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OPERATING INSTRUCTIONS

MODEL: **MAXI MILLER 12/30**



⚠ WARNING

These instructions are for your personal safety. Always ensure that you have read and understood these instructions before using the machinery. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

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To watch practical demonstration videos, or to download an electronic copy of these Instructions, please visit www.picotesolutions.com. Please note that videos are not intended as a replacement or alternative to this operating and safety manual, but only as an additional learning tool.

Picote Maxi Miller 12/30

GENERAL DESCRIPTION

1. Shaft reel
2. Frame
3. Flexible Shaft
4. Gear Box
5. Control Box
6. Emergency Stop Button (red)
7. Power Switch
8. Forward/reverse
9. Foot Pedal — Operator Presence Control (OPC)
10. Speed Control
11. Shaft Reel Locking System
12. Hand Guard & Strain Relief



CAUTION

When in use, always lay the machine down horizontally on the floor as shown above. When not in use some non-hazardous paraffin oil might leak from the hand guard.

TECHNICAL DATA

Size (mm/inches)	Shaft (mm/inches)	Range (m/feet)	Diameter (mm/inches)	Rotating speed (rpm)	Output (w)	Power Source	Weight (kg/lb)	IP Class
1150x854x489 45x34x19	12/½ with thick casing*	30/100	*DN100-250 *4-10	500-1400	120V: 1.13kW 230V: 1.5kW	Electric Motor	95/210	54

*diameter with 12mm/½" thick outer casing

INTENDED USE

This machine is intended for the following uses;

1. Cleaning sewers and drains by grinding.
2. Reinstating branches in sewers and drains by drilling and grinding.
3. Cutting excess cured liner.
4. Removing collapsed liner.

Always follow the manufacturer's instructions when installing and using the machine with accessories.

VOLTAGE & POWER SUPPLY

Ensure that the supply voltage is correct. The voltage of the power source must match the value given on the nameplate of the machine. Machines with a 230V plate can be used in 220V mains and 110V machines in the 120V grid.

The machine should be connected only to a power supply of the same voltage as indicated on the nameplate, and can only be operated on single-phase AC supply. The machine has been double sealed according to European standards. The power source has to be grounded. The frequency transformer of the motor can cause residual current device to go off. If this happens frequently, change the power source to one without residual current device.

Power plugs

For safety purposes, this machine may be equipped with a specialty plug. If the plug does not fit securely or match the outlet, do not force it — contact an electrician to determine required power supply. Never alter the plug in any way. Use the plug with an extension cord only if it can be fully inserted into the cord's socket. Use the Maxi Miller with a heavy duty extension cord only.

If a power generator is used, insure power rating is sufficient.

220-230V: EU Schuko 230V 16A. Power cable lead minimum thickness 2.5mm²

110-125V:



The Maxi Miller is equipped with a 30 amp (125V) twist-lock type plug. Power cable lead minimum thickness 4mm² / 6 AWG. The Maxi must be supplied with sufficient power and proper current rating. A minimum of 30 amps are needed to operate it safely and efficiently. When used with an extension cord, the cord must be a 3 prong, 30amp (125V). If power generator is used, minimum 3000W required. Adapters may be necessary for generator connections. Contact your reseller or Picote technical support for more information.

AUSTRALIA/UK: Maxi Millers in these regions have specialty plugs.



Australia: CEE 16A 230V color blue. Power cable minimum lead thickness 2.5mm²



UK: UK Plug BSEN 60309 32A 110V color yellow. Power cable lead minimum thickness 4mm². Maxi requires a transformer to comply the site power regulations and safe usage in UK. For example: 3.3KVA Site Transformer 1 X 32AMP outlet 110V.

EMERGENCY STOP

There is a safety gear with a Lock/Emergency Stop Button on the machine. The power supply to the motor is cut off when the Emergency Stop Button is pushed. Always make sure the Emergency Stop Button is pressed or completely unplug the machine when the machine accessories (e.g. Cutter or Grinding Chains) are not inside the drain. Take the key off the machine to secure it. It is advisable to lock the machine when accessories are change or the machine is going through maintenance.



OPERATION

The machine has an operator presence control or 'OPC'. When the control is not held down, the machine stops.

NOISE LEVEL, VIBRATION & EMISSIONS



This section contains important safety information. Failure to comply could result in serious injury or loss of hearing.

The typical A-weighted noise level determined according to **EN60745**:



WEAR EAR PROTECTION

Sound pressure level (LpA): 85 dB (A)

Sound power level (LWA): 98 dB (A)

ENG202-3

The typical weighted acceleration is 12 m/s²

Emissions during actual use of the machine can differ from declared values depending on the ways that the machine is used. Safety measures to protect the operator should be determined by actual conditions, taking into account all aspects of the operating cycle (such as when the machine is switched off and when it is running idle).

Due to continuing product development, the specifications herein are subject to change without notice.

