PALMGREN®

9680453 (M16), 9680454 (M24) & 9680455 (M36) servo electric Tapping Machines w/ stand

Read carefully and follow all safety rules and operating instructions before first use of this product.

965202201-0824

1 Safety

Glossary of symbols

☞	provides further instructions
➜	calls on you to act
❍	listings

This part of the operating instructions

- ❍ explains the meaning and use of the warning notes included in these operating instructions,
- ❍ defines the intended use of the tapping machine,
- ❍ points out the dangers that might arise for you or others if these instructions are not observed,
- ❍ informs you about how to avoid dangers.

In addition to these operating instructions, please observe

- ❍ the applicable laws and regulations,
- ❍ the statutory provisions for accident prevention,
- ❍ the prohibition, warning and mandatory signs as well as the warning notes on the tapping machine.

Always keep this documentation close to the tapping machine.

INFORMATION

If you are unable to rectify an issue using these operating instructions, please contact us for advice:

Palmgren, C. H. Hanson
2000 N Aurora rd. Naperville, IL 60540
1-800-827-3398
Sales@chhanson.com

1.1 Safety instructions (warning notes)

1.1.1 Classification of hazards

We classify the safety warnings into different categories. The table below gives you an overview of the assignment of symbols (pictograms) and signal words to the concrete danger and the (possible) consequences.

Symbol	Alarm expression	Definition / consequence
	**DANGER!**	Imminently dangerous, which will result in serious injury to persons or death.
	WARNING!	Risk: a hazard could result in serious injury to persons or death.
	CAUTION!	A danger or unsafe procedure that can cause personal injury or damage to property.
	**ATTENTION!**	Situation that could cause damage to the tapping machine and product, as well as other types of damage. No risk of injury to persons.

Symbol	Alarm expression	Definition / consequence
	**Information**	Practical tips and other important or useful information and notes. No dangerous or harmful consequences for people or objects.

In case of specific dangers, we replace the pictogram with

general danger

with a warning of

injury to hands,

hazardous electrical voltage,

or

rotating parts.

1.1.2 Other pictograms

Warning: danger of slipping!

Warning: risk of stumbling!

Warning: hot surface!

Warning: biological hazard!

Warning: automatic start-up!

Warning: tilting danger!

Warning: suspended loads!

Caution, danger of explosive substances!

Switching on forbidden!

Use ear protection!

Read the operating instructions before commissioning!

Pull out the mains plug!

Wear protective glasses!

Wear protective gloves!

Wear safety shoes!

Wear a protective suit!

1.2 Intended use

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!

The tapping machine is designed and manufactured to be used in a non-explosive environment. The tapping machine is designed for thread cutting, screw tightening and light reaming of holes. If the tapping machine is used in any way other than described above, modified without authorization of Palmgren, then the tapping machine is being used improperly.

We will not be held liable for any damages resulting from any operation which is not in accordance with the intended use.

We expressly point out that the guarantee will expire, if any constructive, technical or procedural changes are not performed by the company Palmgren.

ATTENTION!

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!

1.3 Reasonably foreseeable misuses

Any use other than that specified under "Intended use" or any use beyond that described will be deemed non-intended use and is not permissible. Any other use requires consultation with the manufacturer.

The tapping machine may only be used with cold and non-flammable materials.

In order to avoid misuse, it is necessary to read and understand the operating instructions before first commissioning.

Operators must be qualified.

1.3.1 Avoidance of misapplication

- Use of suitable cutting tools.
- Adapting the speed setting and feed to the material and workpiece.
- Clamp workpieces firmly and free of vibration.

1.4 Dangers that can emanate from the tapping machine

The tapping machine was built using state-of-the-art technology. Nevertheless, there is a residual risk, as the tapping machine operates with

- high speeds,
- rotating parts,
- electrical voltage and currents.
- We have used design and safety engineering to minimize the health risk to personnel resulting from these hazards.

If the tapping machine is used and maintained by personnel who are not duly qualified, there may be a risk resulting from incorrect or unsuitable maintenance of the tapping machine.

INFORMATION

Everyone involved in the assembly, commissioning, operation and maintenance must

- be duly qualified
- and strictly follow these operating instructions.

In the event of improper use

- there may be a risk to personnel,
- there may be a risk to the machine and other material values,
- the functionality of the tapping machine may be compromised.

Always switch off the tapping machine and disconnect the mains plug when carrying out cleaning or maintenance work.

1.5 Qualification of personnel

1.5.1 Target group

This manual is addressed to

- the operating companies,
- the operators,
- the maintenance personnel.

Consequently, the warning notes refer both to the use of the tapping machine and to its maintenance.

Determine clearly and explicitly who will be responsible for the different activities on the machine (operation, maintenance and repair).

Unclear responsibilities constitute a safety risk!

Always disconnect plug of the tapping machine from the electrical power supply. This will prevent it from being used by unauthorized persons.

The qualifications of the personnel for the different tasks are mentioned below:

Operator

The operator has been instructed by the operating company regarding the assigned tasks and possible risks in case of improper behaviour. Any tasks which need to be performed beyond the operation in standard mode must only be performed by the operator, if so indicated in these instructions and if the operator has been expressively commissioned by the operating company.

Qualified electrician

With professional training, knowledge and experience as well as knowledge of respective standards and regulations, qualified electricians are able to perform work on the electrical system and recognise and avoid any possible dangers.

Qualified electricians have been specially trained for the working environment, in which they are working and know the relevant standards and regulations.

Qualified personnel

Due to their professional training, knowledge and experience as well as knowledge of relevant regulations, qualified personnel are able to perform the assigned tasks and to independently recognise and avoid any possible dangers.

Instructed person

Instructed persons were instructed by the operating company regarding the assigned tasks and any possible risks of improper behaviour.

1.5.2 Authorized persons

WARNING!

Inappropriate operation and maintenance of the tapping machine constitutes a danger for the personnel, objects and the environment.

Only authorized personnel may operate the tapping machine!

Authorized operating and maintenance personnel are specialists instructed and trained by the operator and the manufacturer.

Obligations of the operating company

- train the personnel,
- instruct the personnel in regular intervals (at least once a year) on
  - all safety regulations relevant to the machine,
  - its operation and
  - generally accepted engineering standards.
- check the personnel‘s knowledge level,
- document the training/instruction,
- have attendance at the training/instruction confirmed by signature and
- check whether the personnel is working in a safety and risk-conscious manner and following the operating instructions.
- define and document the inspection deadlines for the machine in accordance with the Factory Safety Act and perform an operational risk analysis in accordance with your Work Safety Act.

Obligations of the operator

- have obtained a training regarding the handling of the tapping machine,
- know the function and mode of action,
- before taking the machine in operation
  - have read and understood the operating manual,
  - be familiar with all safety devices and instructions.

