F10X CNC
BORING MACHINE
MACHINE INSTALLATION MANUAL

8029 S 200th Street, Kent, WA 98032 USA | www.rottlermfg.com | Ph: (253) 872-7050 | Fax: (253) 393-0230
Rev 010924

PARTS ORDERING

For optional equipment catalogs, please visit https://www.rottlermfg.com/documentation.php

For fastest service ordering parts or equipment, contact us via e-mail with the information below. For customers within the U.S., send emails to parts@rottlermfg.com, for customers outside of the U.S., use intlparts@rottlermfg.com

Have the following information on hand to expedite the ordering process:

1. Your name, business name, and contact number
2. Customer number, or your billing address if you do not have a customer number
3. Shipping address if different from the billing address
4. Machine model and serial number
5. Part number and description of the item(s) to order
6. Preferred method of shipment

For customers outside of the U.S. requiring faster service, contact your local distributor.

In some cases, you may be requested to send a photo of the part you are ordering if it is a replacement part or does not appear in our database.

If you are unsure which part you need to order, contact our service department, and ask to speak to one of our service consultants. They will assist you in determining which part(s) you require.

THERE IS A MINIMUM ORDER OF $25.00

MANUAL SECTIONS

INTRODUCTION

INSTALLATION

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INTRODUCTION

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Introduction

READ THE SAFETY CHAPTER BEFORE INSTALLING MACHINE. THOROUGHLY UNDERSTAND ALL SAFETY ISSUES BEFORE OPERATING MACHINE.

ATTENTION OWNER/BUSINESS MANAGER

To validate the warranty on your new Rottler machine, please be sure to sign and complete the "Installation Report" located in the Installation Chapter of this manual.

We suggest that the new user of the F10X read the CONTROL DEFINITIONS to get an idea how the machine operates.

The Operating Instructions chapter should be read in order to familiarize the user with the actual button pushing sequences required to carry out a job. These chapters in the manual should be considered an introduction. As the operators of the F10X series machines gain experience with using the different functions of the machine, complicated setups and programs will make more sense.

The rest of the manual contains information and part number reference on fixtures, cutting tools, and machine maintenance. The operator should read and become familiar with these areas as well.

Description

The model F10X machine is a precision, single point boring unit. The machine can be equipped with tooling and accessories for re-boring most passenger car and truck engines, In-lines, as well as 90 and 60 degree V-types.

The machine is designed, to maintain alignment of cylinder bores to the pan rails and main bearing bore locations, as was done in the original factory machining. This overcomes the many inaccuracies and out-of-alignment problems associated with clamping portable boring bars to the cylinder head surface of blocks.

Convenient controls and fast block clamping means considerable savings in floor to floor time, and operator involvement.

Change over or resetting time required to set up V-type or in-line engines is a minimum, making this machine highly suited to the jobber shop where engines cannot be run through in model lots.

All feeds and rapid travels are power operated and controlled from the control panel.

Disclaimer

The F10X Manual (henceforth to be referred to as the “Manual”) is proprietary to Rottler Manufacturing LLC. (“Rottler Manufacturing”) and no ownership rights are hereby transferred. No part of the Manual shall be used, reproduced, translated, converted, adapted, stored in a retrieval system, communicated or transmitted by any means, for any commercial purpose, including without limitation, sale, resale, license, rental or lease, without the prior express written consent of Rottler Manufacturing.

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Rottler Manufacturing and its employees or representatives are not responsible for any information regarding final specifications of any workpiece that is created as a final product when using Rottler equipment. It is the responsibility of the end user of Rottler equipment to determine the final dimensions and finishes of the workpiece that they are working on. Any information regarding final dimensions and finishes that appears in any Rottler literature or that is expressed by anyone representing Rottler is to be regarded as general information to help with the demonstration of or for operator training of Rottler equipment.

Limited Warranty

Rottler Manufacturing Company Model F10X parts and equipment is warranted as to materials and workmanship. This limited warranty remains in effect for one year from the date of installation or two years from the date of the original shipment from Rottler or whichever date occurs first. This only applies is the machine is owned and operated by the original purchaser and is operated and maintained as per the instructions in the manual. A machine is warranted only if the Installation Report has been properly executed by a certified installation person and received by Rottler at the time of actual installation.

The products are warranted upon delivery to conform to their published specifications and to be free from defects in material and workmanship under normal use for a period of one year from shipment. Should a product not be as warranted, Rottler sole obligation shall be, at its option, to repair, correct or replace the product or to refund the amounts paid for the Product upon its return to a location designated by Rottler. No warranty shall extend to rapid wear Products (including tooling) or to Products which have been subject to misuse (including any use contrary to Rottler instructions), neglect, accident (including during shipment), improper handling or installation, or subject to any modification, repair or service not certified by Rottler. Rottler shall not be liable for any consequential, direct or indirect damages or for any other injury or loss. Buyer waives any right, beyond the foregoing warranty, to make a claim against Rottler. No warranty is provided for any Products not paid in full.