CE DECLARATION OF CONFORMITY

We Picote Oy Ltd as the responsible manufacturer, declare that the following Picote Oy Ltd machine:

Maxi Miller

Model No: MXM 12/30

is of series production and

Conforms to the following EU Directive:

2006/42/EC

And is manufactured in accordance with the following standards or standardized documents:

EN60745

The technical documentation is kept by our authorised representative in Europe who is:

Picote Oy Ltd, Urakoitsijantie 8
06450 Porvoo, Finland

1st April 2014

Mika Lokkinen
C.E.O.

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SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

GENERAL MACHINE SAFETY WARNING



WARNING

This section contains important safety information. Failure to comply could result in serious injury.

Always read all safety warnings and instructions. Failure to follow warnings and instructions may result in electric shock, fire and/or serious injury.

SAFETY REQUIREMENTS



WARNING

This section contains important safety information. Failure to comply could result in serious injury.



1. **Always wear eye and ear protection as well as cut-resistant gloves.** Other personal protective equipment, such as dust mask, gloves and overalls should be worn when necessary. Dust produced when working can be dangerous to your health, inflammable or explosive. Always wear appropriate protective equipment.

2. Make sure the drain pipe has been opened and ventilated to stop any gases forming in the lateral drain where the work takes place.
3. Always ensure that the machine is fully turned off and unplugged before inspection, maintenance, or installing any accessories to the machine. Always follow the instructions in the manufacturer's manual.
4. **Before each use** inspect the machine carefully for any potential break or damage. **Change damaged parts immediately.** It is especially important to check the end of the flexible power shaft for any signs of wear and tear, and repeat the process for the outer casing.
5. When in use, it is very important that the machine is stable and on an even surface at all times.
6. **Never leave the machine running unattended.** Always hold the cable when operating the machine.
-  7. **Do not touch** the Cutter or Grinding Chains immediately after use; they may be hot and could burn your skin.
8. If the working environment is extremely hot and humid, or badly polluted by conductive dust, use a GFCI-enabled power outlet to ensure the safety of the operator.
9. Make sure that the job location is well ventilated before grinding or drilling. Always use a vacuum extraction system in the pipe to remove dust. The operator must wear a dust mask.
10. Ensure that the ventilation openings are kept clear when working in dusty conditions. If it should become necessary to clear dust, first unplug the machine. Avoid damaging internal parts.
11. Do not use the machine on any materials containing asbestos.
-  12. **Never touch rotating parts.** Do not stand on the machine.
13. Only use this machine with the accessories and spare parts offered by the manufacturer. Accessories and spare parts should only be used in the manner intended and as described by the manufacturer.
14. Only operate the foot pedal or OPC as instructed. Never place anything on it in place of a foot.
15. Do not change or touch the controls or wirings of the motor or frequency transformer.
16. Do not extend the shaft.

OPERATING INSTRUCTIONS

Before operation:

⚠ WARNING • Before installing Picote tools, always make sure that the machine is fully turned off and unplugged.

⚠ CAUTION • Always round off the sharp edges of the shaft to avoid cuts and to make it easier to insert the shaft into the tool to be used.

- Verify that there is the correct length of flexible shaft without its plastic casing at the end of the flexible shaft. Verify that all screws have been loosened so that the shaft can be easily inserted inside the tool. Position the shaft inside the tool as far as it will go. Tighten the screws. **Consult accessory manuals (cutters & grinding chains) for detailed information.**
- Always check that the tool is set to rotate in the desired direction. The natural and intended rotational direction of the shaft should be clockwise, due to its fabrication. When used clockwise the torque is at its optimum.

While in operation:

- Always lay the machine down horizontally on the floor.
- During drilling, grinding and cutting processes, always use a separate vacuum extraction system in the drain to remove dust.

STARTING & USING THE MACHINE

⚠ WARNING *This section contains important safety information. Failure to comply could result in serious injury.*

1. Check the rotational direction of the shaft and the rpm. The rotational direction is checked in the gear box (forward or reverse). The control of the rotational speed is also located in the gear box. The rotational speed increases when the speed control is turned clockwise.
2. Place the tool inside the pipe.
3. Turn on the power switch.
4. Release the Red Emergency Button.
5. The machine starts when the OPC foot pedal is pressed down. Always hold the flexible shaft firmly while operating the machine.
6. Rotating the tool makes it easier to move the tool forward inside the pipe.
7. The machine has an operator presence control or 'OPC'. When the control is not held down, the machine stops. The machine can also be stopped by pushing the Emergency Stop down, rotating the power gear to O or unplugging the machine.
8. The life span of the shaft outer casing can be prolonged by using Sleeves with Bearings designed for the outer casing.