Additional requirements apply for work on the following machine components:

- Electrical parts or operating agents: shall only be performed by an electrician or under the guidance and supervision of an electrician.

1.6 User positions

The operator position is located in front of the tapping machine on the motor handle.

INFORMATION

The power plug of the tapping machine must be readily accessible.

1.7 Personal protective equipment

For certain work personal protective equipment is required.

Protect your eyes: Wear safety goggles during all work.

Wear protective gloves when handling pieces with sharp edges.

Wear safety shoes when you assemble, disassemble or transport heavy components.

Use ear protection if the noise level (emission) in the workplace exceeds 80 dB (A).

Before starting work make sure that the required personal protective equipment is available at the work place.

CAUTION!

Dirty or contaminated personnel protective equipment can cause illness. It must be cleaned after each use and at least once a week.

1.8 Personal protective equipment

For some works you need personnel protective equipment as protective equipment. These are

- protective glasses or face guard,
- protective gloves,
- safety shoes with steel toe caps.

Before starting work make sure that the required personnel protective equipment is available at the work place.

Protect your face and your eyes: Wear safety glasses for all work where your eyes are at risk.

Wear protective gloves when handling pieces with sharp edges.

Wear safety shoes when you assemble, disassemble or transport heavy components.

1.9 Safety during operation

WARNING!

Before activating the tapping machine, double-check that make sure that there are no dangers generated for persons, 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 jewellery 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.

1.9.1 Disconnecting and securing the tapping machine

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.

1.10 Electronics

Have the machine and/or the electrical equipment checked regularly, at least every six months.

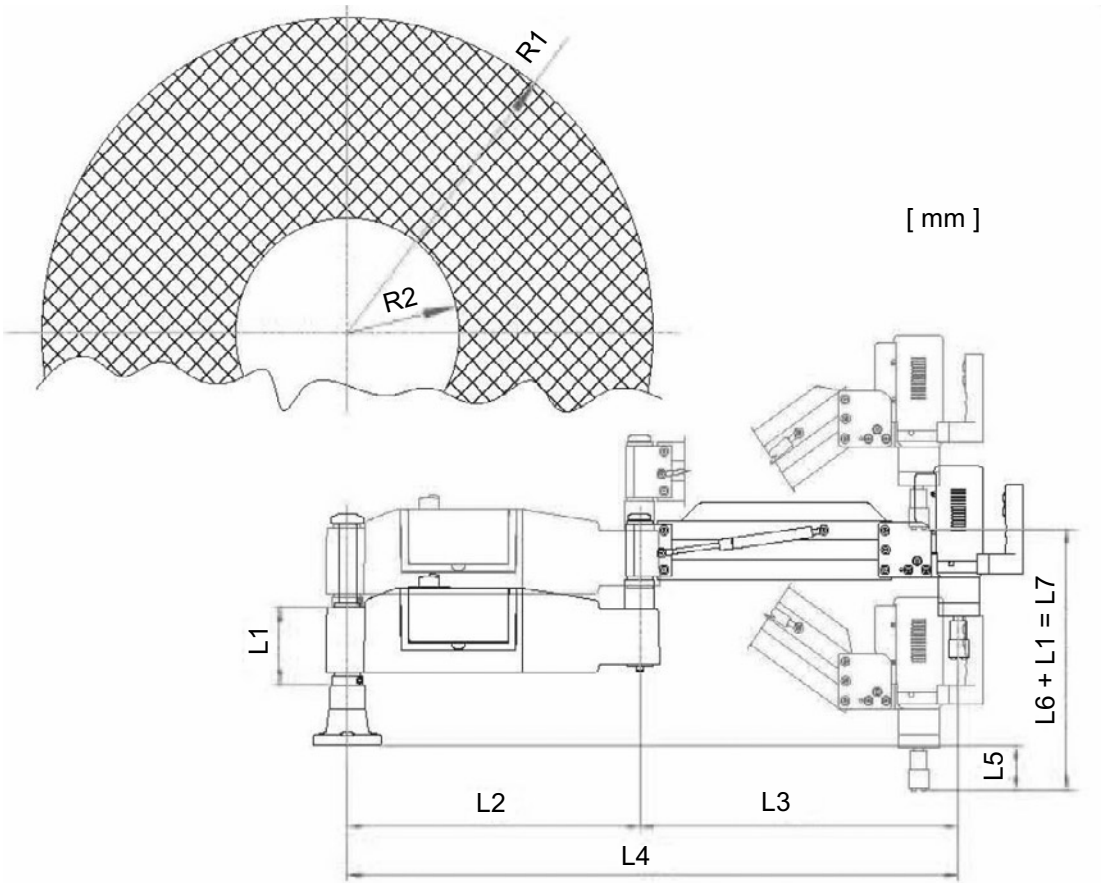
Immediately eliminate all defects such as loose connections, defective wires, etc.

A second person must be present during work on live components to disconnect the power in the event of an emergency. Disconnect the tapping machine immediately if there is a malfunction in the power supply! Pull out the mains plug!

2 Technical specification

This machine is designed for thread cutting, screw tightening and light reaming of holes.

2.1 Work area



Palmgren Model	R1	R2	L1	L2	L3	L4	L5	L6	L7
9680453 (M16)	41"	13"	5"	19.5"	21.5"	41"	2.95"	17"	22"
9680454 (M24) / 9680455 (M36)	46.5"	14.5"	6.25"	21.5"	25"	46.5"	6.85"	21.5"	27.75"

- 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

Tap Holders Included

9680453	-	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2	-	-	-	-
9680454	1/4	5/16	3/8	1/2	9/16	5/8	11/16	13/16	7/8	-	-	-	-
9680455	1/4	5/16	3/8	1/2	9/16	5/8	11/16	13/16	7/8	15/16	1	1-1/8	1-1/4

2.2 Data

Palmgren Model	9680453 (M16)	9680454 (M24)	9680455 (M36)
Electrical connection	115V/60 Hz/1 PH		
Tap diameter	#6 to 5/8″	1/4″ to 15/16″	1/4″ to 1-3/8″
Power	0.8 HP	1.5 HP	1.5 HP
Alignment	Vertical		
Horizontal range	41"	46.5"	46.5"
Vertical range	13"	14.5"	14.5"
Motor speed (RPM)	375	200	125
Tap holder spec:	ANSI		
Net weight	303 lbs	356 lbs	363 lbs

Recommended Maximum Tapping Speed/RPM					
	Model	Stainless Steel	Carbon Steel	Cast Iron	Aluminum
Tapping Speed	9680453 (M16)	0 to 100	0 to 200	0 to 375	0 to 375
	9680454 (M24)	0 to 80	0 to 120	0 to 200	0 to 200
	9680455 (M36)	0 to 50	0 to 80	0 to 125	0 to 125

IMPORTANT: Choose the best speed within the recommended range, taking into account the workpiece and tap size to avoid breaking the tap.