Merchandise cannot be returned to Rottler without prior approval. Customer must contact the Parts Department to get approval and to be issued a Return Goods Authorization number **(RGR#).** Merchandise authorized for return must be returned prepaid. If merchandise is returned with shipping charges collect, the actual amount of these charges may be deducted from any credit which may be due the customer. The **RGR #** assigned by the Parts Department should be written on the shipping label and must appear on a copy of the invoice(s) covering the original shipment. This invoice copy must be included in the box with the parts. Shipment must contain ONLY those items on the **RGR** as approved for return. Merchandise must be received within 10 days of the date of **RGR** or the **RGR** will be canceled. All returned merchandise may be subject to a 20% restocking fee on under $1,000.00 amount or 10% on any items over $1,000.00. Parts or tooling over 30 days old are considered as customer property and can only be returned with prior approval from Rottler Corporation Management.

The issuance of a **RGR DOES NOT** guarantee credit - it is only authorization for the return of the goods. Credit for return merchandise is at the sole discretion of Rottler. Credit will be issued only after inspection of returned goods.

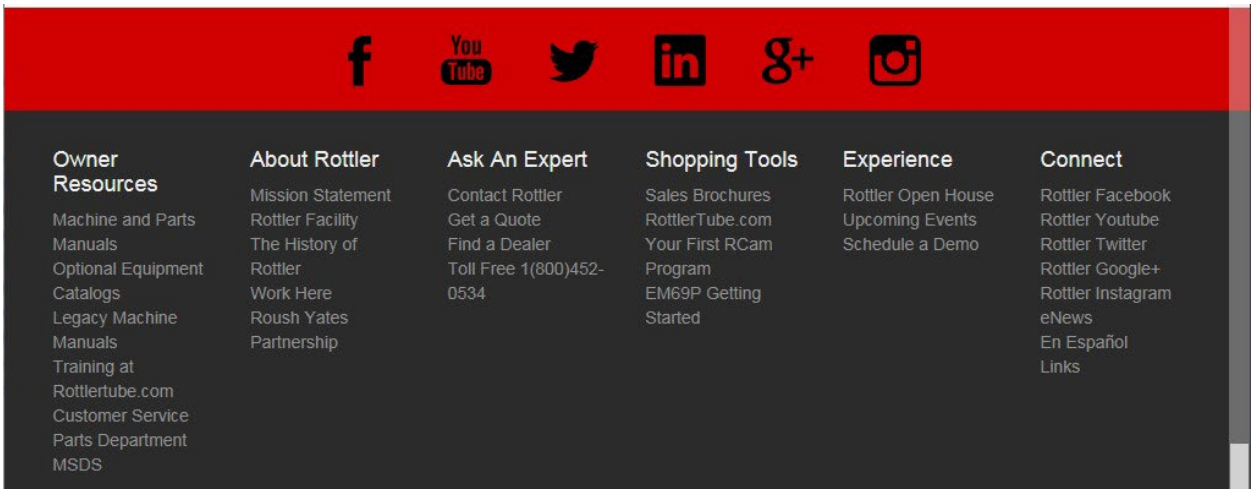
Tools proven to be defective within the warranty period will be repaired or replaced at the factory's option.

We accept no responsibility for defects caused by external damage, wear, abuse, or misuse, nor do we accept any obligation to provide compensation for direct or indirect costs in connection with cases covered by the warranty.

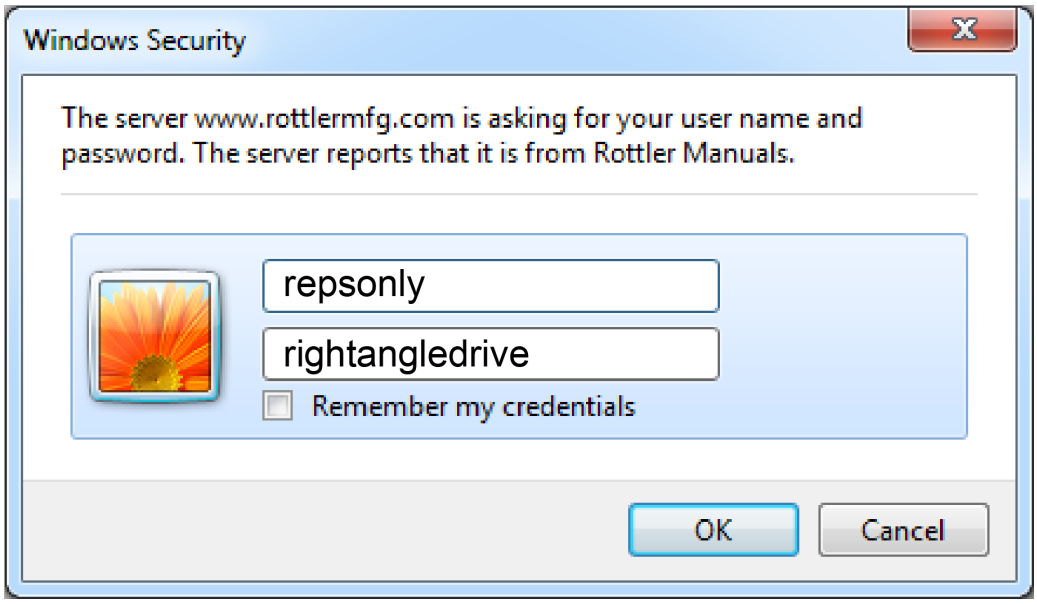
Online Documentation Access

Online documentation for machines and optional equipment can be accessed at the Rottler website. To access documentation open your browser and navigate to https://www.rottlermfg.com.

