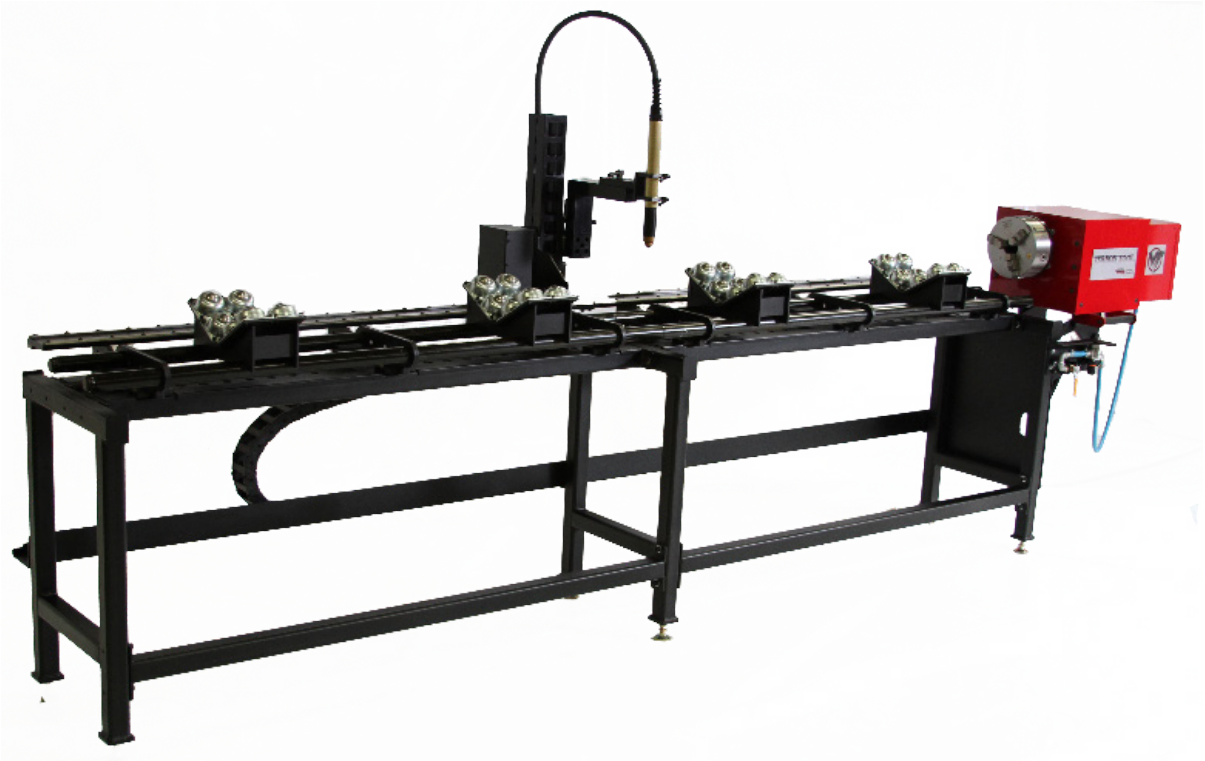


MASTERPIPE™ Mini Profiler

Installation and Operations Guide

February 26, 2016

LINCOLN ELECTRIC | Cutting Systems

TMS-011-0006-01

Table of contents

Statement of warranty

30 Day guarantee

If Buyer is not satisfied with the performance of the Goods within 30 days from the date the Goods were shipped from the Seller, Buyer may return the Goods in the original carton(s) for a full refund less Shipping, Handling, Damages and Freight Charges. All sales become final after this 30 day period. Buyer should determine the satisfactory performance of the Goods by using the software, and inspecting and bench running the motors and/or accessory items. Any items to be returned for full refund must be in new, unused (except for bench testing), and saleable condition at the sole determination of the Seller. Items that, in the Seller's judgment, have been used or modified in any way, or kits that have been partially or fully completed will be subject to a restocking fee to be determined by the Seller. A return merchandise authorization number (RMA) must be obtained by the customer prior to any return. Shipments of returned items not marked with a valid RMA will be refused.

Warranty

Electronics and motors are warranted by their manufacturer to the original purchaser for 12 months from the date of Torchmate, Inc.'s sale invoice. Mechanical components are standard industrial parts and are not warranted except by their respective manufacturers. If any of the warranted items are found by Seller to be defective, such Goods will, at Seller's option, be replaced or repaired at Seller's cost. No defective goods are to be returned without written authorization of seller. The sole purpose of the stipulated exclusive remedy shall be to provide the Buyer with free repair and replacement of defective Goods in the manner provided herein. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as the Seller is willing and able to repair or replace defective Goods in the prescribed manner. The foregoing warranty is in lieu of all other warranties, express or implied, including those of merchantability or fitness for any purpose not expressly set forth herein. No affirmation of Seller, by words or action, other than as set forth in this Section shall constitute a warranty. Seller's warranty does not apply to any Goods which have been subjected to misuse, mishandling, misapplication, neglect (including but not limited to improper maintenance), accident, improper installation, modification (including by not limited to use of unauthorized parts or attachments), or adjustment or repair performed by anyone other than Seller or one of Seller's authorized agents. When returning products to Seller packaging must be adequate or all warranty is null and void. Buyer will pay for the cost of Shipping to and from the Seller for all warranty repairs.

Any claim by Buyer with reference to the Goods sold hereunder shall be deemed waived by the Buyer unless submitted in writing to seller within the earlier of (i) thirty (30) days following the date Buyer discovered or by reasonable inspection should have discovered, any claimed breach of foregoing warranty, or (ii) 12 months following the date of shipment. Any cause of action for breach of the foregoing warranty shall be brought within one year from the date the alleged breach was discovered or should have been discovered, whichever occurs first.

Limitation of liability

Seller's liability (whether under the theories of breach of contract or warranty, negligence, or strict liability) for its Goods shall be limited to repairing or replacing Goods found by Seller to be defective, or at Seller's option, to refunding the purchase price of such Goods or parts thereof.

Disclaimer of consequential damages

In no event shall seller be liable for consequential damages arising out of or in connection with this agreement, including without limitation, breach of any obligation imposed on seller hereunder. Consequential damages shall include without limitation, loss of use, income or profit, or loss sustained as the result of injury (including death) to any person, or loss of or damage to property (including without limitation property handled or processed by the use of the goods). Buyer shall indemnify seller against all liability, cost or expense which may be sustained by seller on account of any such loss, damage, or injury.

Acceptance and transportation

Upon buyer's receipt of shipment, Buyer shall immediately inspect the Goods. Unless Buyer provides Seller with written notice of any claim for shortage, overcharge, or damage of Goods within ten (10) days from invoice date, such Goods shall be deemed finally inspected, checked and accepted by Buyer and no allowances shall be made thereafter. In absence of shipping and packaging instructions, Seller shall use its own discretion in the choice of carrier and method of packing. Seller shall not be responsible for insuring shipments unless specifically requested by Buyer and any insurance or special packaging so requested shall be at Buyer's expense and valuation.

Title and risk of loss

Title to any Goods sold and risk of loss of such Goods passes to Buyer upon delivery by Seller to carrier and any claims for losses or damages shall be made by Buyer directly with carrier.

General conditions

A. In addition to the rights and remedies conferred upon Seller by law, Seller shall not be required to proceed with the performance of any order or contract if the Buyer is in default in the performance of any order or contract with Seller, and in case of doubt as to Buyer's financial responsibility, shipments under this order may be suspended.
B. No delay or omission by Seller in exercising any right or remedy provided for herein shall constitute a waiver of such right or remedy and shall not be constituted as a bar to or a waiver of any such right or remedy on any future occasion.
C. The sale of Goods shall be governed by the laws of the State of Maryland. Seller agrees to comply with all applicable laws of the United States.