2.3 Emissions

The A-weighted sound pressure level L_{pA} is 58 to 62 dB.

INFORMATION

This numerical value was measured on a new machine under the operating conditions specified by the manufacturer. The noise behavior of the machine might change depending on the age and wear of the machine.

Furthermore, the noise emission also depends on production engineering factors, e.g. speed, material and clamping conditions.

INFORMATION

The specified numerical value represents the emission level and does not necessarily a safe working level. Though there is a dependency between the degree of the noise emission and the degree of the noise disturbance it is not possible to use it reliably to determine if further precaution measures are required or not. The following factors influence the actual degree of the noise exposure of the operator:

- Characteristics of the working area, e.g. size or damping behavior,
- other noise sources, e.g. the number of machines,
- other processes taking place in proximity and the period of time, during which the operator is exposed to the noise.

Furthermore, it is possible that the admissible exposure level might be different from country to country due to national regulations. This information about the noise emission should, however, allow the operator of the machine to more easily evaluate the hazards and risks.

3 Delivery, internal transport and unpacking

CAUTION!

Injuries caused by parts falling over or off a forklift, pallet truck or transport vehicle. Only use means of transport that can carry the total weight and are suitable for it.

3.1 Notes on transport, installation and unpacking

Improper transport of individual appliances and smaller machines, unsecured appliances and smaller machines stacked on top of or next to each other in a packed or unpacked state is accident-prone and can cause damage or malfunctions for which we do not accept any liability or provide any guarantee.

Transport the scope of delivery secured against shifting or tilting with a sufficiently dimensioned industrial truck to the installation site.

3.1.1 General risks during internal transport

CAUTION: DANGER OF TIPPING!

The device may be lifted unsecured by a maximum of 2 cm.

Employees must be outside the danger zone, the reach of loads. Warn employees and, if necessary, advise employees of the hazard.

Act responsibly during transport and always consider the consequences. Refrain from daring and risky actions.

Gradients and descents (e.g. driveways, ramps and the like) are particularly dangerous. If such passages are unavoidable, special caution is required.

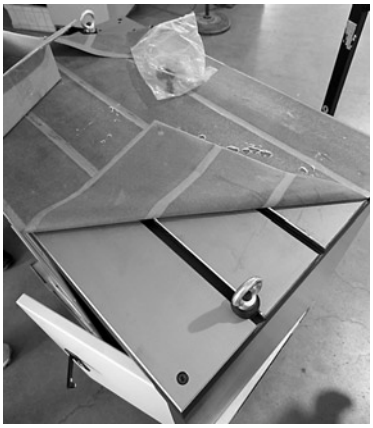
Before starting the transport check the transport route for possible danger points, unevenness and disturbances as well as for sufficient strength and load capacity.

Danger points, unevenness and disturbance points must be inspected before transport. The removal of danger spots, disturbances and unevenness at the time of transport by other employees leads to considerable dangers.

Careful planning of internal transport is therefore essential.

3.1.2 Eye-bolts T-nuts

Eye-bolts T-nuts can be slotted into table for internal transport.



3.2 Scope of delivery

INFORMATION

The tapping machine comes disassembled due to packaging reasons.

The tapping machine must be assembled before commissioning.

Check the tapping machine for transport damage and shortages immediately after delivery.

Included in the scope of delivery:

1 x main body of the tapping machine

1 x base mounting

1 x power cable

1 x Allen key

1 x tapping chuck

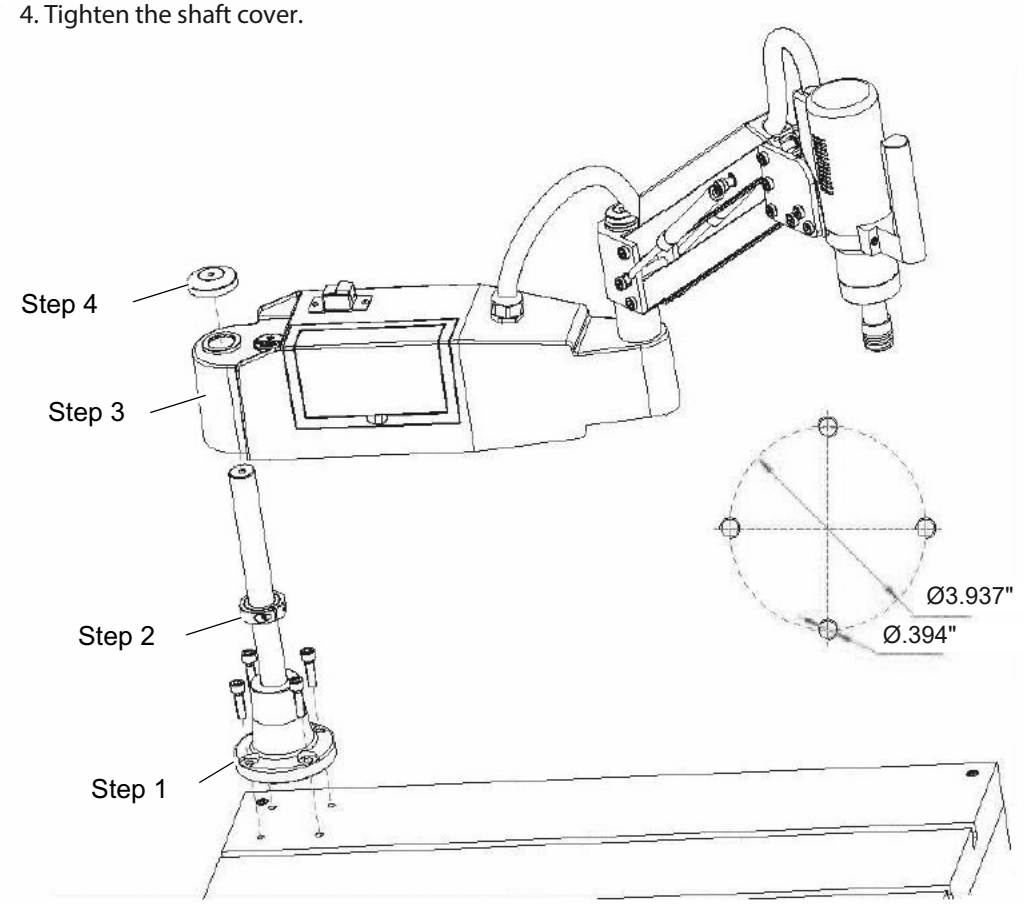
1 x spanner for tapping chuck adjustment

1 x stand (work table 36˝ x 24˝)

SET-UP AND ASSEMBLY

Mount Base Bracket

1. If not using the included stand, drill 3 screw holes into a flat, smooth table or workbench. Refer to mounting diagram below. Use four M10 screws to securely fasten the base bracket to the stand.
2. Fasten the positioning ring on the shaft at the appropriate height.
3. Slide the bracket of the control unit onto the shaft of the base bracket.
4. Tighten the shaft cover.