Scroll to the bottom of the page and under the Owner Resources title click the type of documentation you want to access.



If a log in window pops up asking for user name and password fill in the blanks as shown.



INSTALLATION

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ATTENTION OWNER/BUSINESS MANAGER

To validate the warranty on your new Rottler machine, please be sure to sign the installation report after the installation technician has installed the machine and verified the machine is operating correctly and given the operators operation and maintenance training.

Thank you for your cooperation and the opportunity to be of service to you.

ROTTLER MANUFACTURING

INSTALLATION REPORT
F10X
REV 010924

OFFICE USE ONLY
Route to:
Orders Notified _____ Eng Mgr_____ Srvc Mgr _____ Assem Mgr _____ Andy _____ Srvc Filing _____
Warranty Exp Date _____

ROTTLER MANUFACTURING MUST HAVE THIS REPORT RETURNED TO PROPERLY QUALIFY WARRANTY ON EQUIPMENT

Customer:_____ Address:_____
City:_____ State:_____ Zip:_____ Phone:_____
Country:_____
Machine Model:_____ Serial Number:_____

Representative:_____ **MACHINE INSTALLATION:** Electrical information MUST be complete to validate this report.

⚠ CAUTION ***VERY IMPORTANT:*** Modern design machines contain electronic low voltage circuitry that provides great advantages and a better machine life. **BUT**, you must have an excellent, stable power supply along with a good earth ground. If not, electrical noise problems are likely to interfere with machine operation unexpectedly.

Customer is responsible for providing electricity to machine in a manner that meets the local electrical code requirements.

_____**BEFORE** turning power on to the machine. Check all wires for security by using the correct screw driver and turning CW until movement stops. Stranded wire can "spread" slightly from vibration during transport.
_____Install electrical component covers inside the electrical enclosure with fasteners provided.
_____Check machine level for equal support on feet.
_____This machine requires between 208 and 240 Volts AC, Single Phase, 50/60 Hz power supply.
_____Measure the incoming voltage between L1 and L2. Current requirements for this machine are 30 amps. Measure the incoming AC voltage at least twice during installation.
1) _____VAC 2) _____ VAC
_____Measure each leg of the incoming supply to ground. When using a one leg and neutral of a 380 VAC three phase supply L1 should measure 240 VAC and Neutral should measure almost 0 VAC. L1 to ground _____VAC L2 to ground _____VAC.

⚠ CAUTION Neutral and machine ground are not the same thing. You should measure an open circuit between Neutral and ground.

⚠ CAUTION **IF VOLTAGE IS OUTSIDE THE CORRECT RANGE AT ANY TIME THE MACHINE WILL NOT OPERATE PROPERLY AND MAY BE DAMAGED.**

_____Air of the proper pressure and capacity connected to the machine. Air supply must be free from oil and water. Oil or water will damage electrical and air components. A pressure of at least 80 PSI will use 1 cu. Ft./min. Maximum.
_____Each main system is protected internally by circuit breakers. Green the breaker is “tripped” and red indicates the breaker is “Hot” (conducting electricity).
_____Loosen the shipping bolt and adjust in accordance with the machine manual.
_____Clean any rust inhibitor from the machine surfaces. Slide the spindle base from side to side continually cleaning the machine base until all inhibitor is removed.
_____Have the operator read through the operation manual before training begins. This will help him be familiar with the button pushing sequences. Have the operator read through the manual again after training and some of the sequences will make more sense.

MACHINE START-UP

⚠ CAUTION When starting the machine for the first time, it may move out of control. Make sure all hands are clear of machine parts. Be ready to press the Emergency Stop button if needed.

_____Turn main power on at the main disconnect switch located on the rear enclosure.
_____If any of the circuit breakers “trip”, reset and call factory for possible trouble shooting.

MACHINE MOVEMENTS

_____Make sure there is nothing obstructing the full vertical and horizontal travel of the machine.
_____Perform the Inner and Outer spindle adjustments per the instructions in the manual. NOTE: These adjustments must be performed at machine start-up or the travel and accuracy of the machine will be off.
_____Put the machine in hand wheel mode and verify operation. Put an indicator on the cutter head and verify .001” movement per detent in course mode and .0001” in fine mode. If the indicator is jumpy the outer spindle adjustment may be too tight. Refer to manual and re-adjust.
_____Put machine in handwheel mode and verify Horizontal operation. Put an indicator on the cutter head and verify .001” movement per detent in coarse mode and .0001” in fine mode.
_____Use the rapid buttons and verify proper vertical travel.
_____Start spindle and verify proper operation in all speeds.
_____Move the machine to its horizontal limits and verify operation.
_____Move the machine to its vertical limits and verify Home and down limit operation.
_____Check the spindle sweep of the machine. It should be within .0005”

INSTRUCTING THE OPERATOR:

Note: Rotter employees and representatives per company policy are not permitted to provide end user of Rottler equipment with any OEM specifications for the workpiece that is created by end user using Rottler equipment.