Severability

The invalidity or unenforceability of any one or more phrases, sentences, or sections shall not affect the validity or enforceability of the remaining portions of this Agreement.

Safety First

Torchmate and Lincoln Electric Cutting Systems equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation ... and thoughtful operation on your part.

WARNING

DO NOT INSTALL, OPERATE, OR REPAIR THIS EQUIPMENT WITHOUT READING THE SAFETY WARNINGS CONTAINED THROUGHOUT THIS MANUAL.

Think before you act—and be careful.

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH.

KEEP CHILDREN AWAY.

IF YOU WEAR A PACEMAKER, YOU SHOULD CONSULT WITH YOUR DOCTOR BEFORE OPERATING.

Read and understand the following safety highlights. For additional safety information it is strongly recommended that you purchase a copy of "Safety in Welding & Cutting - ANSI Standard Z49.1" from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2.

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS

ELECTRIC SHOCK can kill.

- The electrode and work (or ground) circuits are electrically "hot" when the power source is on. Do not touch these "hot" parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.
- Disconnect the power source before performing any service or repairs. When the power source is operating, voltages in excess of 250 volts are produced. This creates the potential for serious electrical shock - possibly even fatal.
- Insulate yourself from work and ground using dry insulation. Wear dry gloves and clothing. Take extra care when the work place is moist or damp.
- Always be sure the work cable makes a good electrical connection with the metal being cut or gouged. The connection should be as close as possible to the area being cut or gouged.
- Ground the work or metal to be cut or gouged to a good electrical (earth) ground.
- Maintain the plasma torch, cable and work clamp in good, safe operating condition. Repair or replace all worn or damaged parts. Replace damaged insulation.
- Never dip the torch in water for cooling or plasma cut or gouge in or under water.
- When working above floor level, protect yourself from a fall should you get a shock.
- Operate the pilot arc with caution. The pilot arc is capable of burning the operator, others or even piercing safety clothing.

ARC RAYS can burn.

- Plasma Arc Rays can injure your eyes and burn your skin. The plasma arc process produces very bright ultraviolet and infrared rays. These will damage your eyes and burn your skin if you are not properly protected.
- Use safety glasses and a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when performing or observing plasma arc cutting or gouging. Glasses, head-shield, and filter lens should conform to ANSI Z87. I standards.
- Use suitable clothing including gloves made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- Protect other nearby personnel with suitable non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

Arc Current	Minimum Shade No.	Suggested Shade No.
Less than 20A	4	4
20A-40A	5	5
40A-60A	6	6
60A-300A	8	9
300A-400A	9	12
400A-800A	10	14

FUMES AND GASES can be dangerous.

- Plasma cutting or gouging may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. When cutting or gouging, keep your head out of the fumes. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone.
- Use an air-supplied respirator if ventilation is not adequate to remove all fumes and gases.
- When plasma cutting or gouging on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and within applicable OSHA PEL and ACGIH TLV limits using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required.
- Additional precautions are also required when cutting (zinc) galvanized steel or materials containing or coated with any of the following:

Antimony	Beryllium	Cobalt	Manganese	Selenium
Arsenic	Cadmium	Copper	Mercury	Silver
Barium	Chromium	Lead	Nickel	Vanadium

- The operation of plasma cutting or gouging fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment, and the specific procedure and application involved. Worker exposure levels should be checked upon installation and periodically thereafter to be certain levels are within applicable OSHA PEL and ACGIH TLV limits. For information on how to test for fumes and gases in your work place, refer to publications section of this manual.
- Do not use plasma cutting or gouging equipment in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products. Remove all sources of these vapors.
- Gases used for plasma cutting and gouging can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.
- Read and understand the manufacturer's instructions for this equipment and follow your employer's safety practices.
- This product, when used for cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects
- Some dust created by routing, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Avoid prolonged contact with this dust. Wear protective clothing and wash exposed areas with soap and water. Allowing dust to get into your mouth, eyes, or lay on the skin may promote absorption of harmful chemicals.

Some examples of these chemicals are:

Lead from lead-based paint.
Crystalline silica from bricks and cement and other masonry products.
Arsenic and chromium from chemically-treated lumber (CCA).
Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Cutting flame and sparks can cause FIRE OR EXPLOSION.

- Fire and explosion can be caused by hot slag, sparks, oxygen fueled cutting flame, or the plasma arc.
- Have a fire extinguisher readily available. Provide a fire watch when working in an area where fire hazards may exist.
- When not cutting or gouging, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.
- Be sure there are no combustible or flammable materials in the workplace. Any material that cannot be removed must be protected.
- Sparks and hot materials from cutting or gouging can easily go through small cracks and openings to adjacent areas.
- Avoid cutting or gouging near hydraulic lines.
- Do not cut or gouge tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been "cleaned." For information purchase "Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances", AWS F4.1 from the American Welding Society (see address above).
- Vent hollow castings or containers before heating, cutting or gouging. They may explode.
- Do not add fuel to engine driven equipment near an area where plasma cutting or gouging is being done.
- Connect the work cable to the work as close to the cutting or gouging area as practical. Work cables connected to the building framework or other locations away from the cutting or gouging area increase the possibility of the current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.
- Hydrogen gas may be formed and trapped under aluminum work pieces when they are cut underwater or while using a water table. DO NOT cut aluminum alloys underwater or on a water table unless the hydrogen gas can be eliminated or dissipated. Trapped hydrogen gas that is ignited will cause an explosion.
- Read and follow NFPA 51B " Standard for Prevention During Welding, Cutting and Other Hot Work", available from NFPA, 1 Batterymarch Park,PO box 9101, Quincy, Ma 022690-9101.

CYLINDER may EXPLODE if damaged.

- Use only compressed gas cylinders containing the correct gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.
- Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- Cylinders should be located: · Away from areas where they may be struck or subjected to physical damage. · A safe distance from plasma cutting or gouging, arc welding operations and any other source of heat, sparks, or flame.
- Never allow any part of the electrode, torch or any other electrically "hot" parts to touch a cylinder.
- Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.
- Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-I, "Precautions for Safe Handling of Compressed Gases in Cylinders,"available from the Compressed Gas Association 1235 Jefferson Davis Highway, Arlington, VA 22202.

FOR ELECTRICALLY powered equipment.

- Turn off input power using the disconnect switch at the fuse box before working on the equipment.
- Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer's recommendations.
- Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer's recommendations.

PLASMA ARC can injure.

- Keep your body away from nozzle and plasma arc.
- Operate the pilot arc with caution. The pilot arc is capable of burning the operator, others or even piercing safety clothing.

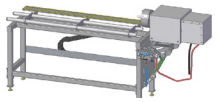
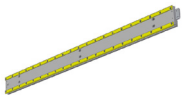
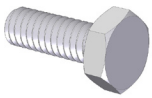
ELECTRIC AND MAGNETIC FIELDS may be dangerous

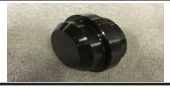
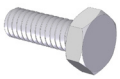
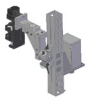
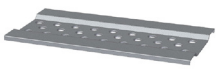
- Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Cutting or gouging current creates EMF fields around torch cables and cutting machines.
- EMF fields may interfere with some pacemakers, so operators having a pacemaker should consult their physician before cutting or gouging.
- Exposure to EMF fields during cutting or gouging may have other health effects which are now not known.
- All operators should use the following procedures in order to minimize exposure to EMF fields from the cutting or gouging circuit:
- Route the torch and work cables together - Secure them with tape when possible.
- Never coil the torch cable around your body.
- Do not place your body between the torch and work cables. If the torch cable is on your right side, the work cable should also be on your right side.
- Connect the work cable to the workpiece as close as possible to the area being cut or gouged.
- Do not work next to cutting power source.