Install Stand Wheels

Caster wheels are found inside the cabinet, and can be attached to the four corners of the bottom of the stand.

3.3.1 Height adjustment

Insert the lifting screw into the hole in the arm and turn the handwheel to set the adjusting nut to the desired height. (The adjusting nut must not be removed)

Place the fixed base on the axle.

Tighten the nut and washer on the top of the axle and make sure that the machine moves up and down evenly.

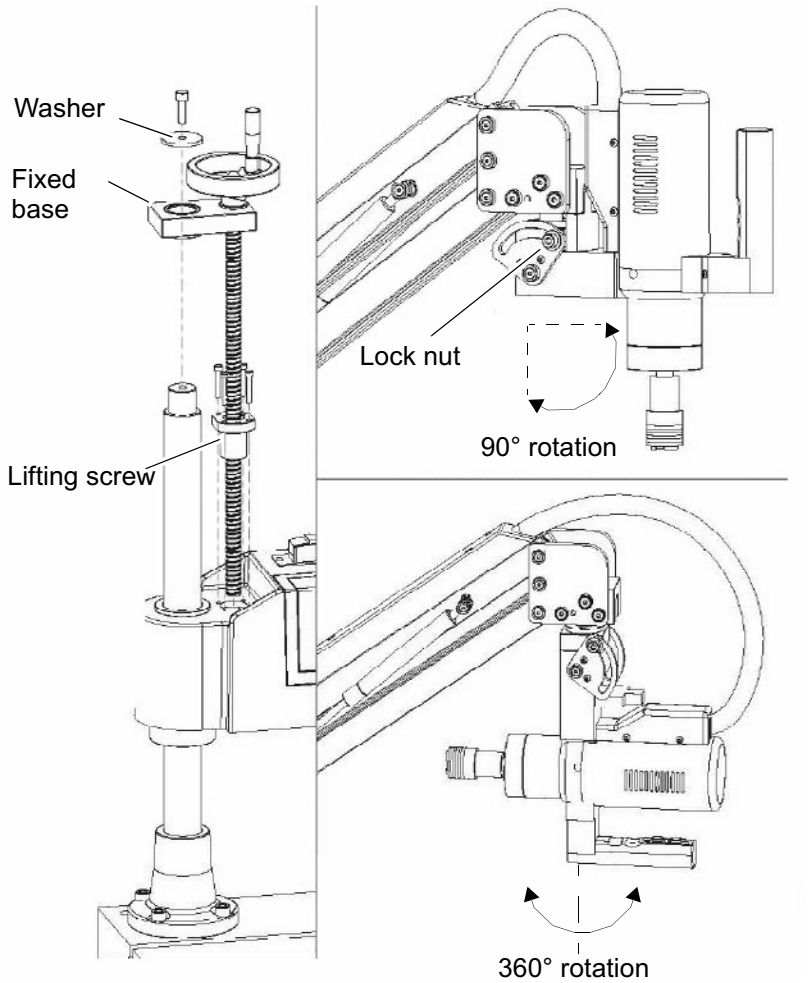
Operation of the universal thread cutting head

To ensure that the thread cutting head is perpendicular to the work surface.

Loosen the lock nut to adjust the position of the tapping head between vertical and horizontal tapping.

Before tapping, make sure that the locking nut is firmly tightened and the tapping head is aligned with the workpiece.

When you return the tapping head to the vertical position, make sure that the locking nut is firmly tightened again.



3.3.2 Installation site requirements

Organise the working area around the tapping machine according to the local safety regulations.

INFORMATION

In order to attain good functionality and a high processing accuracy as well as a long service life of the machine, the place of installation should fulfil certain criteria.

Please observe the following points:

- The tapping machine may only be set up and operated in dry, ventilated rooms.
- Avoid places close to machines which cause chips or dust.
- The installation site must be vibration-free, i.e. located away from presses, planing machines, etc.
- The base must be suitable for the tapping machine. Also ensure that the floor is stable and level.
- Provide enough space for set-up and operating personnel and material transport.
- Also bear in mind accessibility for installation and maintenance works.
- Ensure adequate lighting is available (minimum value: 500 Lux, measured at the tool tip). In the event of a lower level of lighting, additional illumination must be provided, e.g. by means of a separate workplace light.

INFORMATION

The power plug of the tapping machine must be readily accessible.

3.4 First commissioning

ATTENTION!

Before commissioning the machine, all screws and fastenings must be checked and tightened if necessary!

WARNING!

When inexperienced personnel start up the tapping machine for the first time, you are putting people and equipment at risk.

We do not accept any liability for damages caused by incorrectly performed commissioning.

4 Operation

4.1 Safety

Only operate the tapping machine under the following conditions:

- The tapping machine is in perfect technical condition.
- The tapping machine is used as intended.
- The operating instructions are observed.

Eliminate or have all malfunctions rectified promptly. Stop the machine immediately in the event of any abnormality in operation and make sure it cannot be started up accidentally or without authorisation. Notify the person responsible immediately of any modification.

4.2 Connection and operation

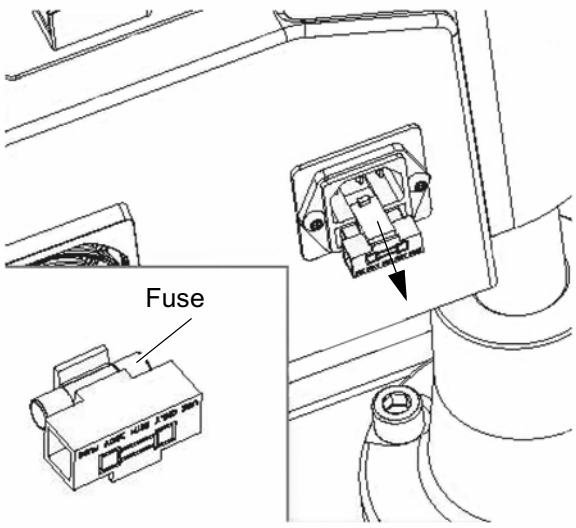
Always wear safety goggles and take appropriate safety precautions when thread cutting. Wearing gloves is not recommended.

Connect the machine to an earthed 115V ~50/60Hz power source.

The circuit is protected by a fuse. In the event of a power supply fault, the fuse in the plug connection should be checked.