_____Using the operating manual as a guide explain the function of all buttons.
_____Cycle all machine movements and supervise the handling of same by operator.
_____Demonstrate the differences of Manual and Auto operation.
_____Verify .0035” tilt of spindle base when auto retracting.
_____Fully explain the entire Auto Cycle from Centering to Auto Retract.

_____Explain machine parameters and error messages. It is very important that the customer does not change parameter settings without first checking with Rottler Manufacturing. If certain parameters are changed the machine may make uncontrolled move or not operate at all.

_____Point out safety features to customer and operator. Do not push any buttons without thinking of safety first. **Caution**: Do not assume the cutterhead micrometer has been calibrated.

_____Install an In-line work piece in the machine and perform an undersize test bore to qualify the micrometer setting to the customers measuring tools.
Note adjustments: + _____, - _____.

_____Explain precision reset of tool in cutterhead.

_____The following is a checklist to go through every time the machine is started to begin a cut or automatic cycle.

- Work piece secure
- RPM set
- Feed Rate set
- Correct program in use
- Program oriented correctly (vertical zero at correct place) Centering range adequate
- Guards in place
- Cutterhead secure
- Tool holder adjusted to the correct size
- Tool holder locked in place

_____Proceed to have operator bore block to size.

_____(V6/8 Fixture) Demonstrate V fixture use on 60 and 90 degree blocks. Explain the necessity of carefully checking that no bearing cap or extensions interfere with the accurate seating of pan rails and main bearing bar. Work out the best block handling system with the operator. Fully explain main bearing index method from figures in the manual and the locator bar twist during bank switch required on all new 504-37-10 fixtures **Stress caution and personal safety.**

_____Thoroughly explain V6/8 fixture safety requirements of main bearing caps or dummy caps on V blocks.

_____Demonstrate and explain boring with the electronic hand wheel.

_____Explain the correct Feed rates and speeds for inserts and carbide, tools and sleeve cuts.

_____Cutter head change and expected stub bar performance.

_____**Parts ordering, refer the to the operating manual for part numbers and description.**

_____Review Emergency stop procedure with operator per operating manual.

⚠ WARNING

_____ Computer Viruses will cause the machine control system to become unstable. This may cause the machine to make uncontrolled moves which could create a dangerous environment for the machine operator.

_____Connect customer supplied Internet to the machine. Verify that the Internet is accessible from the machine.

_____Once the machine has been fully setup and is ready for operation create a Skype account for the machine following the instructions in the Installation Section of the manual.

IMPORTANT

_____Refer to Section 4, Control Definitions of the Machine Manual, Section 3, Computer and Controller System Safety. Explain and discuss this section carefully with Owner/Manager/Operator and have them sign off. Failure to do so will result in the machine warranty being Null and Void.

_____

Signature / Title

_____Explain to the customer the importance of backing up the block profiles to a separate device. Any computer failure or possible operator input error can result in the loss of all block profiles that were created for the machine. Refer to Chapter 5 of the machine manual for detailed instructions on backing up and restoring block profiles.

MAINTENANCE SECTION

_____Use the manual as a reference when explaining routine maintenance and lubrication.
_____Overload devices, There are no mechanical overload devices on this machine. The machine is protected from overload by the motor controllers. If the system is overloaded the controllers shut the motors off. The controllers can be reset by turning the main power off for at least 1 minute, then turning it back on.
_____Explain again the proper Inner and Outer spindle adjustment to the operator.
_____Air float adjustment.
_____Cutterhead counterweight cleaning.
_____Centering and finger changing.
_____Inspection of insert pocket in tool holders (deformation due to accidental impact).

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Note: Rotter employees and representatives per company policy are not permitted to provide end user of Rottler equipment with any OEM specifications for the workpiece that is created by end user using Rottler equipment.

General remarks on machine performance, adjustments as received and any further organization or parts required to complete the installation.

_____

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_____

_____

_____

Instructions given to:_____

Sales/Service Technician: _____ Date_____

Shop Foreman/Superintendent or Owner: _____ Date_____

Once completed e-mail this form to:

service@rottlermfg.com

Installation Procedure

Location

The productivity of the F10X will depend a great deal on the proper initial installation. Pay particular attention to the means by which work pieces are lifted into and out of the machine as well as the material handling to and from other operations in your shop. The proper loading arrangements and work location for your F9/10A is extremely important.

A slow travel (6' to 10' per minute) power hoist, operated from either a bridge or jib crane arrangement works very well. A 1000 lb. Is generally adequate for lifting most engine blocks. An air hoist with speed control makes an ideal method for fast, efficient loading and unloading.

For shops where large production runs are anticipated, the work pieces should be loaded and unloaded directly from a conveyer. If this is not the case, we suggest you pay considerable attention to the crane so that it covers an adequate area to allow the operator to back up and remove work pieces without creating a cluttered, dangerous work area.

