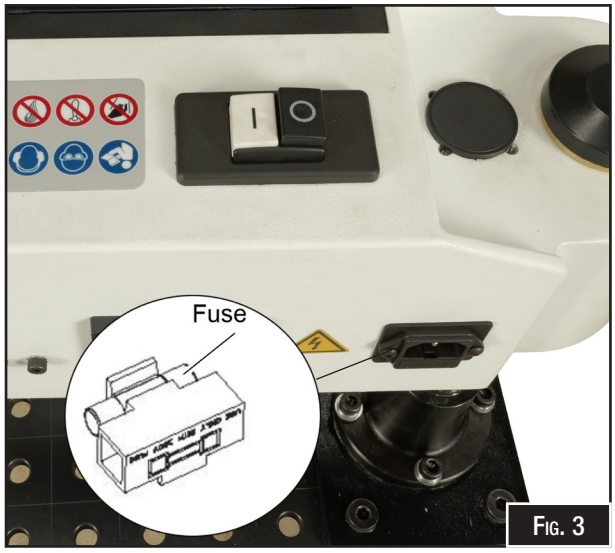


FIG. 3

5.3 INSERTING THE TAP

Select the correct tapping chuck for the required size.

Insert the tap into the tapping chuck by pressing down the locking ring. Insert the square of the tap into the tapping chuck. Loosen the locking ring. (Fig.4)



Fig. 4

5.4 INSERTING THE TAPPING CHUCK

Before inserting the tapping chuck, press the collar on the quick-change chuck upwards. Insert the tapping chuck into the quick-change chuck. (Fig. 5)

Turn the tapping chuck until the tang of the tapping chuck aligns with the tang of the quick-change chuck, then push up to lock the tapping chuck.

To change the tapping chuck, press up the collar on the quick-change chuck.



Fig. 5

5.5 SWITCHING THE MACHINE ON / OFF

The appliance is switched on by pressing the main switch button. (Fig. 6) The appliance is switched off by pressing the < O > main switch button, possibly with a delay of a few seconds.

When the main switch is switched on, the boot interface appears first on the touchscreen, click on the “Enter” button to access the operating interface.

The parameters for standard thread cutting are already stored.

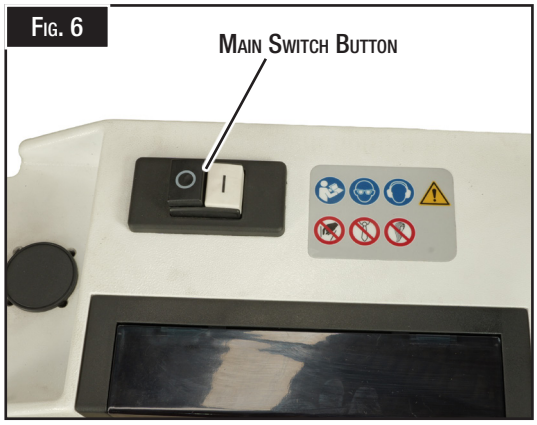


Fig. 6

WARNING!

Serious injury could occur if you connect machine to power before completing the setup process. DO NOT connect to power until all assembly and adjusting processes are complete.

5.6 TAPPING FUNCTION

CAUTION!

Keep your hands and fingers away from the tap and do not wear gloves. Ensure that the work pieces are adequately secured against rotating on the work table.

Position the motor head vertically above the workpiece so that no obstacle hinders the downward movement of the tap or prevents the tap from reaching the required thread depth.

Start the process by clicking the “Enter” button and select the thread size for normal operation in the menu “Ordinary Operation on page 18”.

First press the “Forward” button to start the tap, then press the “Reverse” button to reverse. (Fig. 7)

The return is automatic.