Red and green warning lights

There is green light on the frequency transformer when it operates normally. When the green and red lights flash one after the other, the machine is overloaded. The machine can be operated in this situation for a little while before the frequency transformer cuts off the power to the motor. When the red light alone is flashing, the frequency transformer is overloaded to the point that the power will be cut off momentarily. If the power is cut off, turn off the power by pushing the Power switch. Wait a moment before turning the machine on again. Avoid overloading the motor.

MAINTENANCE

- ▲ WARNING** 1. Before performing any maintenance always check that the machine is fully turned off and unplugged.
2. Carefully inspect the flexible shaft and its casing on a regular basis to ensure that there are no signs of wear and tear. Change the flexible shaft and casing as and when required.
 3. For safety and efficiency, always keep the machine and its motor, drive unit, ventilation and cooling slots clean.
 4. Verify that the screws for the shaft socket are securely tightened.
 5. Verify that all the bolts and screws on the machine are securely tightened.
 6. It is recommended that the oil in the motor and bevel gear should be changed about every 12 months. Use regular oil meant for gearboxes. See oil change instructions on page 7.

SERVICING THE FLEXIBLE SHAFT & ITS OUTER CASING

The flexible shaft is pre-treated with paraffin oil and the casing replaced prior to shipping. Always inspect the condition of the shaft and its outer casing regularly. Also, inspect at least every fifth working day that the shaft is well attached under the hand guard at the machine end. If the twine of the shaft has opened from one end to the other so that there are visible holes in the shaft, the entire shaft has to be replaced.

Lubricant can be added between the flexible shaft and its outer casing when the shaft is attached to the machine. No tools should be attached to the shaft when the shaft is being lubricated. Turn the shaft anticlockwise so it retreats inside the outer casing. While turning the shaft, pour some oil to the free end of the shaft between the cable and the outer casing. While turning anticlockwise, the shaft will bring the oil until the shaft socket at the machine end.

Keeping the shaft well lubricated will prolong its life span and decrease the friction caused by the shaft when it turns around. Lower friction will decrease the burden caused to the motor.

If preferred, the shaft can be taken out of its outer casing for lubrication.

CHANGING THE FLEXIBLE SHAFT

Only use the shaft and its outer casing specified by the manufacturer of the machine. Order the replacement shaft from your reseller. The flexible shaft is pre-treated with paraffin oil and the casing replaced prior to shipping.

1. Loosen the bolts holding the hand guard and remove the hand guard.
2. Loosen the screws in the shaft socket that hold the shaft. Pull the old shaft out of the machine.
3. Insert new shaft. When inserting the shaft inside the shaft socket, verify that the shaft goes all the way to the end. Tighten the screws.
4. Mount the hand guard. Tighten the bolts.

CHANGING OIL IN THE MOTOR AND BEVEL GEAR

The oil should be changed after every 3000 hours of use or 12 months.

1. Dismount the gear guard and the hand guard.
2. Take the shaft socket off of the shaft.
3. Loosed the bolts holding the bevel gear.
4. Pull the bevel gear away from the motor following the axle of the motor.
5. When the bevel gear has been dismantled, loosen the oil screw (there is only one screw on the gearbox).
6. Pour the old oil out and add the new oil.
7. Reassemble the bevel gear by repeating the previous steps in reverse order.

Appropriate oils to use: Shell omala 100 or Agip blasia 100 or Tamoil ep 100

Amount of oil: 0,042 kg / 1.4815 oz

Window of change: approximately after every 3000 hours of use

In case there is problem that you cannot solve using this manual, please consult your reseller or the manufacturer.

ACCESSORIES/SPARE PARTS

Use only the machine manufacturer's accessories and attachments with the machine described in this operations manual. The use of other accessories or attachments could present a risk of injury or death. The accessories or attachments should only be used in the proper and intended manner, and always follow manufacturer's instructions.

Accessories

1. Smart Cutter™ lateral cutters
2. Twister lateral cutters and light liner removal tools
3. Cyclone & Original grinding chains
4. Picote Pipe Cutters

Spare parts

1. Flexible shaft 12mm/½" with thick outer casing (standard with Maxi Miller)
2. Flexible shaft 12mm/½" with regular outer casing

PRACTICAL TIPS & SAFETY ADVICE

Here are some useful tips on how to get the most out of your Picote system. Always use the recommended tools for maintenance to avoid personal injury.



SHAFT ROUNDER



The shaft rounder smooths the end of the flexible shaft, preventing the user from being cut by the otherwise sharp metal edge.



CUTTING THE FLEXIBLE SHAFT



Always inspect the flexible shaft before each use. If there are potential weak points or the shaft is damaged, cut off the damaged length using an angle-grinder. This should be done outside in a clear area as there will be sparks generated by the process.



ADDING A VISUAL MARKER FOR SAFETY



Attach a visual marker (tape) to the outer casing of the flexible shaft. Place it around half a meter from the end point of the shaft. The mark will indicate the chain's location and prevent possible injuries when a tool is removed from the drain, including injury by rotating parts.