Unpacking

Use care when removing the crate materials from the machine. Be careful not to use force on any part of the machine.

Remove the Toolbox, Parallels and optional equipment from the machine. Completely clean these articles along with the rest of the machine with solvent, rust inhibitor was applied at the time of shipment. Any of the rust inhibitor left on the machine will allow Cast Iron dust to build up and cause premature wear to the machine.

Shipping and Hold Down

Remove the sheet metal cover from the rear of the Spindle Base by removing the four (4) round head Allen screws.

Pull out the Cotter Key from the Castle nut located in the center of the Spindle Base and loosen the nut. Turn the machine on and place it in Neutral. Hand tighten the nut to take out all the play in the Roller Key assembly. Loosen the nut approximately 1/12 of a turn. Place the Cotter Key in the nearest slot of the Castle Nut. Put the machine in Float and move the machine from side to side and remove the rust inhibitor that was placed under the Spindle Base. This may have to be done several time to remove all of the rust inhibitor.

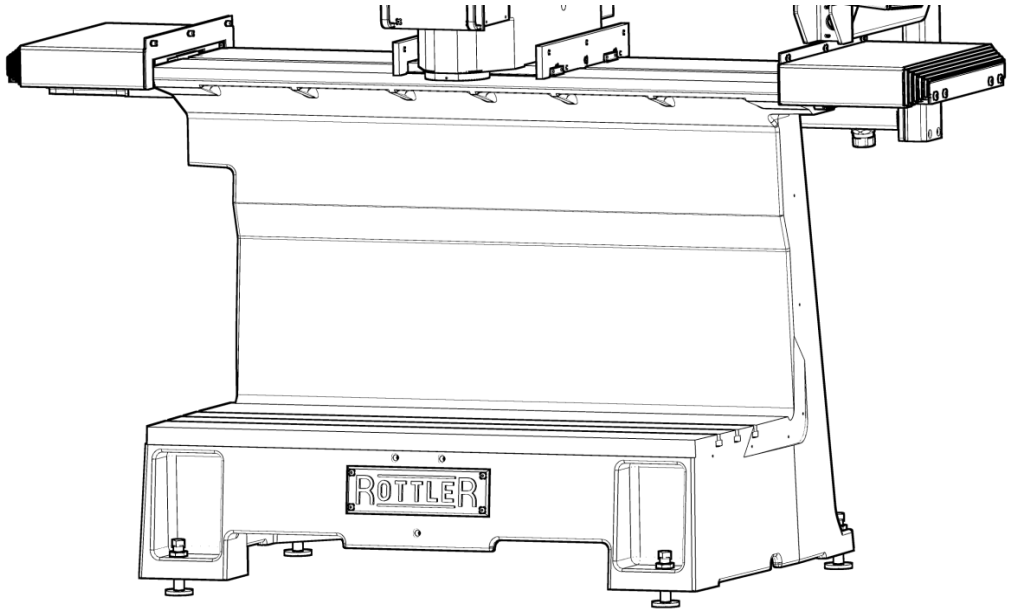
Switch the machine to Clamp and check for proper operation of the clamp assembly. Check for proper release and movement when put back into Float.

Note: Clamp cylinder rods should move a minimum of 5/8" when Spindle Base is clamped.

Leveling

Four square head bolts (504-1-12A), four jam nuts (502-1-12F), and four chamfered washers (502-1-12) are provided with the machine for leveling. Screw the jam nuts all the way onto the bolts, insert the bolts at the base support points (corners). Screw the bolts in until they are just protruding from the bottom of the base casting. Lower the machine onto the washers, making sure the bolts seat into the chamfered area of the washers. (See illustration on following page)

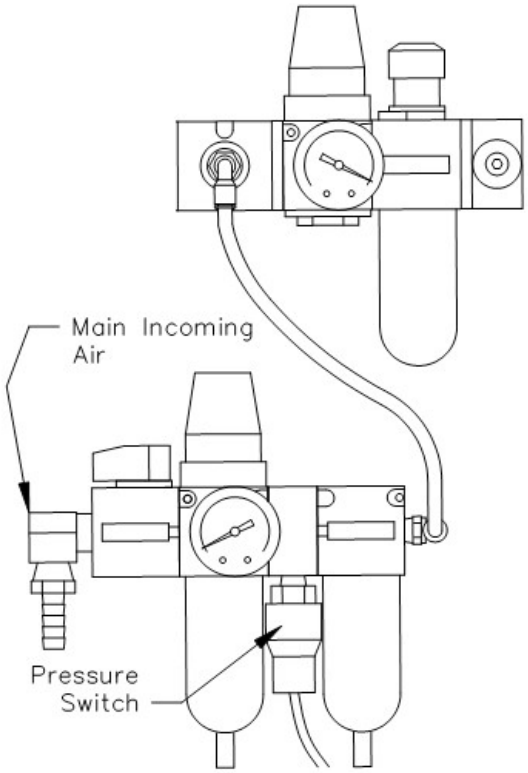
Using a precision level, level the upper table within .003" per foot in both directions. Make sure that the machine weight is equally supported at all four support points.