For Lincoln Electric Cutting Systems Technical Support Please call 775-673-2200 Monday-Friday 7:00-4:00 PST.

Parts and assemblies checklist

The parts included in your MASTERPIPE® Mini Profiler System (MPMP) shipment are listed here in the order you will assemble them. To make it easier to complete the assembly of your cutting system, lay out the received parts in this order as you check them against this list.

☑	Qty.	Part	Description	Part Number	Step
	1		Mini profiler base machine	TMS-050-0005-04	1
	0 to 4		MPMP 5' add-on section (optional)	TMS-050-0005-02	2
	0 to 24		3/8"–16 X 5/8" Socket head cap screw	TMS-410-0018-10 (6 per optional add-on section)	2
	0 to 24		3/8" Washer	TMS-413-0001-18 (6 per optional add-on section)	2
	1 to 5		61" Rail assembly (May be pre-installed)	TMS-140-0001-06 (1 per base machine 1 per add-on)	3
	6 to 30		5/16"–18 X 3/4" socket head cap screw (May be pre-installed)	TMS-410-0016-12 (6 per rail assembly)	3
	0 to 8		1/4"–20 X 3/4" hex head cap screw (May be partly or fully pre-installed)	TMS-410-0014-12 (2 per add on)	3
	0 to 8		1/4" SAE washer (May be partly or fully pre-installed)	TMS-413-0001-14 (2 per add on)	3
	2 to 6		Cable Carrier Hanger (May be pre-installed)	TMS-140-0002-12 (2 per base machine 1 per add on section)	4
	4 to 12		5/16"–18 X 3/4" Socket head cap screw (May be pre-installed)	TMS-410-0014-12 (4 per base machine 2 per add on section)	4
	4 to 12		5/16" Washer (May be pre-installed)	TMS-413-0001-14 (4 per base machine 2 per add on section)	4
	1 to 5		Cable carrier support tray	TMS-140-0002-13 (1 per base machine 1 per add-on section)	4

☑	Qty.	Part	Description	Part Number	Step
	2		Tube adapter per 5 foot extension (optional)	TMS-140-0002-17	2
	1		Spirit level (or similar leveling instrument)	(from your toolbox)	5
	1		Divider calipers (or similar instrument)	(from your toolbox)	6
	2		C-clamps (or similar clamps)	(from your toolbox)	6
	1		Small section of gear rack (used as an alignment tool)	TMS 434-0004-0001	7
	1		Torch mount carrier assembly (part of horizontal drive unit) (May be pre-installed)	TMS-140-0001-05	8
	2		Y-axis hard stop (May be partly or fully pre-installed)	TMS-140-0002-78	9
	4		1/4"–20 X 3/4" Hex head cap screw (May be partly or fully pre-installed)	TMS-410-0014-12	9
	4		1/4" Washer (May be partly or fully pre-installed)	TMS-413-0001-14	9
	1		Height control torch mount assembly (May be partly or fully pre-installed)	TMS-140-0001-17	10
	0 to 4		Ball transfer cradle	TMS-051-0001-01 (2 per section recommended)	11
	2 to 10		Long catch tray	TMS-140-0002-14 (2 per section)	11
	2 to 10		Short catch tray	TMS-140-0002-15 (2 per section)	11
	2		Small tube support cradle	TMS-050-0001-02 (optional 2 per section)	12

Parts and assemblies checklist (continued)

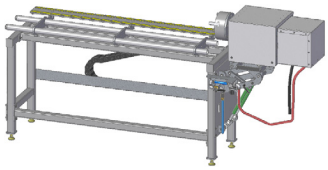
☑	Qty.	Part	Description	Part Number	Step
	1		Torch lead from plasma cutter	(separate purchase)	15
	2		Motor cables	TMS-402-0070-01	13
	1		Z axis motor cable	TMS-402-0071-50	13
	1		Breakaway cable	TMS-103-5000-06	13
	2		Cable ties	(from your toolbox or separate purchase)	13
	2		Air supply hose	(from the shop air supply, dry and filtered)	17
	1		ACCUMOVE 3 control box	TMS-407-0072-01	18
	1		CNC interface cable	(Supplied with your plasma cutter)	19, 20
	1		VFC controller	TMS-101-1100-01	20
	1		Height control cable	TMS-103-5000-01	20
	1		Arc voltage ohmic cable	TMS-101-1109-01	21
	1		Input cable	TMS-103-5000-03	21
	1		Desktop or laptop computer	(separate purchase)	21

☑	Qty.	Part	Description	Part Number	Step
	1		Crossover cable	TMS-103-5000-07	21
	1		USB flash drive: Driver software and owners manuals.	04-0005-001	22
	1		Chuck key	(included with base machine)	26
	1		Plasma cutter with cut charts	(seperate purchase)	27
	1		Complete set of SAE wrenches	From your tool box	
	1		Complete set SAE Allen wrenches	From your tool box	
	1		String line for machine alignment	From your tool box	
	1		Crimp type electric splice connectors	From your tool box	

Feature overview

These features of the MASTERPIPE® Mini Profiler help to make this CNC cutting system versatile, flexible, reliable, and economical.

Torch travels on 5-ft base machine with leveling feet



- The base machine gives you everything you need to begin cutting. The system is shipped pre-assembled, so you need only add your plasma cutter or oxyfuel torch, level the module with the adjustable feet, and connect the CNC controller to the motor cables.

Additional 5-ft add-on sections extend to 25-ft total

- Add as many as four add-on sections. Just bolt them together, align the rails and gear racks, add links to the cable carrier, and level the adjusting feet.

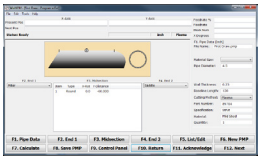
ACCUMOVE 3 CNC Controllerl

- The included CNC controller provides motor drive electronics with power and accuracy. This reliable unit has been used in thousands of CNC systems.

VMD Software Windows 7, Windows 8, or Windows 10 Computer

- The VMD software runs on your standard PC and communicates with the CNC controller using a crossover ethernet cable. VMD works with G-code, such as that produced by the optional WinMPM software.

WinMPM design software

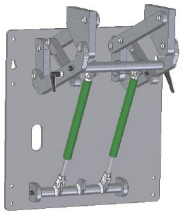


- Designing your own cutting files cannot be any easier than using the WinMPM software. Various end treatments as well as holes for intersecting pipes with custom offsets and angles can be created in minutes and exported for use with the VMD software.

Large chuck

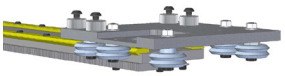
- The large, heavy-duty chuck provides secure support and torque to turn pipes of various sizes. The production capacity is from 1-inch to 8-inches, with a maximum size of 12-inches.

- To adjust the chuck for different size pipe, loosen the locking levers and move the gas-cylinder supported mount with ease. Loosely chuck the material in the new the position, jog the material to rotate and center it, lock the vertical adjustment, tighten the chuck, and cut.



Vertical chuck-height Adjustment

- Accurate, reliable travel of the torch is managed by v-rollers and v-rails. This design keeps the rollers clean and reduces wear and required maintenance.

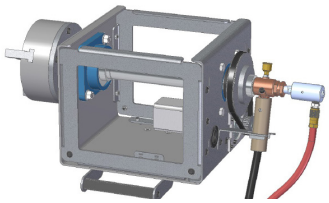


V-rail and roller design

- Low friction roller balls supported by interior ball bearings make turning various sized pipe in the roller transfer cradles smooth and easy. Position the cradles away from the cutting action by just sliding them down the tubular support rails.