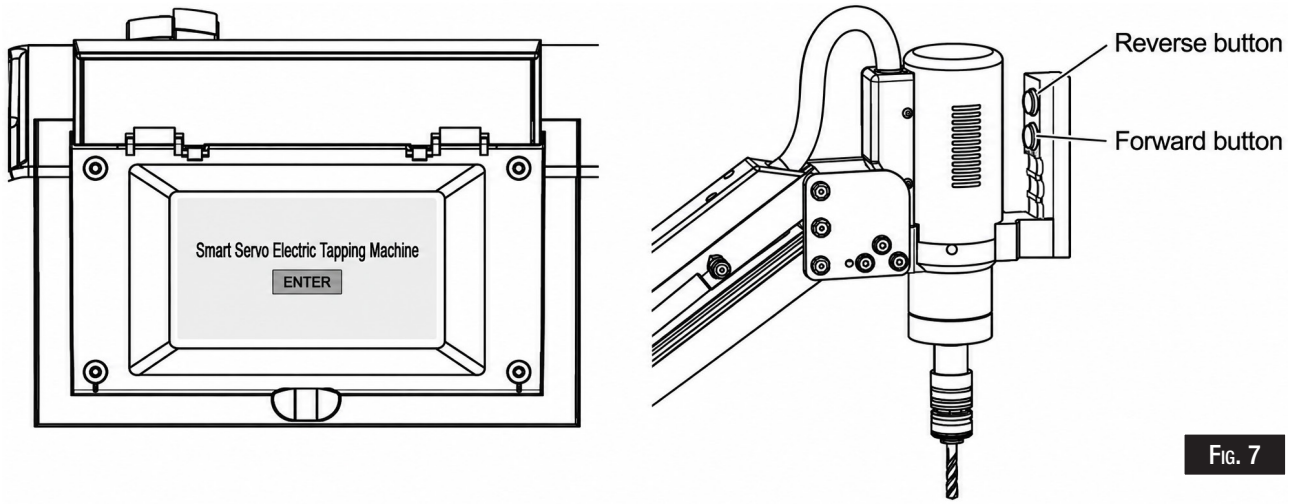


FIG. 7

APPLY ONLY AS MUCH DOWNWARD PRESSURE AS IS NECESSARY TO GET THE TAP TO WORK.

The tap engages automatically and follows the drill hole. If you are drilling a through hole, remember that the tap will protrude from the underside of the workpiece. Ensure that there is sufficient clearance under the workpiece so that the tap can break through and does not hit the work surface.

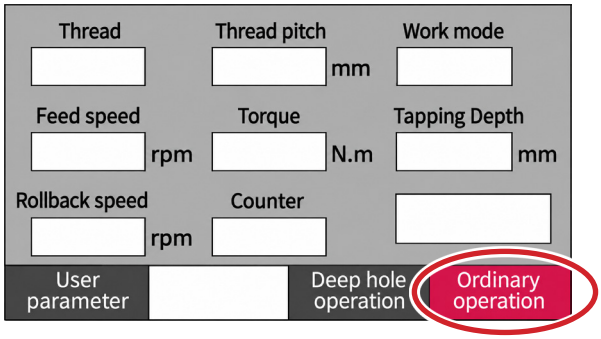
5.7 DISPLAY OPERATION

5.7-1 ORDINARY OPERATION (Fig. 8)

Thread: Click on “Thread”to select the thread. The thread pitch and torque are generated automatically. Metric / inch threads are available.

Thread pitch: If you select a thread in the thread selection interface, the thread pitch is generated automatically or you can set a non-standard pitch value.

FIG. 8



WORK MODE:

Normal: suitable for small threads.

Smart: Suitable for large threads, automatically adjusts the speed in the event of torque fluctuations.

Feed speed: Forward thread cutting speed parameters

Rollback speed: Parameters for the reverse threading speed.

5.7 DISPLAY OPERATION Cont.

5.7-1 ORDINARY OPERATION Cont.

Torque: When the thread is confirmed, a default torque protection value is created, which can be activated by switching on the “Torque Protection” button.

INFORMATION
To set the torque of the tap, the “Torque protection” function must be opened on the user interface of the user parameters before setting this parameter.

After activating the torque protection: If the control unit detects during machining in manual and automatic mode that the thread force reaches the preset protective torque, the motor stops thread cutting, reverses the preset number of revolutions and then continues thread cutting until the preset thread depth is reached.

Annotation: Torque protection is effective in both manual and automatic mode in normal operation, but cannot be effective in deep hole drilling mode.

Counter: Counting workpiece synchronization with threaded hole.

Tapping Depth: Setting the thread depth parameter.

Manual/Auto: Switch between manual and automatic thread cutting.