Air Supply

It is very important that the air source for the F10X be moisture free. Water and oil in the air lines will result in early cylinder and valve failure as well as introducing moisture into the Inner spindle bearings. The factory recommends installing a water trap at the machine.

Attach a 100 P.S.I. air source to the main air intake located on the right hand side of the main rear enclosure.



Power Supply

This machine has the following power requirements:

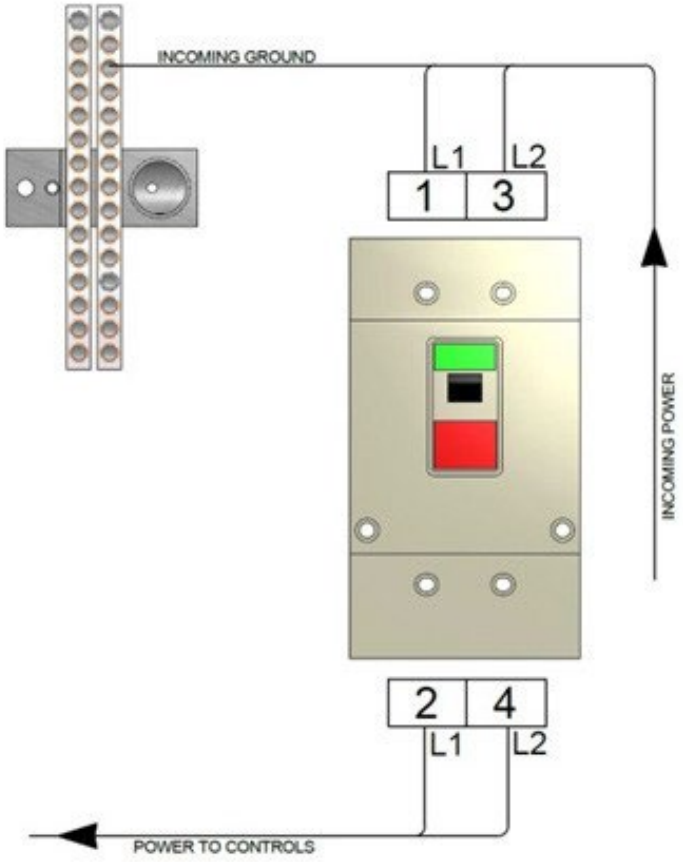
- 208 to 240 VAC
- Single Phase Power
- 50 or 60 Hz
- 30 Amps

See illustration below for correct connection of incoming power. Measured power at the machine's main breaker must be within the required range listed above. If incoming power is not within range, a transformer must be used. Failure to do so will cause the machine to function abnormally and cause permanent damage to the electronic control system.

Some electrical services contain a "Hot Leg, High Leg, or Wild Leg", where single phase is derived from a three phase connection and one leg measures 208VAC to Ground instead of 120VAC. It is not permitted to use the "Hot Leg" for providing power to this machine. Voltage measured between the phases must be between 208VAC and 240VAC, while each phase to ground must be ~120VAC.

IMPORTANT ***Electrically connect in accordance with national and local electrical codes.***

⚠ CAUTION ***Do not attempt to connect more 240VAC to this machine.***
Do not attempt to connect to Three Phase Power.



Grounding

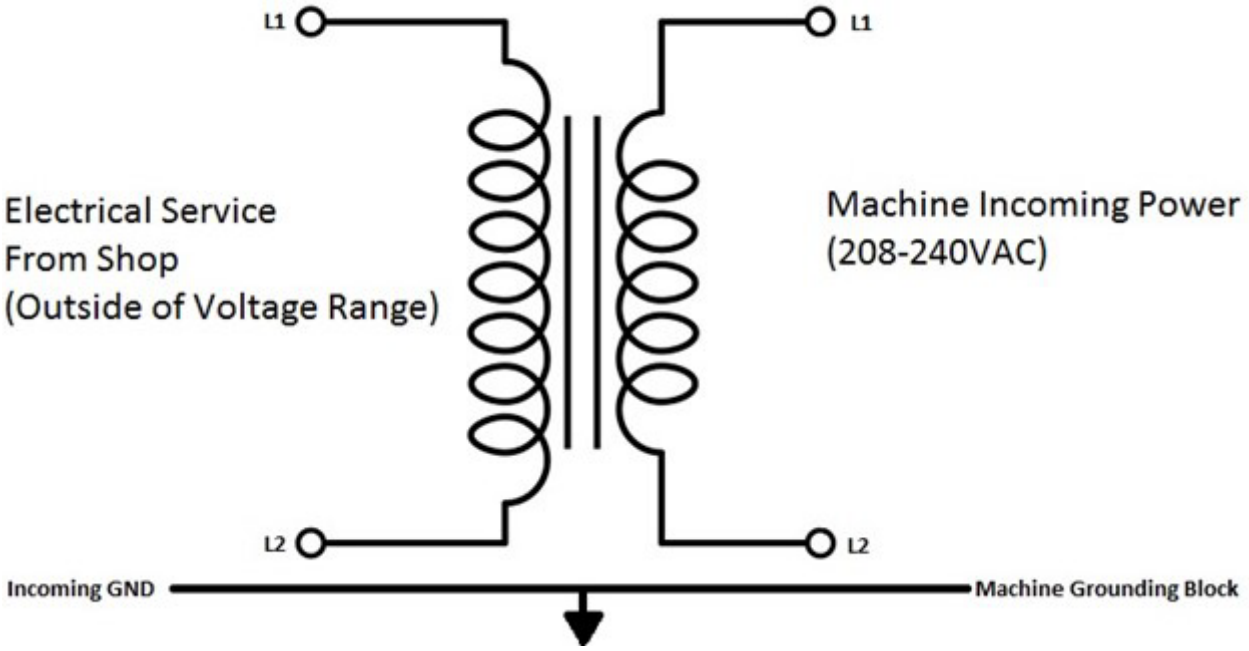
The machine requires a good earth ground. The grounding conductor from the incoming power source must be connected to the grounding block located inside of the electrical cabinet. A ground rod installed in addition to the electrical service grounding conductor is permitted, but must be connected directly to the grounding block inside of the electrical cabinet. Connecting the ground rod to the machine base is not permitted. Consult a Licensed Electrician in your area to assess the installation, and install the appropriate ground rod if necessary. Failure to do so may lead to an installation that is unsafe and does not meet national and local electric codes.