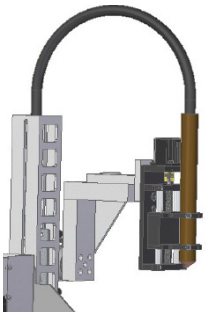
Repositionable roller supports

- Plasma cutting depends on a low-resistance return current work lead (ground lead) and this is provided by positive contact with the chuck and its rotating connection. In addition, the center of the chuck is supplied with compressed air to ventilate the pipe interior.



Thru-pipe ventlation and rotating work lead connection

- The Arc Voltage Height Control (AVHC) provides consistent high quality cutting on larger pipes that may be somewhat out-of-round.



AVHC torch mount

Installation overview

When installing a MASTERPIPE Mini Profiler, there are many factors that will influence the potential productivity and ease of use of the machine. The main factors include the physical layout and placement of the machine in the shop and the availablity of power, compressed air and other gases, and ventilation.

Space

- When preparing to install the MASTERPIPE Mini Profiler, provide sufficient space for efficient operation. This includes considering the room to load and unload the material being cut, and storage for the raw materials and finished products.
- If your CNC cutting system is too far from your material storage or from the stations where additional operations may be performed, it reduces your overall efficiency. A good goal is to arrange a balance between space and efficiency.
- The MASTERPIPE Mini Profiler is modular, and can be extended with add-on sections up to 25 feet. Consider placing the initial equipment in an area that can accommodate any expansion as needed.

Electrically powered modules

- The following components of the system must be supplied with power.
  - CNC Control box
  - Plasma power supply (separate purchase)
  - Computer (separate purchase)
  - Air compressor (separate purchase)
  - VFC Control box
  - Oxyfuel / plate marker relay box (optional)
- Consult with your electrical service provider or a qualified electrician to ensure that each circuit meets the equipment's requirements and is safe to operate.

Check the power distribution panel circuits

- Many pieces of shop equipment can generate enough high frequency electromagnetic and radio waves to interfere with the operation of the CNC Control box or the computer or both. Consider installing a ground rod near the MASTERPIPE Mini Profiler to help reduce EMI (electromagnetic interference). Consult with your electrical service provider or a qualified electrician regarding electrical code requirements for grounding rods in your local area.

Grounding

For additional information, see:
http://www.torchmatesupport.com/help/EMI Reduction.zip

Gasses

- Some plasma operations and the oxyfuel processes require compressed gasses, which may require the placement of gas cylinders, regulators, and lines in the space near the CNC cutting system.
- Leave adequate space for moving empty and replacement cylinders and for safe placement of pressurized and flamamble gases well away from the operation of the cutting torch.

Fumes

- Recognize that smoke and dust are created by the cutting processes. Plan to remove it and to provide a supply of clean air.

The Lincoln Electric Modular Extraction Hood can remove dust and smoke from cutting.

The Lincoln Electric Mobile Welding Fume Extractor with Filtration can also be positioned near the cutting area.

Step 1: Locate and place the base machine

The MASTERPIPE® Mini Profiler base machine is completely assembled. After considering the factors discussed in the previous pages, place the base machine in the desired location.

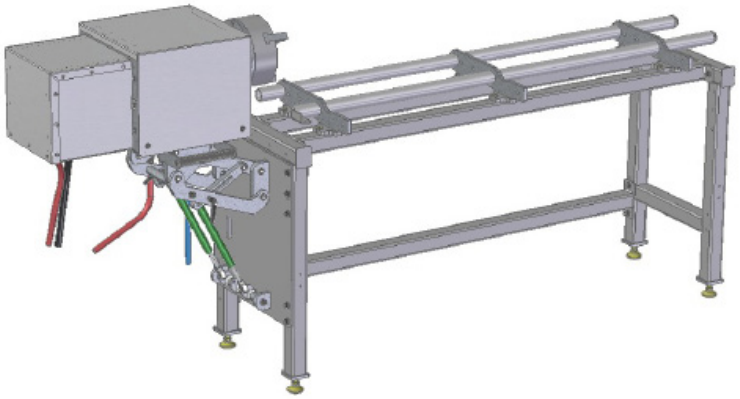
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler Base Machine	TMS-050-0005-04

Instructions

1. Carefully un-crate the base machine and place it in the location where it will be used.
   - Consider the available space for loading, unloading, and storage of cutting material to achieve efficient material flow.
   - Review the necessity of safely locating the base machine away from where people frequently travel and away from flammable material storage.
2. Ensure that power has been properly provided to the location and that two clean, dry compressed air lines are available at 90 psi minimum / 120 psi maximum.
3. Provide for ventilation of the smoke and gas produced by cutting, and a good supply of fresh air.
4. Provide space for the plasma cutter, the CNC Controller, and the computer., and attend to their power requirements.
5. Allow for the addition of (optional) add-on sections to increase the length of the pipe being cut.

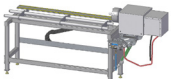
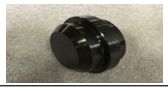
Illustration



Step 2: Attach (optional) add-on sections

If add-on sections have been ordered, un-crate them and loosely attach them to the base unit. Later steps for leveling and alignment will include tightening the fasteners.

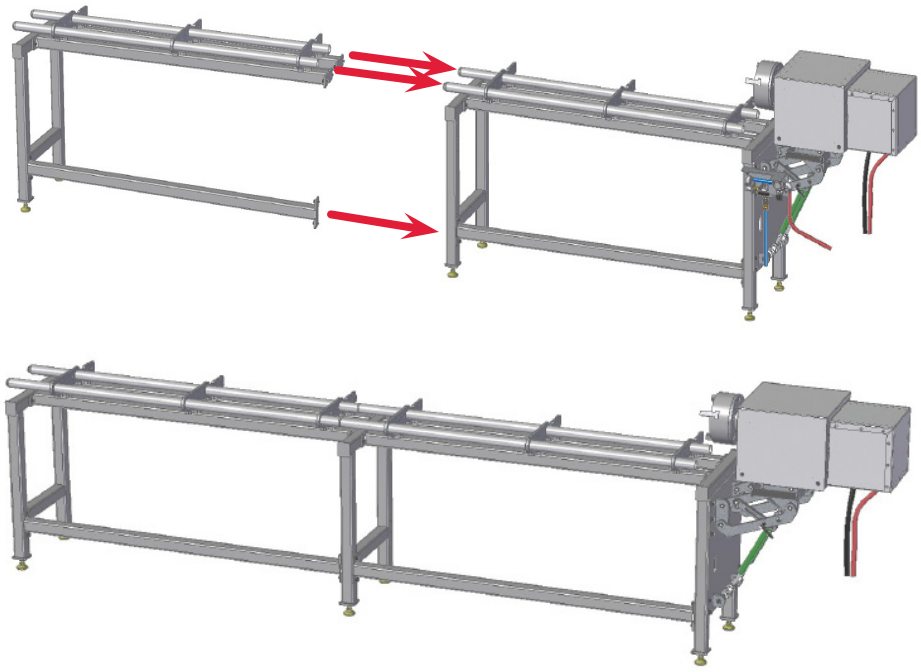
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler Base Machine	From Step 1
0 to 4		Optional add-on section	TMS-050-0005-02
0 to 24		3/8"–16 X 5/8" Socket head cap screw	TMS-410-0018-10 (6 per optional add-on section)
0 to 24		3/8" Washer	TMS-413-0001-18 (6 per optional add-on section)
2		Optional Tube Adapters	TMS-140-0002-17

Instructions

1. Carefully un-crate each add-on section.
2. Remove caps from end of tubes and install the provided tube adapters
3. Loosely attach it to the base machine (or the last add-on section attached) with 3/8" hardware. Use a forklift or two additional helpers to lift add-on section.
4. Roughly adjust the leveling feet. These will be accurately set in a later step.