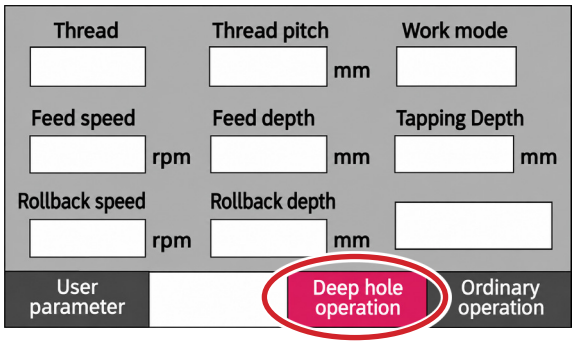
5.7-2 DEEP HOLE OPERATION (Fig. 9)

Feed depth: The parameter should be smaller than the thread depth.

Rollback depth: The parameter should be smaller than the intervention depth.

The other parameters refer to normal thread cutting.

FIG. 9

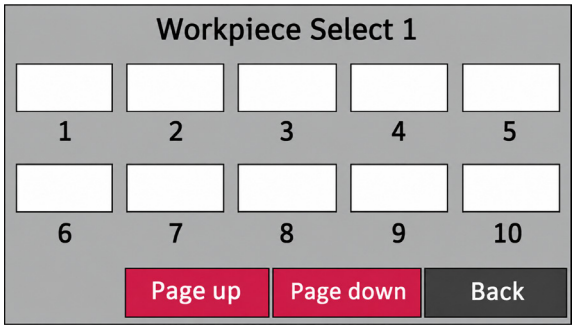


5.7-3 WORK PIECE SELECTION (Fig. 10)

Work piece storage for machining

The machine can restore 20 part parameters for the next direct application.

FIG. 10



WARNING!

There is potential danger when operating any machine. Accidents are frequently caused by failure to pay attention or a lack of familiarity. Always use the machine with respect and caution to reduce the risk of operator injury. When normal safety precautions are overlooked or ignored, serious personal injury can occur.

5.7 DISPLAY OPERATION Cont.

5.7-4 USER PARAMETER (Fig. 11)

Hole bottom delay time: Borehole bottom delay time. If the depth is set by tapping, the delay time is 0-10s.

Direction: Motor rotation clockwise or anti-clockwise.

No-load torque: Idle torque (see next page for details)

Retreat more laps: More returns. To ensure a smooth return, more reverse turns are performed than forward turns.

Torque protection: Preset standard torque limits to protect the taps.

Real-time data: Touch “ON”. The synchronisation process is displayed.

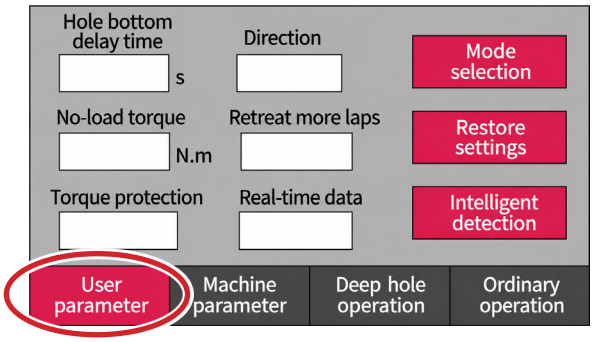
Mode selection: Tapping and tightening screws.

Restore settings: ***CAUTION*** Restore factory settings.

Intelligent detection: (Details on the next page)

Machine parameter: Machine parameters must not be changed

Fig. 11

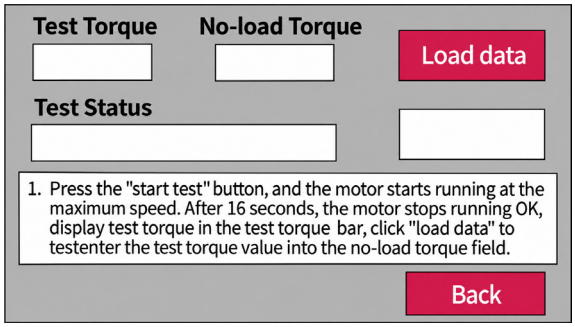


5.7-5 NO-LOAD TORQUE (Fig. 12)

1 Press the “start test” button, and the motor starts running at the maximum speed. After 16 seconds, the motor stops running OK, display the test torque in the test torque bar, then click “load data” to enter the test torque value into the no-load torque field.

If the torque protection value is too low when tapping, you can add an unloaded torque on the basis of 0.1 until no more problems occur.