Transformer Connections

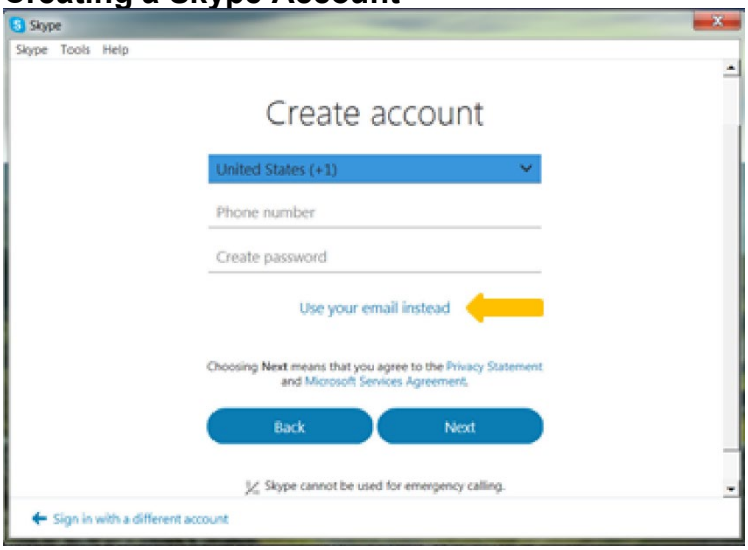
This machine has the following minimum transformer size requirement:

- 10 kVA

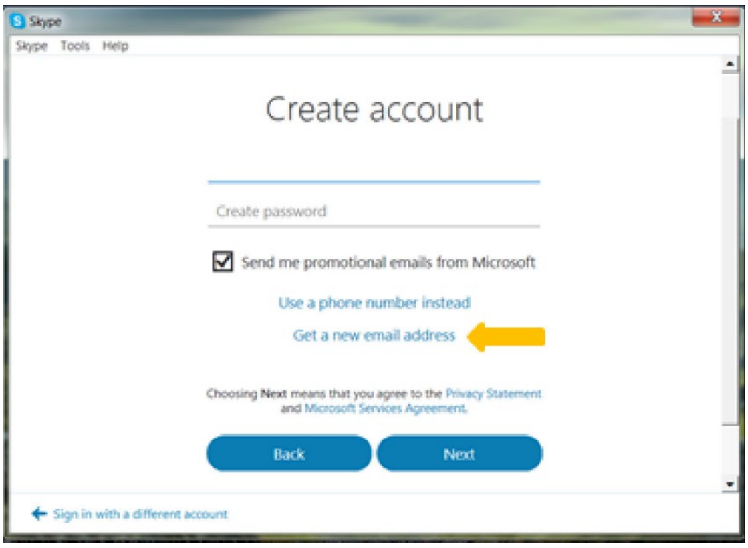
If a transformer is necessary for machine installation, please refer to the diagram below for connection information. Transformers must be sized to meet the minimum power requirements listed above. Consult a Licensed Electrician in your area for transformer selection and installation.