Illustration

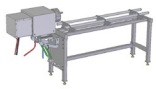
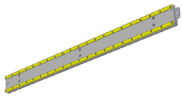
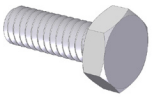


Use six 3/8" screws (per add-on section) to secure the add-on section to the base machine (or to add more sections)

Step 3: Install the rails

The MASTERPIPE® Mini Profiler base machine is partially assembled when it is delivered. If it is not already mounted, install the rail assembly carrier (with the gear rack and V-rails) next. If the rails are already in place, attach the rail connector plates, then go to Step 4.

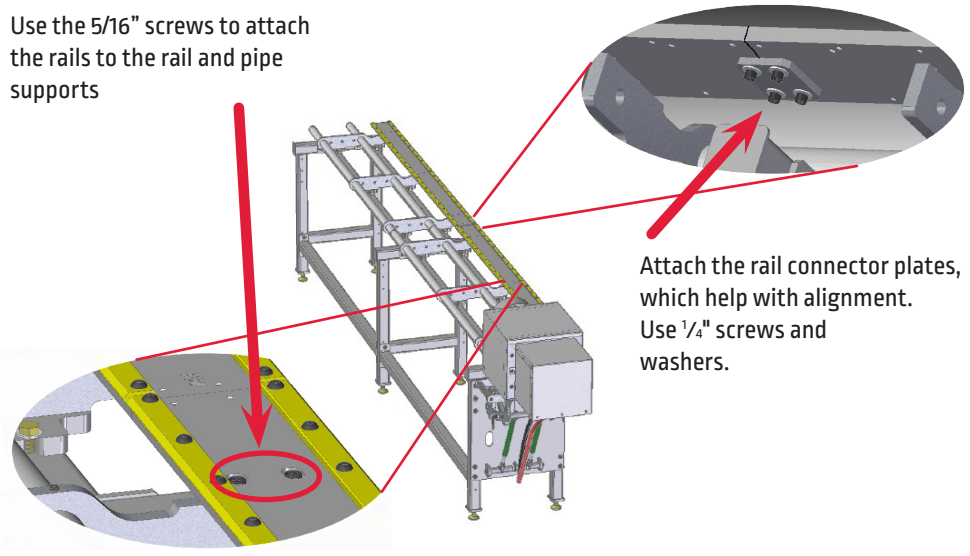
Required parts / components

Qty	Part	Description	Part #
1		Mini ProfilerBase Machine (with any installed add-on sections)	From Step 2
1 to 5		61" Rail assembly (May be pre-installed)	TMS-140-0001-06 (1 per base machine 1 per add-on)
6 to 30		5/16"–18 X 3/4" socket head cap screw (May be pre-installed)	TMS-410-0016-12 (6 per rail assembly)
0 to 8		1/4"–20 X 3/4" hex head cap screw (May be partly or fullypre-in-stalled)	TMS-410-0014-12 (2 per add on)
0 to 8		1/4" SAE washer (May be partly or fullypre-in-stalled)	TMS-413-0001-14 (2 per add on)

Instructions

1. Lay the rail mount plates on the rail and pipe supports and align the holes in each.
2. Insert a 5/16" screw and thread it down into the rail and pipe support.
3. Tighten the screws just a bit tighter than hand tight. These screws will be fully tightened in a later step.
4. Below where two rail assemblies meet, add two 1/4" screws and washers to connect the rails with the rail connector plates.

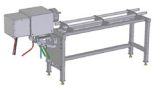
Illustration



Step 4: Attach cable trays

When, in a later step, the cable carrier links are added, they are supported by trays. If the hangars are not already installed, use the screws and washers to attach the hangers to the legs of the base machine and any add-on sections. Then, set each tray onto the hangers, adjusting the position to clear the screw heads.

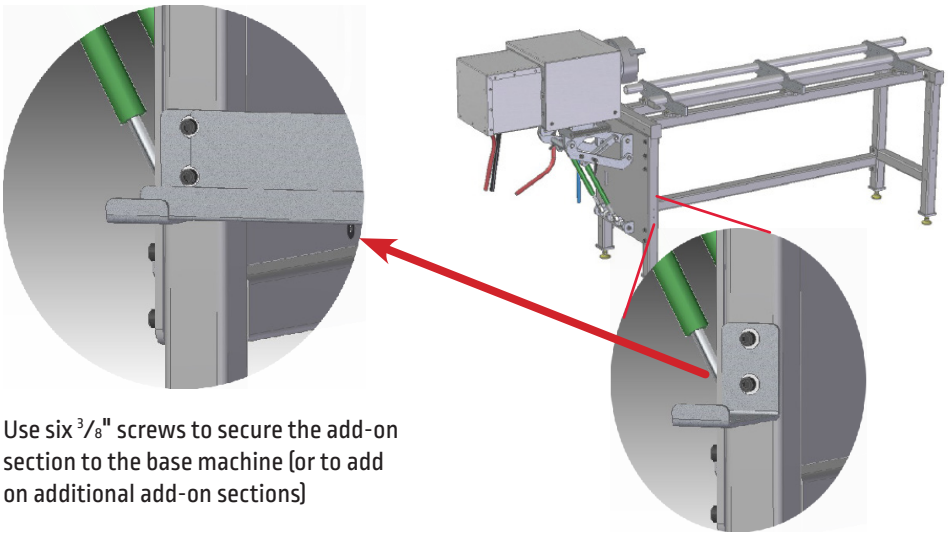
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler Base Machine (with any installed add-on sections)	From Step 3
2 to 6		Cable Carrier Hanger (may be pre-installed)	TMS-140-0002-12 (2 per base machine 1 per add on section)
4 to 12		5/16"–18 X 3/4" Socket head cap screw (may be pre-installed)	TMS-410-0014-12 (4 per base machine 2 per add on section)
4 to 12		5/16" Washer (may be pre-installed)	TMS-413-0001-14 (4 per base machine 2 per add on section)
1 to 5		Cable carrier support tray	TMS-140-0002-13 (1 per base machine 1 per add-on section)

Instructions

1. Use two screws and washers per hanger. Attach the hangers to each leg on the rail side.
2. Set the trays on the hangers. Adjust the position to clear the screw heads as necessary.

Illustration

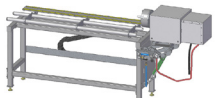


Use six 3/8" screws to secure the add-on section to the base machine (or to add on additional add-on sections)

Step 5: Level the section(s)

The base machine (and any add-on sections) must be leveled to allow the profiler to work efficiently and accurately. Use the leveling feet and a spirit level to bring the module(s) level across their width and along their length.