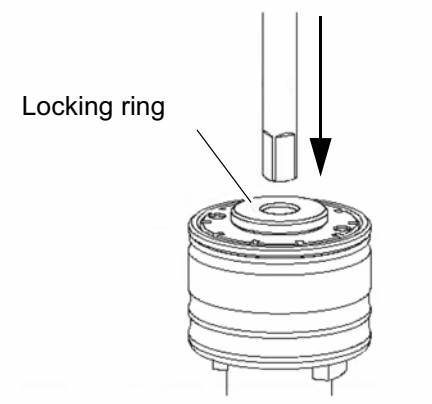
CAUTION!

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



4.3 Insert 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.



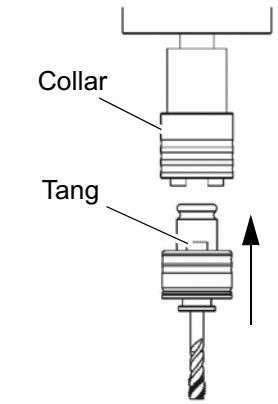
Img. 4-1: Insert tap

4.4 Insert 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.

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.



Img. 4-2:

WARNING!

When installing a tap or changing out a tap, make sure to change both the speed and torque settings. As the tap may snap if incorrect speed and torque are used.

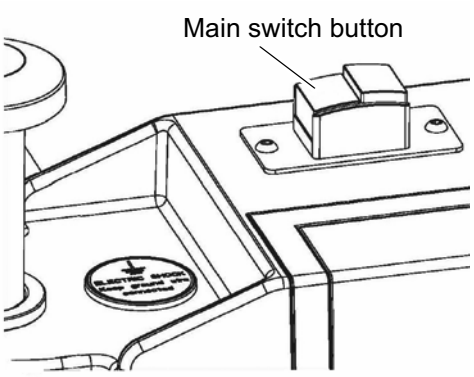
4.5 Switch on / Switch off

The appliance is switched on by pressing the < --- > main switch button.

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 standard parameters for standard thread cutting are already stored.



Img. 4-3:

4.6 Tapping function

CAUTION!

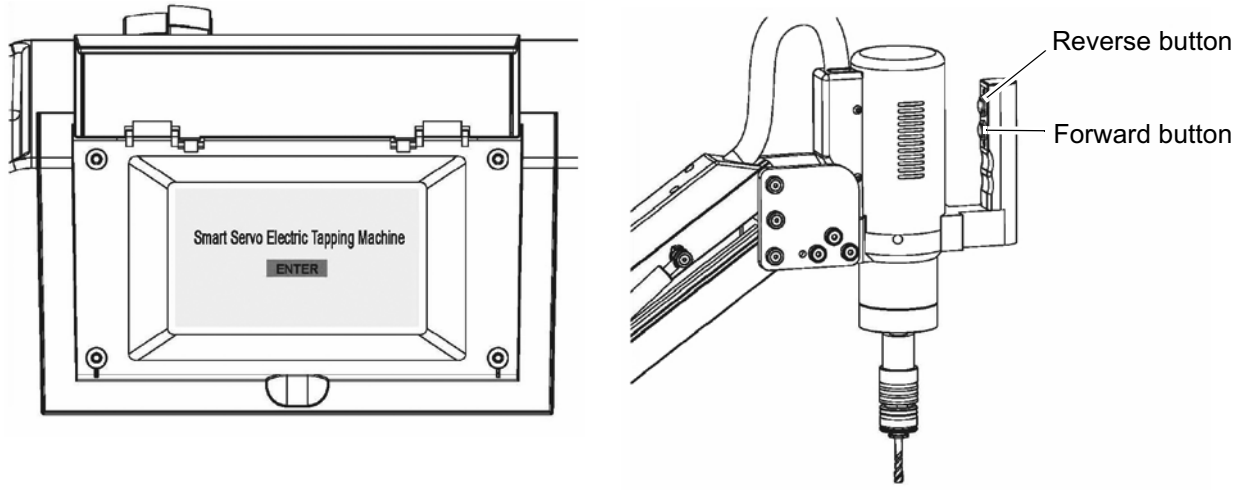
Keep your hands and fingers away from the tap and do not wear gloves. Ensure that the workpieces are adequately secured against rotating on the work table.

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.

The return is automatic.



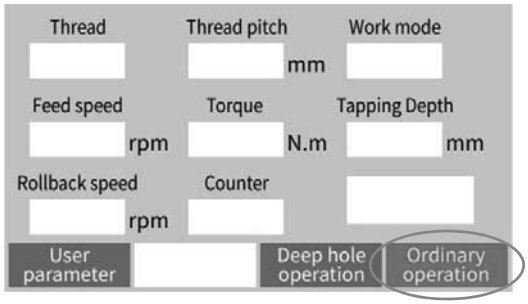
Img. 4-4:

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.

4.7 Parameter

4.7.1 Ordinary Operation



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-standardized pitch value.

NOTE: Use the provided tear out sheet, to convert pitch values. As only metric inputs are allowed.

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

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.

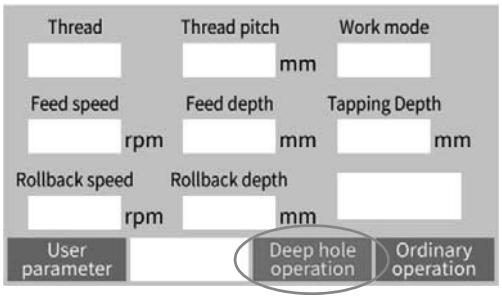
Counter: Counting workpiece synchronization with threaded hole.

Tapping Depth: Setting the thread depth parameter.

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

Recommended Maximum Torque Value for the Tap Holder Size													
Model	**Spec**	1	2	3	4	5	6	7	8	9	10	11	12
9680453 (M16)	Tap holder size	5/32	3/16	7/32	1/4	5/16	3/8	7/16	-	-	-	-	-
	Max. torque value (Nm)	1.5	3.2	3.7	6.3	9.8	14.8	22.7	-	-	-	-	-
	Max. torque value (Ft-Lbf)	1.11	2.36	2.73	4.65	7.23	10.92	16.74	-	-	-	-	-
9680454 (M24)	Tap holder size	1/4	5/16	3/8	1/2	9/16	5/8	11/16	7/8	-	-	-	-
	Max. torque value (Nm)	6.3	9.8	14.8	35.3	42.5	52.5	52.5	110.3	-	-	-	-
	Max. torque value (Ft-Lbf)	4.65	7.23	10.92	26.04	31.35	38.72	38.72	81.35	-	-	-	-
9680455 (M36)	Tap holder size	1/4	5/16	3/8	1/2	9/16	5/8	11/16	7/8	15/16	1	1-1/8	1-1/4
	Max. torque value (Nm)	6.3	9.8	14.8	35.3	42.5	52.5	52.5	110.3	127.5	159.5	234.2	260.4
	Max. torque value (Ft-Lbf)	4.65	7.23	10.92	26.04	31.35	38.72	38.72	81.35	94.04	117.64	172.74	192.06

4.7.2 Deep hole operation



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

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

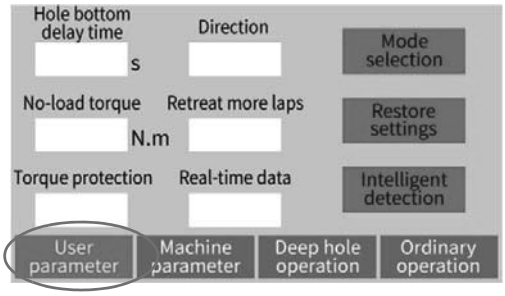
The other parameters refer to normal thread cutting.