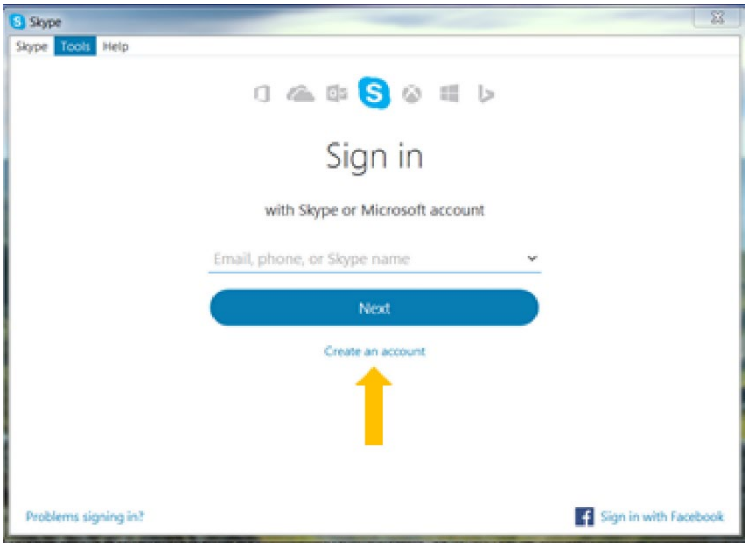
Creating a Skype Account



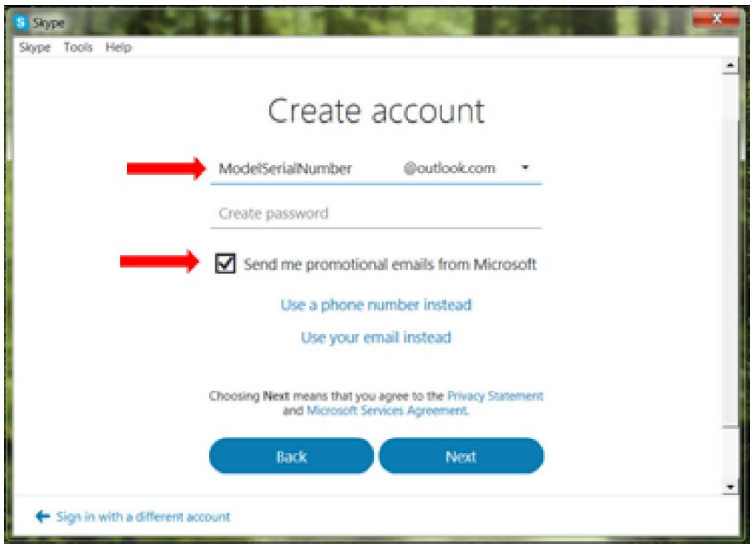
Click on “Create an account”



Click on “Use your email instead”



Click on “Get new email address”

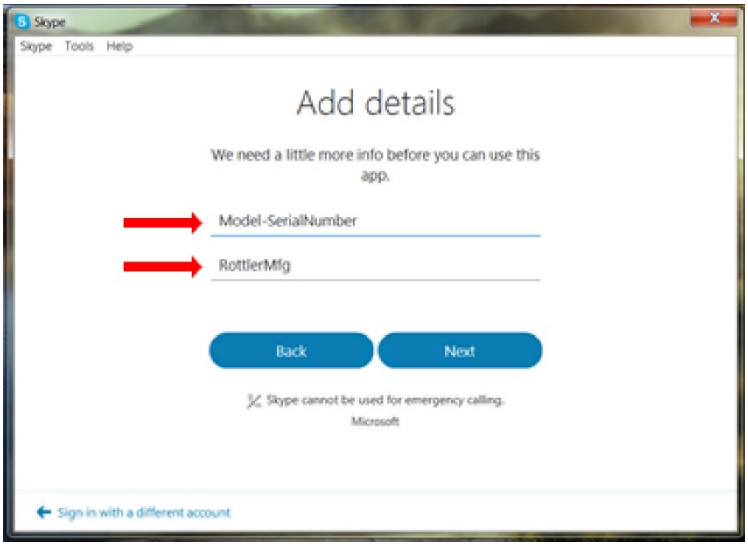


Name the email account using the Rottler machine Model and Serial number.

Ex. H85A111, EM69P001

Create a password that is easy to remember.

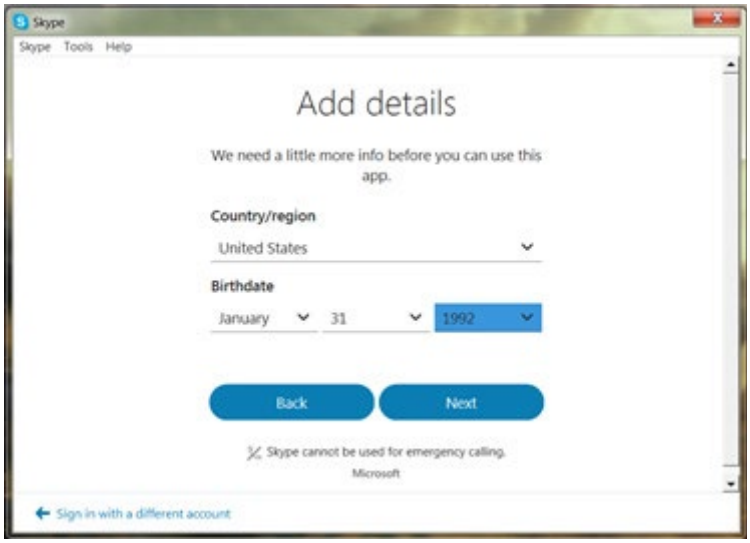
Uncheck the box to receive emails from Microsoft.



First Name: Model-Serial Number

Ex. EM105-113

Last Name: RottlerMfg



Select your Country/Region

Birthday: Today's Date, 1992