Fig. 12



5.7-6 INTELLIGENT DETECTION (Fig. 13)

1 Press forward button, forward signal display on, press reverse button, reverse signal display on.

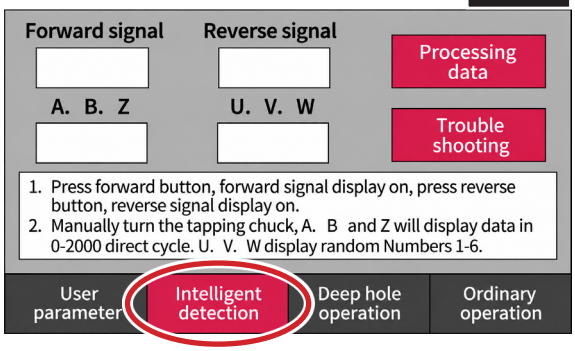
2 Manually turn the tapping chuck, A, B and Z will display data in 0-2000 direct cycle, and U, V, W will display random Numbers 1-6.

If no forward signal or reverse signal is displayed, the pushed button maybe defective or there is a line fault.

A B Z Test: Turning the tapping chuck by hand. If no data is displayed or there is a data overflow, the rotary encoder may be damaged or defective.

U V W Test: Turn the tapping chuck by hand. If the data range 1-6 is exceeded or nothing is displayed, there may be an error in the encoder for speed, depth, or torque.

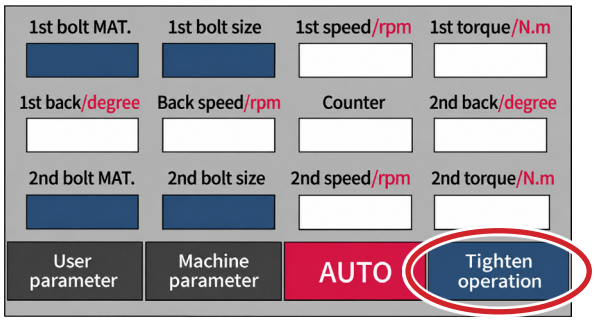
Fig. 13



5.8 TROUBLESHOOTING

5.8-1 TIGHTEN OPERATION (Fig. 14)

Fig. 14



Bolt MAT.: Material of the screw: Select the material of the screw.

Bolt size: Screw size. Select the screw thread.

Speed: Preload speed. Set the preload speed.

Torque Set: Torque set. Automatically generates a torque value.

Reverse angle: Reverse angle of the spindle.

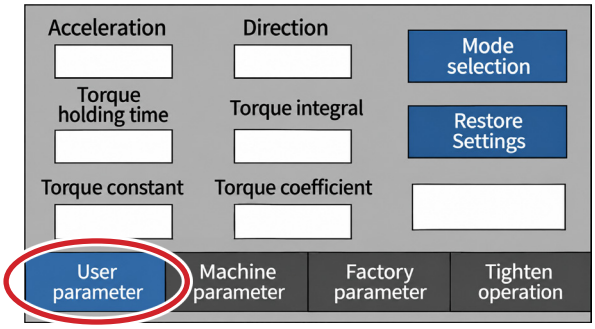
Reverse speed: Reverse speed of the spindle.

Counting: Counting the finished number of work pieces.

Auto/Manual:

5.8-2 USER PARAMETER (Fig. 15)

Fig. 15



Acceleration: Controls the accelerated speed of the machine. Small value, slow acceleration.

Direction: Rotational direction. Machine thread cutting direction clockwise or anti-clockwise.

Torque holding time: Pause after spindle rotation, axes time lock.

Torque integral: 80 must not be changed.

Torque constant: 2 must not be changed.

Torque coefficient: If the output torque is higher than the set value, the ratio must be set on the basis of 0.01.

Mode selection: Alternate between tapping and tightening screws.

Restore Settings: Restoring the factory settings

No lock: Motor stops, no locking of the axle.

Auto lock: Automatic locking. Motor stops, torque output until the set time.

Machine parameter: Machine parameters must not be changed.

Factory parameter: Factory parameters

WARNING!

Cutting tools are sharp. Take care when handling them. Failure could cause deep cut injury

WARNING!

Before carrying out any adjustment or maintenance, make sure that the machine is disconnected from the mains supply.