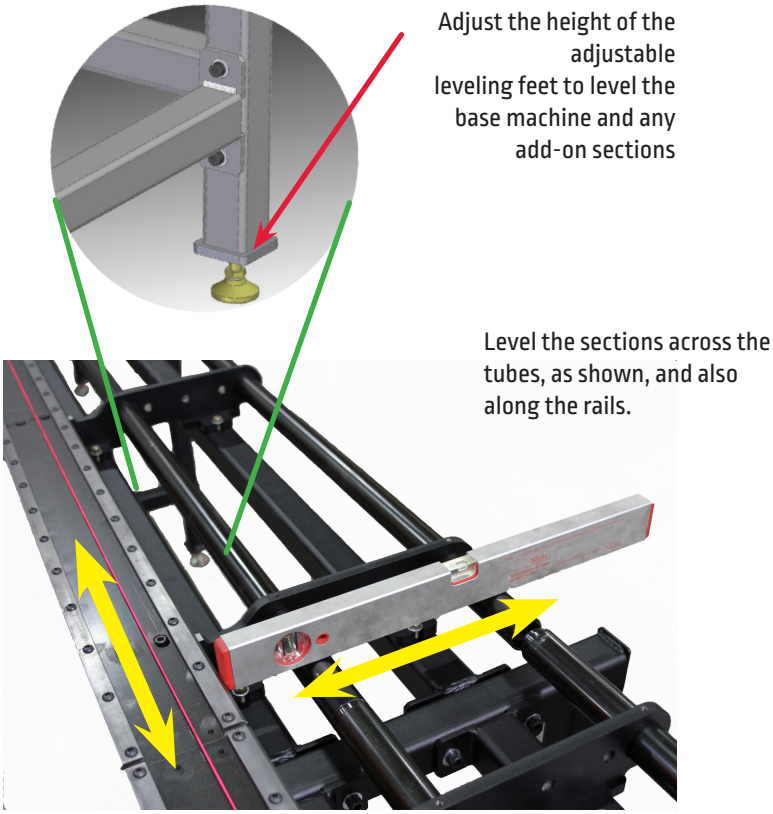
Required parts / components

Qty	Part	Description	Part #
1		Mini ProfilerBase machine and any attached add-on sections	From Steps 1 and 2
1		Spirit level (or similar leveling instrument)	(From your toolbox)

Instructions

1. Use a spirit level, laid across the 1½" diameter tubes at various places to check the side-to-side level of the module(s).
2. Use the spirit level, laid along the rail mount plate to check the end-to-end level of the module(s).
3. Adjust the height of the leveling feet to compensate for any variations in the level of the floor and to bring the sections to level.

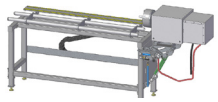
Illustration



Step 6: Align the sections

If you have only the base machine, skip ahead to Step 8. Add-on sections (optional) must be aligned with the base machine for accurate and reliable operation during cutting. A string line and dividers will allow you to adjust the position of the modules to align them.

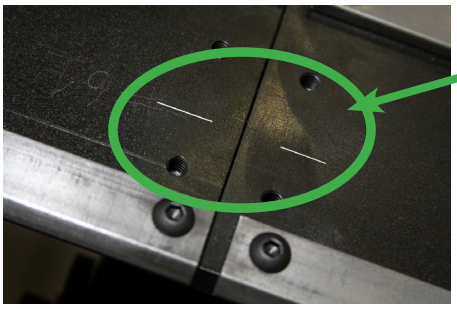
Required parts / components

Qty	Part	Description	Part #
1		Leveled modules (base and any attached add-on sections)	From Step 3
1		Divider calipers (or similar instrument)	(from your toolbox)
2		C-clamps (or similar clamps)	(from your toolbox)
1		String line	From your tool box.

Instructions

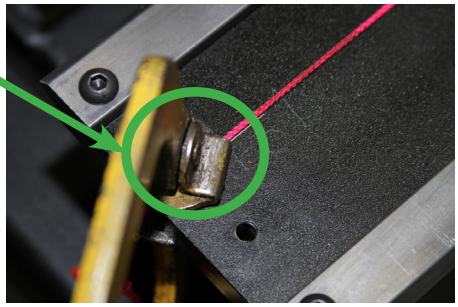
1. Scribe reference marks on the rail support plates an equal distance from the rail edge at the ends and at each module joint.
2. Gently move the modules to align them.
3. Tighten the bolts holding the modules together, rechecking alignment. Include the bolts on the rail connector plates installed in Step 2.

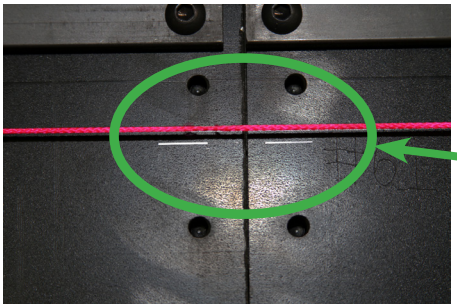
Illustration



Use the divider calipers to scribe reference marks an equal distance from the side of the rail. Mark each module where they join and at the ends.

Pull a string taut along the rail and clamp it next to the reference mark at the end of the base machine and the last module.





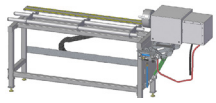
Check each reference mark along the string and adjust the position of the module so that all reference marks are aligned.

Note:
Machine alignment can also be achieved by lining up the string line with the three slotted holes on each of the machine base sections.

Step 7: Align any add-on section gear racks

If you have only the base machine, skip ahead to Step 8. The torch holder moves along the rail by means of a motor-driven gear. The gear engages a gear rack mounted below the rail. In order for the torch to move smoothly and accurately from one module to the next, the gear racks on adjacent modules must be aligned.

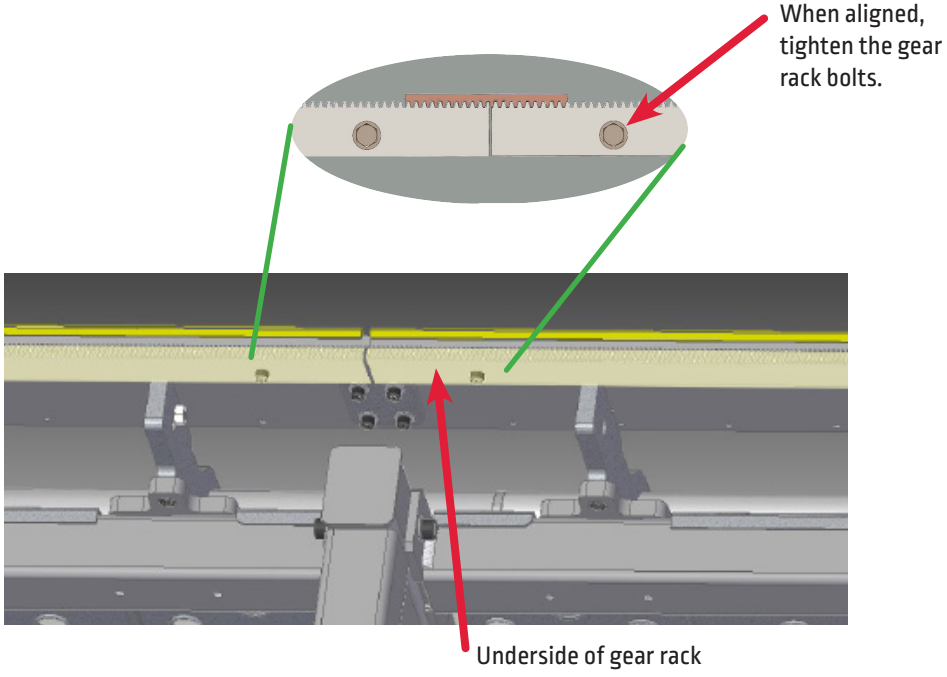
Required parts / components

Qty	Part	Description	Part #
1		Leveled Mini Profiler base machine plus aligned add-on sections	From Step 6
1		Small section of gear rack (used as an alignment tool)	08-0013-0015

Instructions

1. Use the small piece of gear rack (included) to align the gear rack of one module with the gear rack of the next module. With the gear rack mounting bolts slightly loosened, position the gear rack over the end of both gear racks.
2. Adjust their positions until the teeth fully mesh on both gear racks.
3. After the gear racks are aligned, tighten the gear rack mounting bolts.

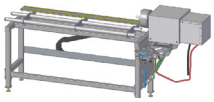
Illustration



Step 8: Install the horizontal drive unit

If the horizontal drive unit is pre-installed, it may still require adjustment to properly engage the gear rack. The horizontal drive unit holds the torch and moves it along the pipe length using V-rails, gear racks, and a motor / gear box assembly. These control the motion of the torch mount.