4.7.3 Workpiece select

Workpiece storage for machining

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

4.7.4 User parameter



Hold 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 counterclockwise.

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.

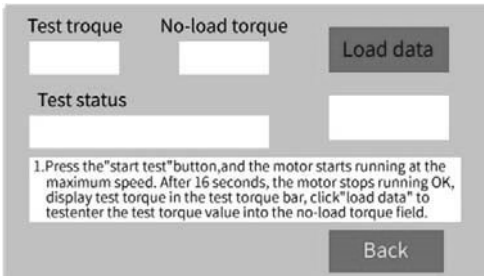
Mode selection: Tapping and tightening screws.

Restore settings: Resets to factory settings.

Intelligent detection: (Details on the next page)

Machine parameter: Machine parameters must not be changed.

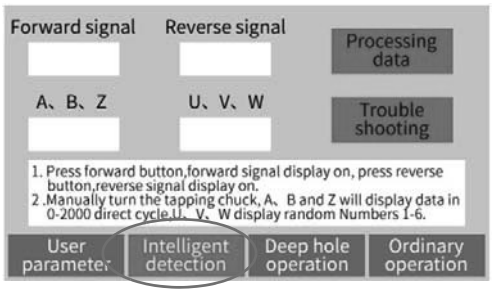
4.7.5 No-load torque



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

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

4.7.6 Intelligent detection



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, U, V, W display random Numbers 1-6.

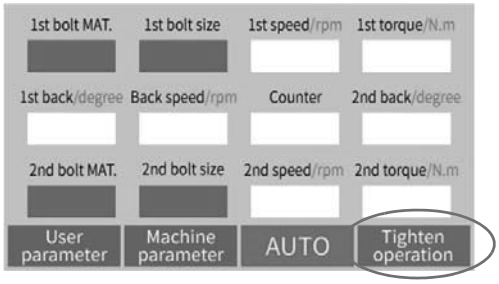
If no forward signal or reverse signal is displayed, the respective pushbutton is defective or there is a line fault.

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: Turning 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, torque.

4.8 Troubleshooting

4.8.1 Tighten operation



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.

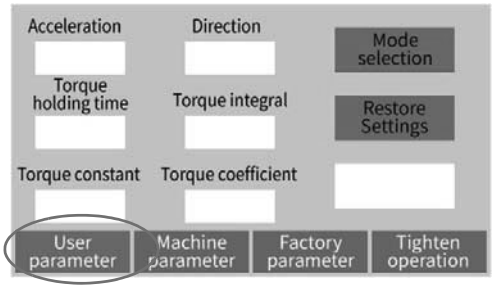
Reverse angle: Reverse angle of the spindle.

Reverse speed: Reverse speed of the spindle.

Counting: Counting the finished workpiece.

Auto/Manual:

4.8.2 User parameter



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

4.8.3 General error codes

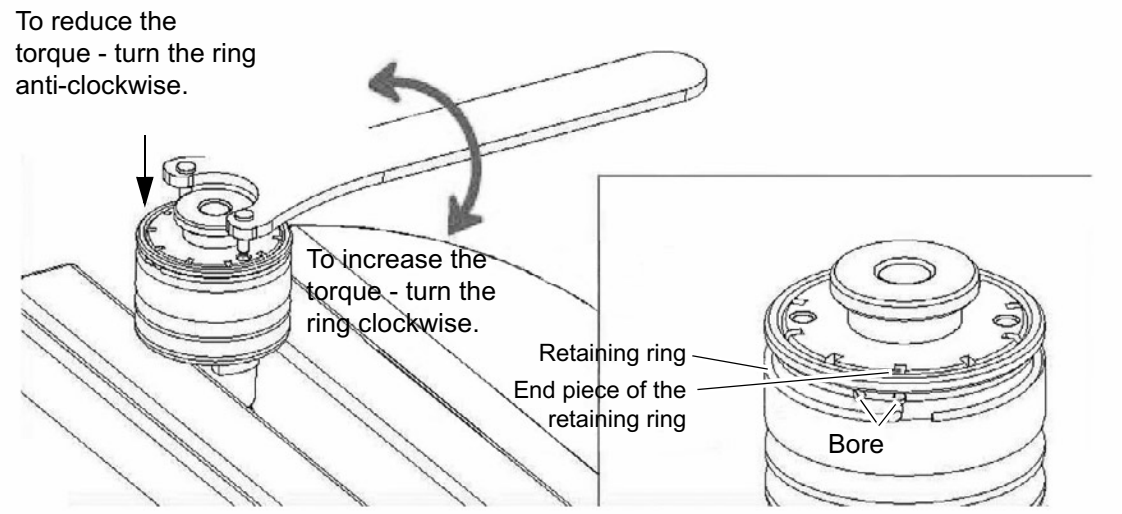
Code	Cause	Description / Remedy
E-001	Overcurrent	Check the perpendicularity of the tap head. If there is an overcurrent on drive E-001 and the motor is operating normally, the tap is stuck.
E-002	Overvoltage	Voltage too high.
E-004	Overcurrent	Permanently persistent anomaly.
E-008	Encoder abnormal	Check 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.

Code	Cause	Description / Remedy
E-150	Communication control	Check the connection of the encoder cable.
E-200	Timeout during servo communication	Check connection of cable and encoder cable.
E-220	Password error	Try again with the password or contact us.
E-312	Torque protection error	End torque protection or increase value.

4.9 Adjustment of the tapping chuck torque

CAUTION!

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



The torque 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 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, reducing the factory-set torque prevents the tap from overtightening.

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 Maintenance

ATTENTION!