5.8-3 GENERAL ERROR CODES

Code	Cause	Description / Remedy
E-001	Over-current	Check the perpendicularity of the tap head. If there is an over-current on drive E-001 and the motor is operating normally, the tap is stuck.
E-002	Over-Voltage	Voltage too high.
E-004	Over-current	Permanently persistent anomaly
E-008	Encoder Abnormal	Check the connection of the encoder cable.
E-010	Overrun	Carry out UVW test, if OK, check motor connection and encoder connection.
E-037	Encoder Error	Detect and eliminate signal interference
E-150	Communication control	
E-200	Timeout during servo communication	
E-220	Password error	
E-312	Torque protection error	

5.9 ADJUSTMENT OF THE TAPPING CHUCK TORQUE (Fig. 16)

CAUTION!

Never change the torque setting more than one level at a time.

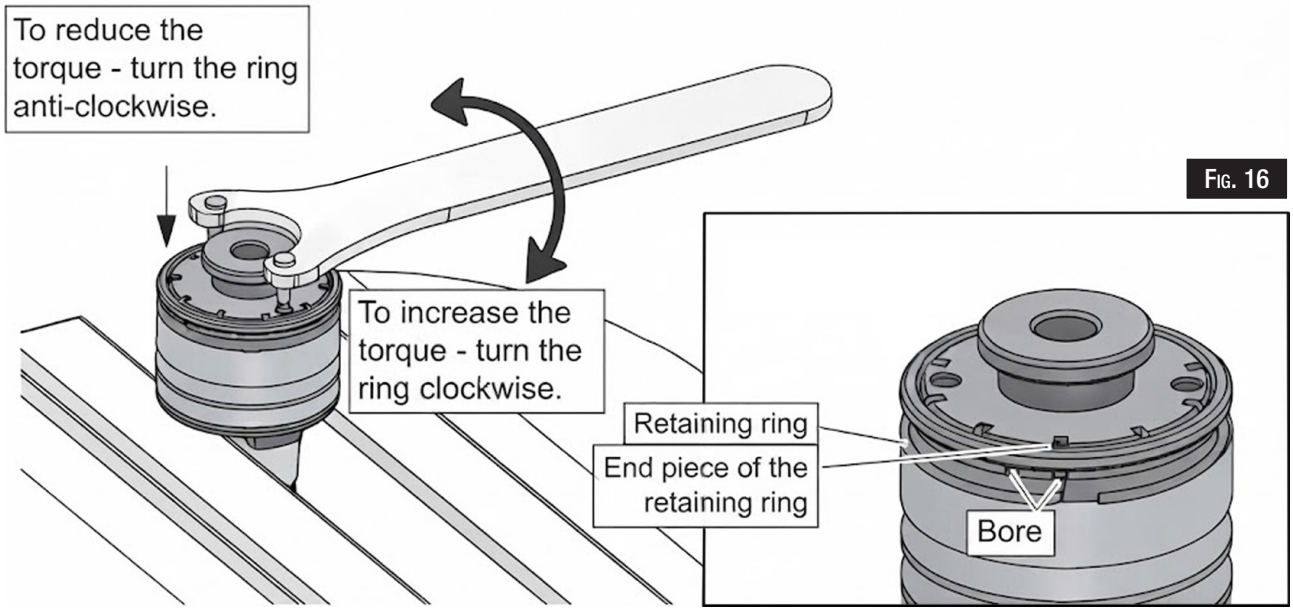


FIG. 16

The torque of the tap adapters are pre-set at the factory close to the standard breaking torque limits developed for each tap size. When the tap reaches the bottom of the hole, the resistance causes the torque holder's safety clutch to engage and prevent the tap from turning, causing it not to over-torque and eventually break.

When tapping hardened steel, it may be necessary to increase the factory-set torque. When tapping soft materials or plastics, the torque setting may need to be reduced from the factory-set torque setting preventing the tap from stripping the thread.

There are two locking positions on the outer diameter of the adapter that hold the end of the snap ring. These two positions allow an adjustment range from half a notch to a full notch on the threaded ring. The end of the snap ring must be inserted into the hole at one of the two positions and through a notch on the threaded ring in order to fix the set torque.

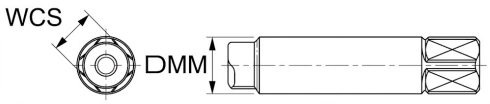
5.10 TAP SHANKS

Please note that there are at least 6 different DIN standards for taps and 5 different ISO standards.