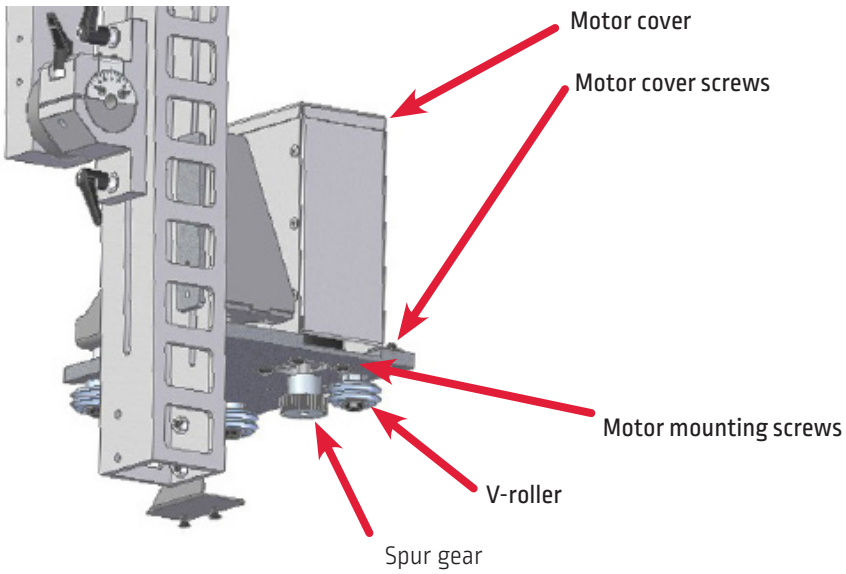
Required parts / components

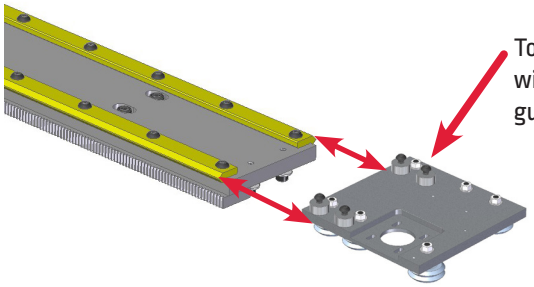
Qty	Part	Description	Part #
1		Leveled Mini Profiler and any add-on sections with aligned gear racks	From Step 7
1		Torch mount carrier assembly (may be pre-installed)	TMS-140-0001-17

Instructions

1. Remove the motor covers, loosen the motor mount screws to adjust the motor position, then, if not already installed, slide the V-rollers over the V-rails.
2. Re-engage and adjust the motor gear with the gear rack, tighten the motor screws, and replace the cover.
   - Note: The spur gear should fully engage the gear rack but must not bind upon it.

Illustration

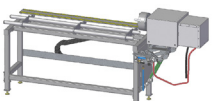
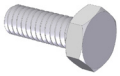




Step 9: Add hard stops

If the hard stops are pre-installed, skip ahead to Step 10. The Y-axis hard stops prevent operational problems from sending the torch beyond the end of the rail. Attach the hard stops at the extreme ends of the rail support plate, using the same threaded holes that are used for the rail connector plates (used between table add on sections and the base machine).

Required parts / components

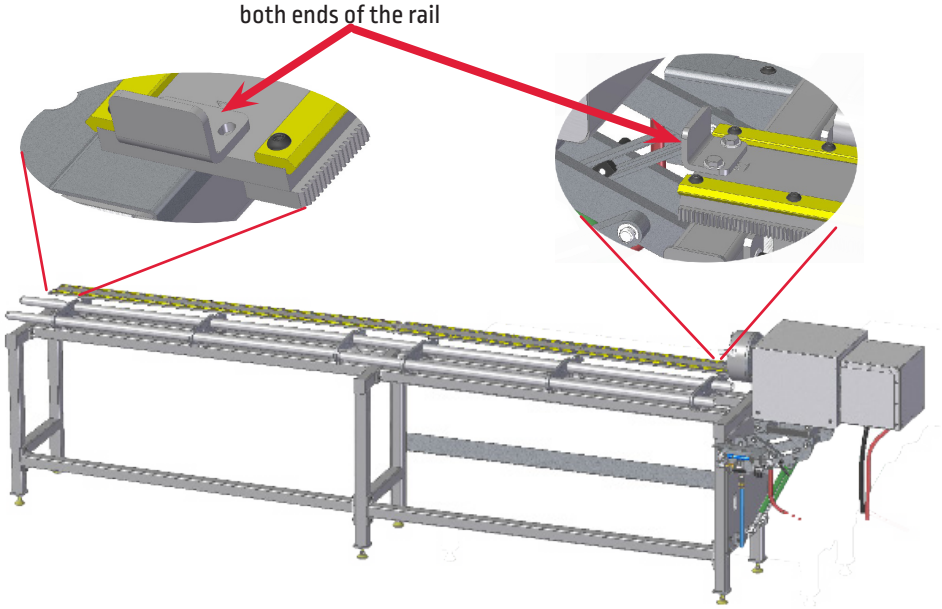
Qty	Part	Description	Part #
1		Mini Profiler base machine and any attached add-on sections	From Step 8
2		Y-axis hard stop (may be partially or fully pre installed)	TMS-140-0002-78
4		¼"–20 X ¾" Hex head cap screw (may be partially or fully pre installed)	TMS-410-0014-12
4		¼" Washer (may be partially or fully pre installed)	TMS-413-0001-14

Instructions

1. Use the ¼" hardware to attach the Y-axis hard stops to each end of the rail.
   - If necessary, remove the rail connector plate from the bottom of the last rail section. The same threaded holes in the rail modules are used for the Y-axis hard stops.

Illustration

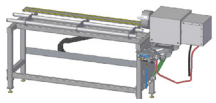
The Y-axis hard stops are positioned on top of both ends of the rail



Step 10: Install AVHC torch mount

If your AVHC torch mount has been pre-installed, skip to step 11. The AVHC torch mount is a part of the horizontal drive unit, described in Step 8. It differs slightly in that it includes a motor powered lifter-station. Route the motor cable through the cable carrier to the AVHC Control box which will be mounted near the CNC Controller.

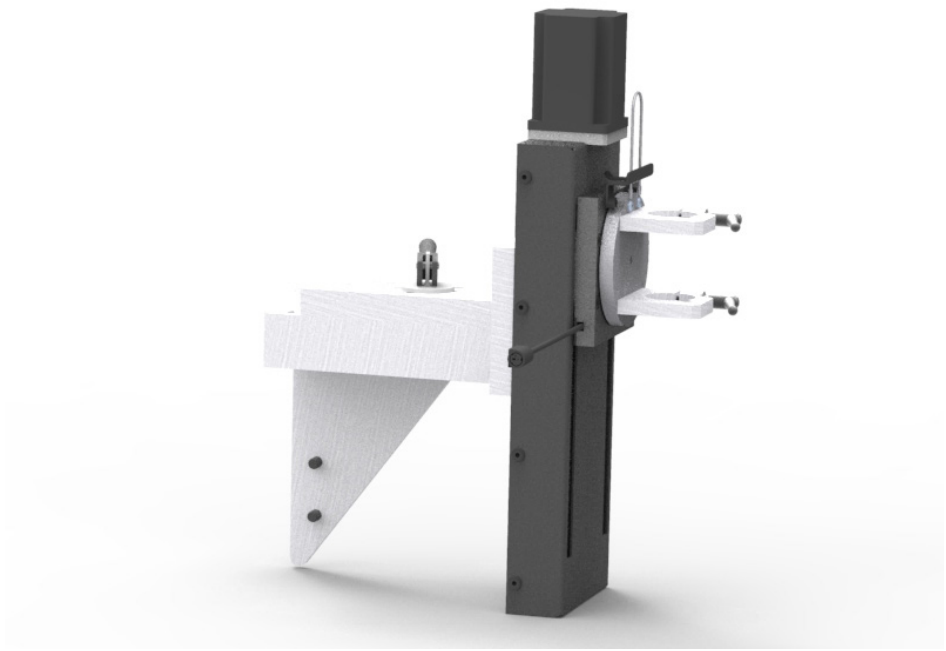
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with rail mount plates installed	From Step 9
1		Torch mount for AVHC torch (arc voltage hieght control)	TMS-140-0001-14