Properly performed regular maintenance is an essential prerequisite for

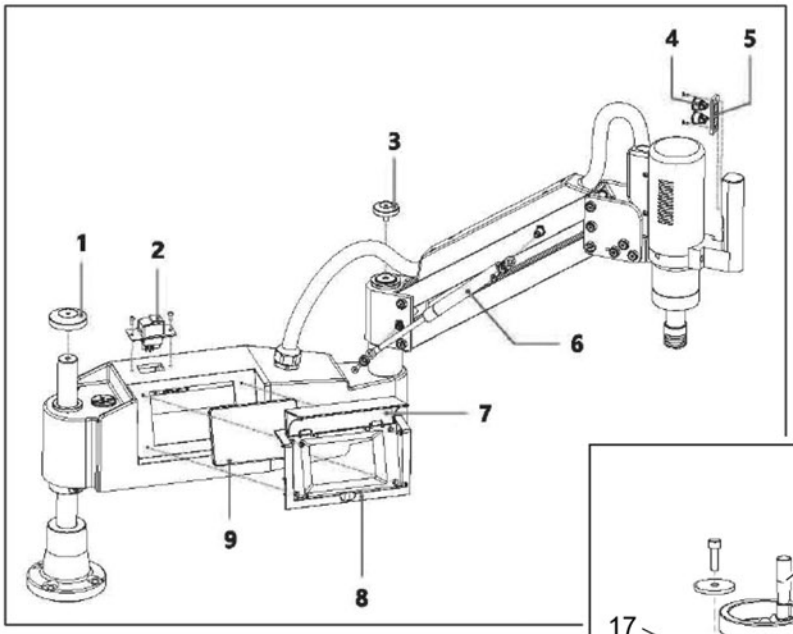
- **operational safety,**
- **failure-free operation,**
- **a long service life of the tapping machine and**
- **the quality of the products which you manufacture.**

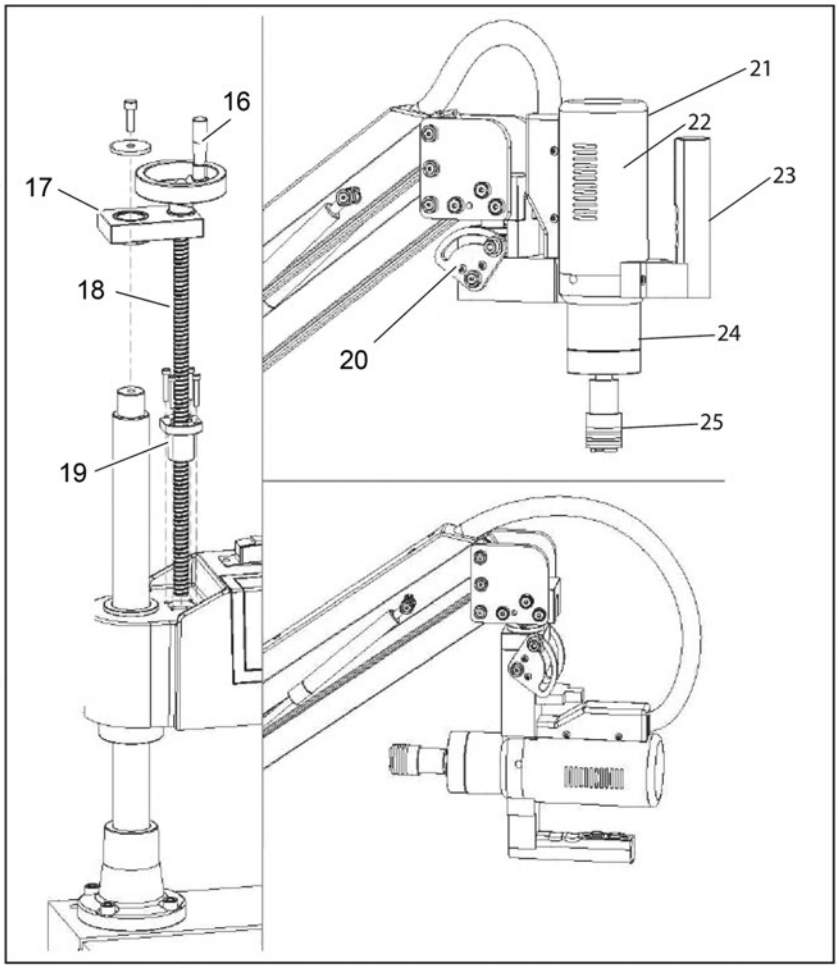
Installations and equipment from other manufacturers must also be in good order and condition.

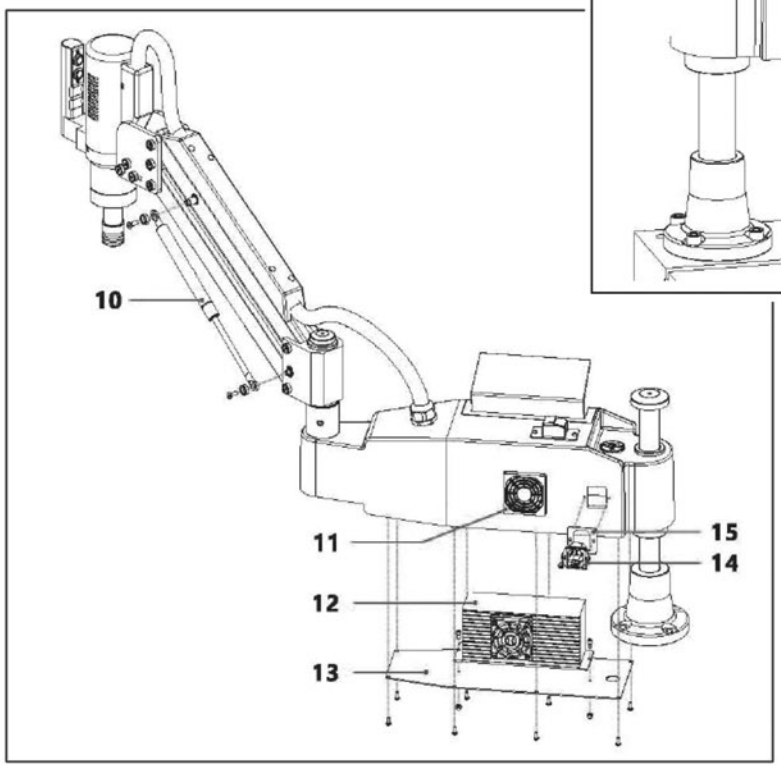
- Check the tapping machine regularly for damage, loose parts or other irregularities.
- Keep both the motor and the chuck free from contamination by cleaning them regularly.