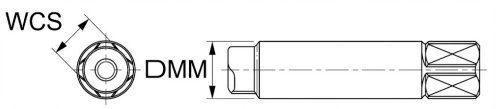
Designation	Shank diameter (mm)	Square dimension (mm)
M3 / M3.5	2.5	2.1
M4	2.8	2.1
M4.5 / M5	3.5	2.7
M6	4.5	3.4
M7 / M8	6	4.9
M10	7	5.5
M12	9	7
M14	11	9
M16	12	9
M18	14	11
M20	16	12

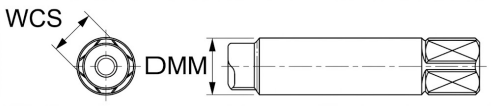
5.10-1 SQUARE SIZES

The size of the square depends on the shank diameter of the hand tap.

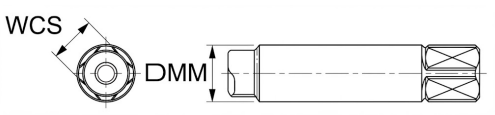
ISO shank and square dimensions						
Shank diameter (DMM), mm	**Square (WSC), mm**	**ISO 529 Metric**	**ISO 529 UNC/UNF BSWBSF**	**ISO 2283 Metric**	**ISO 2284 G**	**ISO 2284 Rc**
2.5	**2.00**	**M1**				
		M1.2				
		M1.4				
		M1.6	**N° 0**			
		M1.8				
		M2	**N° 1**			
2.8	**2.24**	**M2.2**	**N° 2**			
		M2.5	**N° 3**			
3.15	**2.5**	**M3**	**N° 4**	**M3**		
			N° 5			
3.55	**2.80**	**M3.5**	**N° 6**	**M3.5**		
				M4		
4.00	**3.15**	**M4**		**M5**		
4.50	**3.55**	**M4.5**	**N° 8**	**M6**		
5.00	**4.00**	**M5**	**N° 10 3/16**			
5.60	**4.50**	**M5.5**	**N° 12 7/32**	**M7**		
6.30	**5.0**	**M6**	**1/4**	**M8**		

5.10-1 SQUARE SIZES Cont.

ISO shank and square dimensions						
Shank diameter (DMM), mm	**Square (WSC), mm**	**ISO 529 Metric**	**ISO 529 UNC/UNF BSWBSF**	**ISO 2283 Metric**	**ISO 2284 G**	**ISO 2284 Rc**
7.10	5.60	M7	9/32			
8.00	6.30	M8	5/16	M10	G 1/8	Rc 1/8
9.00	7.10	M9		M12		
10.00	8.00	M10	3/8		G 1/4	Rc 1/4
8.00	6.30	M11	7/16			
9.00	7.10	M12	1/2			
11.20	9.00	M14	9/16	M14		
12.50	10.00	M16	5/8	M16	G 3/8	Rc 3/8
14.00	11.20	M16 M20	11/16 3/4	M18 M20		
16.00	12.50	M22	7/8	M22		
18.00	14.00	M24	1"	M24	G 5/8	Rc 5/8
20.00	16.00	M27 M30	1 1/8	M27 M30	G 3/4	Rc 3/4
22.40	18.00	M33	1 1/4		G 7/8	Rc 7/8
25.00	20.00	M36	1 3/8		G 1"	Rc 1"
28.00	22.40	M39 M42	1 1/2			

DIN shank and square dimensions							
Shank diameter (DMM), mm	**Square (WSC), mm**	**DIN 352**	**DIN 371**	**DIN 376**	**DIN 374**	**DIN 2182**	**DIN 2183**
2.5	2.10	M1	M1				
		M1.1	M1.1				
		M1.2	M1.2	M3.5	M3.5	1/16	
		M1.4	M1.4				
		M1.6	M1.6				
		M1.8	M1.8				
2.8	2.10	M2					
		M2.2		M4	M4	3/32	5/32
		M2.5	M2.5				

5.10-1 SQUARE SIZES Cont.

DIN shank and square dimensions							
Shank diameter (DMM), mm	Square (WSC), mm	DIN 352	DIN 371	DIN 376	DIN 374	DIN 2182	DIN 2183
3.20	2.40						3/16
3.50	2.70	M3	M3	M5	M5		
4.00	3.00	M3.5	M3.5			1/8	
4.50	3.40	M4	M4	M6	M5.5	5/32	1/4
6.00	4.90	M5 M6 M8	M5 M6	M8	M8	3/16	5/16
7.00	5.50	M10		M10	M9 M10	1/4	3/8
8.00	6.20		M8			5/16	7/16
9.00	7.00	M12		M12	M12	3/8	1/2
10.00	8.00		M10				
11.00	9.00	M14		M14	M14		9/16
12.00	9.00	M16		M16	M16		5/8
14.00	11.00	M18		M18	M18		3/4
16.00	12.00	M20		M20	M20		
18.00	14.50	M22 M24		M22 M24	M22 M24		7/8
20.00	16.00	M27		M27	M28 M28		1”
22.00	18.00	M30		M30	M30		1 1/8
25.00	20.00	M33		M33	M33		1 1/4
28.00	22.00	M36		M36	M36		1 3/8

6. MAINTENANCE

ATTENTION! Properly performed regular maintenance is an essential prerequisite for

- ❍ Operational safety,
- ❍ Failure-free operation,
- ❍ A long service life of the tapping machine and
- ❍ The quality of the products which you manufacture.

Installations and equipment from other manufacturers must also be in good order and condition.

- ❍ Check the tapping machine regularly for damage, loose parts or other irregularities.
- ❍ Keep both the motor and the chuck free from contamination by cleaning them regularly.

ELECTRIC TAPPING ARM
HMT-24

Order Code: (T0001)

The following section covers the spare parts diagrams and lists that were current at the time this manual was originally printed. Due to continuous improvements of the machine, changes may be made at anytime without notification.

HOW TO ORDER SPARE PARTS

1. Have your machines model number, serial number & date of manufacture on hand, these can be found on the specification plate mounted on the machine.

2. A scanned copy of your parts list/diagram with required spare part/s identified.

NOTE: SOME PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY

3. Go to www.machineryhouse.com.au/contactus and fill out the inquiry form attaching a copy of scanned parts list.



WARNING!

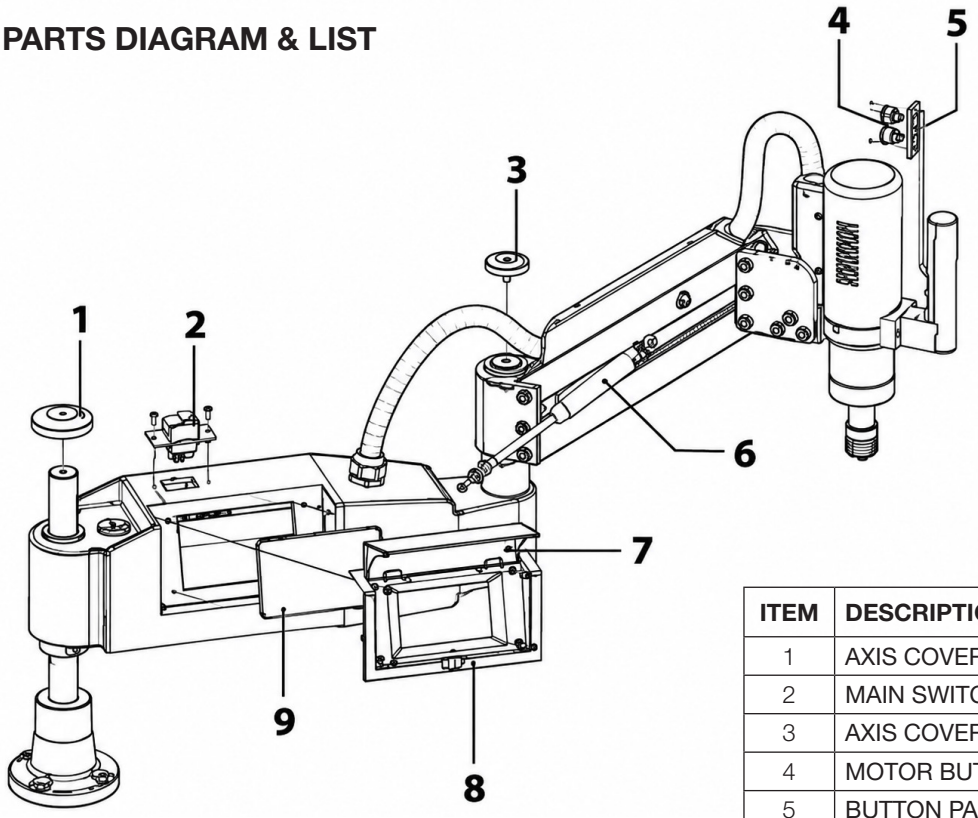
Electricity is dangerous and could cause death.
All electrical work must be carried out by a qualified electrician.