NOTES

NOTES







Replacement Parts Illustrations

REPLACEMENT PARTS LIST FOR SERVO ELECTRIC TAPPING MACHINES

Ref. No.	Description	Part Number for Palmgren Models 9680453 (M16)	9680454 (M24)	9680455 (M36)	Qty.
1	Axis cover	308101601	308102401	308103601	1
2	Main switch	308101602	308102402	308103602	1
3	Axis cover	308101603	308102403	308103603	1
4	Motor button	308101604	308102404	308103604	1
5	Button panel	308101605	308102405	308103605	1
6	Damper	308101606	308102406	308103606	1
7	Dust cover	308101607	308102407	308103607	1
8	Screen frame	308101608	308102408	308103608	1
9	Touch screen	308101609	308102409	308103609	1
10	Damper	308101610	308102410	308103610	1
11	Dust cover	308101611	308102411	308103611	1
12	Motor driver	308101612	308102412	308103612	1
13	Driver base	308101613	308102413	308103613	1
14	Socket	308101614	308102414	308103614	1
15	Socket panel	308101615	308102415	308103615	1
16	Handwheel	308101616	308102416	308103616	1
17	Fixed base	308101617	308102417	308103617	1
18	Spindle	308101618	308102418	308103618	1
19	Spindle nut	308101619	308102419	308103619	1
20	Swivel joint	308101620	308102420	308103620	1
21	Motor cover, ETM16	90302190150	-	-	1
21	Motor cover, ETM24/ETM36	-	90302290150	90302290150	1
22	Servo motor, ETM16-600W	1986002	-	-	1
22	Servo motor, ETM24/ETM36-1200W	-	1986003	1986003	1
23	Handle	90302290160	90302290160	90302290160	1
24	Motor reducer, ETM16:70-16T	1986008	-	-	1
24	Motor reducer, ETM24:90-25T	-	1986009	-	1
24	Motor reducer, ETM36:90-40T	-	-	19860091	1
25	Quick chuck, GT12-14	1986004	-	-	1
25	Quick chuck, TC820-20	-	90302110010	90302110010	1

PALMGREN WARRANTY

C.H. Hanson / Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which is was intended.

The warranty does not cover expendable and/or wear part (i.e. v-belts, screws, abrasives, jaws), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to the terms noted below beginning from the date of delivery to the original user.

The Palmgren branded items carry the following warranties on parts:

All arbor presses, vises, clamps, positioning tables, tombstones, jack screws and vise accessories - LIFETIME.

All bench grinders, drill presses, tapping machines, band saws, lathes, milling machines, abrasive finishing machines and work stands - 3 YEARS.

The obligation of C.H. Hanson / Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove inoperable. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals.

Failure to follow these instructions will void the warranty.

This warranty is the purchaser's exclusive remedy against C.H. Hanson for any inoperable parts in its product. Under no circumstances is C.H. Hanson liable for any direct, indirect, incidental , special or consequential damages including loss of profits in any way elated to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

PALMGREN®

Palmgren - a C.H. Hanson Company
2000 N. Aurora Rd., Naperville, IL 60563 U.S.A.
or call ***1-800-827-3398***

NOTES

Thread / Pitch Cross-Reference - Threads per inch / Pitch in Inches / Pitch in mm

Threads per inch	Pitch in inches	Pitch in mm	Threads per inch	Pitch in inches	Pitch in mm
127	0.00787	0.200	24	0.04167	1.058
120	0.00833	0.212	22	0.04545	1.155
112	0.00893	0.227	20.32	0.04921	1.250
101.6	0.00984	0.250	20	0.05000	1.270
100	0.01000	0.254	19	0.05263	1.337
96	0.01042	0.265	18	0.05556	1.411
90	0.01111	0.282	16.93	0.05907	1.500
84.67	0.01181	0.300	16	0.06250	1.588
80	0.01250	0.318	14.51	0.06892	1.751
72.57	0.01378	0.350	14	0.07143	1.814
72	0.01389	0.353	13	0.07692	1.954
64	0.01563	0.397	12.7	0.07874	2.000
63.5	0.01575	0.400	12	0.08333	2.117
60	0.01667	0.423	11.5	0.08696	2.209
56.44	0.01772	0.450	11	0.09091	2.309
56	0.01786	0.454	10.16	0.09843	2.500
50.8	0.01969	0.500	10	0.10000	2.540
48	0.02083	0.529	9	0.11111	2.822
44	0.02273	0.577	8.47	0.11806	2.999
42.33	0.02362	0.600	8	0.12500	3.175
40	0.02500	0.635	7.26	0.13774	3.499
36.29	0.02756	0.700	7	0.14286	3.629
36	0.02778	0.706	6.35	0.15748	4.000
34	0.02941	0.747	6	0.16667	4.233
33.87	0.02952	0.750	5.64	0.17730	4.504
32	0.03125	0.794	5.08	0.19685	5.000
31.75	0.03150	0.800	5	0.20000	5.080
30	0.03333	0.847	4.62	0.21645	5.498
28.22	0.03544	0.900	4.5	0.22222	5.644
28	0.03571	0.907	4.23	0.23641	6.005
27	0.03704	0.941	4	0.25000	6.350
26	0.03846	0.977	3	0.33333	8.467
25.4	0.03937	1.000	2	0.50000	12.700

Recommended Maximum Tapping Speed/RPM

	Model	Stainless Steel	Carbon Steel	Cast Iron	Aluminum
Tapping Speed	9680453 (M16)	0 to 100	0 to 200	0 to 375	0 to 375
	9680454 (M24)	0 to 80	0 to 120	0 to 200	0 to 200
	9680455 (M36)	0 to 50	0 to 80	0 to 125	0 to 125

Recommended Maximum Torque Value for the Tap Holder Size

Model	Spec	1	2	3	4	5	6	7	8	9	10	11	12
9680453 (M16)	Tap holder size	5/32	3/16	7/32	1/4	5/16	3/8	7/16	-	-	-	-	-
	Max. torque value (Nm)	1.5	3.2	3.7	6.3	9.8	14.8	22.7	-	-	-	-	-
	Max. torque value (Ft-Lbf)	1.11	2.36	2.73	4.65	7.23	10.92	16.74	-	-	-	-	-
9680454 (M24)	Tap holder size	1/4	5/16	3/8	1/2	9/16	5/8	11/16	7/8	-	-	-	-
	Max. torque value (Nm)	6.3	9.8	14.8	35.3	42.5	52.5	52.5	110.3	-	-	-	-
	Max. torque value (Ft-Lbf)	4.65	7.23	10.92	26.04	31.35	38.72	38.72	81.35	-	-	-	-
9680455 (M36)	Tap holder size	1/4	5/16	3/8	1/2	9/16	5/8	11/16	7/8	15/16	1	1-1/8	1-1/4
	Max. torque value (Nm)	6.3	9.8	14.8	35.3	42.5	52.5	52.5	110.3	127.5	159.5	234.2	260.4
	Max. torque value (Ft-Lbf)	4.65	7.23	10.92	26.04	31.35	38.72	38.72	81.35	94.04	117.64	172.74	192.06