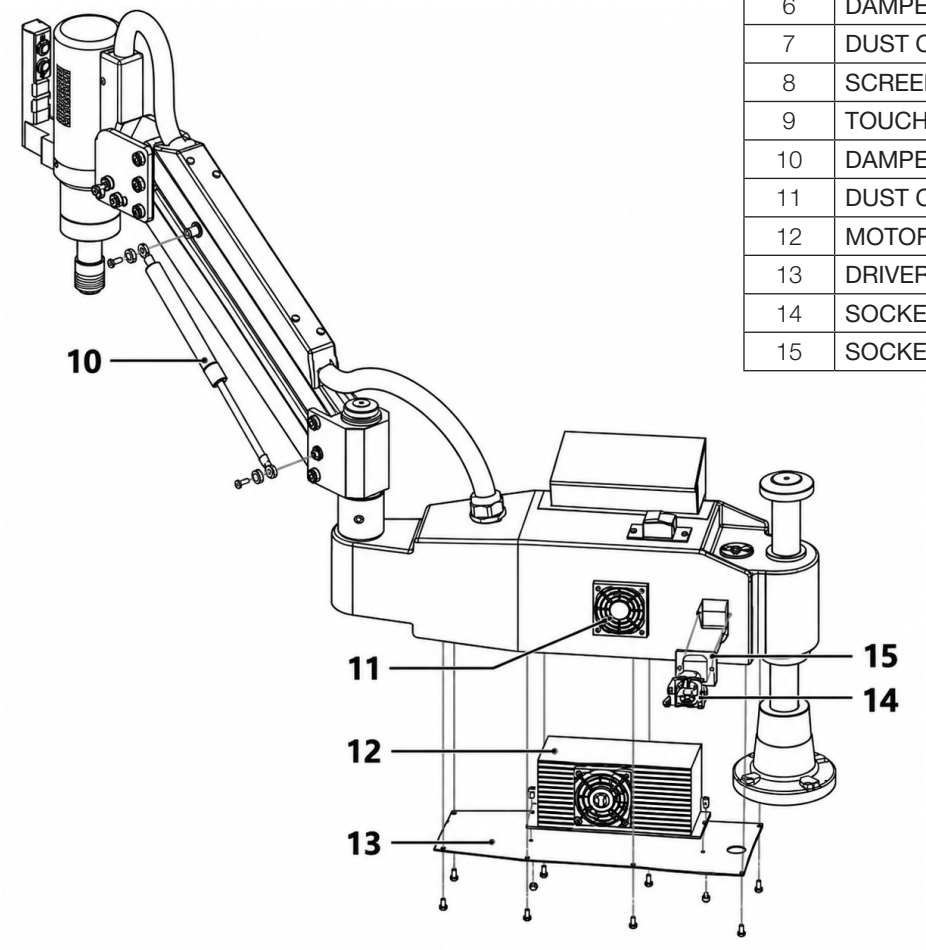
CAUTION!

It is impossible to cover all possible hazards Every workshop environment is different. These are designed as a guide to be used to compliment training and as a reminder to users prior to equipment use. Always consider safety first, as it applies to the individual working conditions.

PARTS DIAGRAM & LIST



ITEM	DESCRIPTION	ITEM NO.	QTY
1	AXIS COVER	0308102401	1
2	MAIN SWITCH	0308102402	1
3	AXIS COVER	0308102403	1
4	MOTOR BUTTON	0308102404	1
5	BUTTON PANEL	0308102405	1
6	DAMPER	0308102406	1
7	DUST COVER	0308102407	1
8	SCREEN FRAME	0308102408	1
9	TOUCH SCREEN	0308102409	1
10	DAMPER	0308102410	1
11	DUST COVER	0308102411	1
12	MOTOR DRIVER	0308102412	1
13	DRIVER BASE	0308102413	1
14	SOCKET	0308102414	1
15	SOCKET PANEL	0308102415	1



NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY

NOTES:



ENVIRONMENT PROTECTION

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

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