Instructions

1. Install the AVHC torch mount.
2. Attach the lifter station to the torch arm.
3. Breakaway wire must be secured to prevent capture on frame during motion control

Illustration

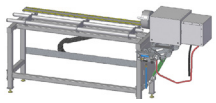
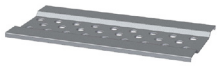
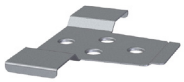


The triangular gusset adds stability for the AVHC torch mount

Step 11: Install cradles and catch trays

Ball transfer cradles are supports for the pipe or tube being cut. They rest upon the module tubes and can be re-positioned along the module length for better support and to get them out of the way of cutting sparks and spatter. The catch trays sit on the module frame to catch scrap and cut parts.

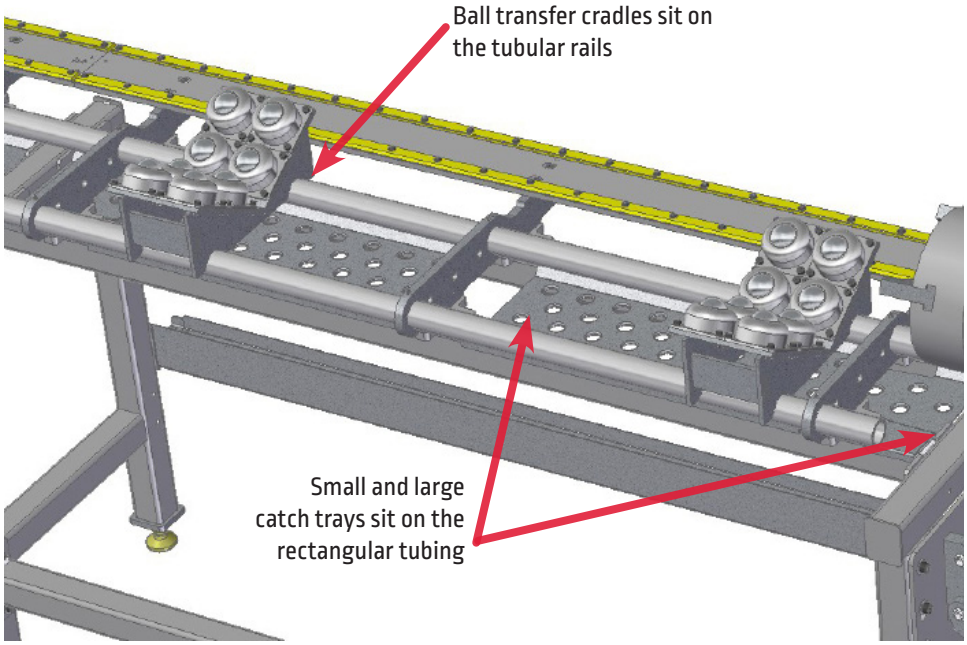
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with torch mount	From Step 8 or Step 9
0 to 4		Ball transfer cradle	TMS-051-0001-01 (2 per module recommended)
2		Long catch tray	TMS-140-0002-14 (2 per module)
2		Short catch tray	TMS-140-0002-15 (2 per module)

Instructions

1. Position a short catch tray at each end of each module. Fill in the center with two long catch trays. The trays rest on the module's rectangular tubing.
2. Set the ball transfer cradles on the tubular rails, positioning them as needed. Additional ball transfer cradles may be purchased as an option.

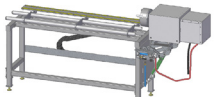
Illustration



Step 12: Install (optional) small pipe cradles

Small pipe cradles are supports specifically designed for smaller diameter material. If most material is 2" I.D. or under, the small pipe cradle may be appropriate. Small pipe cradles, like the ball transfer cradles, rest upon the frame tubes. They can be re-positioned along the length for better support and to get them out of the way of cutting sparks and spatter. The clamping action helps keep lighter material straighter, resulting in more accurate cutting.

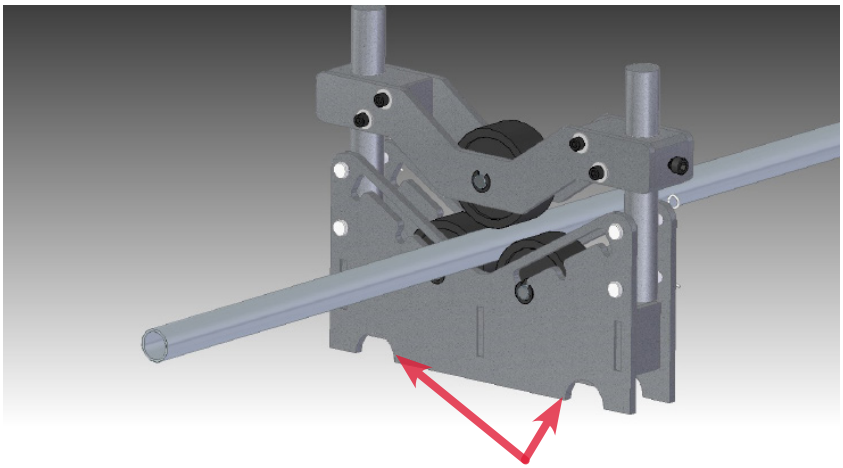
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with torch mount	From Step 8 or Step 9
2		Clamping cradle	TMS-050-0001-02 (optional 2 per module)

Instructions

1. Remove or re-position any ball transfer cradles away from the cutting area.
2. Set the clamping cradles on the tubular rails, positioning them as needed. Additional clamping cradles may be purchased as an option.
3. Open the weighted covers and position the (small diameter) pipe on the clamping cradles. Adjust the roller positions as needed. Fix the pipe in the chuck.
4. Close the weighted covers to hold the material down against the rollers.

Illustration

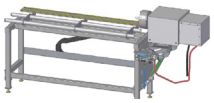


Clamping cradles sit on the tubular rails

Step 13: Connect tool side cables

Mount the torch and connect the ohmic sensing wire, plug in the motors and connect the breakaway cable to the carriage. Besides the torch lead, these cables are all packaged together on the tool carriage near where they will be installed.

Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with torch mount	From Step 8 or Step 9
1		Torchlead from plasma	Separate Purchase
1		z axis motor cable	TMS-402-0071-50
1		Arc voltage Ohmic cable (Ohmic sensing wire)	TMS-101-1109-01
1		Breakaway cable	TMS-103-5000-06

Instructions

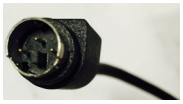
1. Begin by feeding the torch up through the square tube on the torch mount and securing it in the mounting clamps. Leave a generous loop in the lead for strain relief.
2. With the ohmic retaining cap attached to the torch tip, connect the blue spade connector from the Arc Voltage Ohmic cable (the orange wire) to the ohmic tab on the retaining cap.
3. Connect the breakaway cable to the mating end sticking out from the torch mount. This cable has the same connector on both ends, and it doesn't matter which end is connected to the torch mount.
4. Connect the motor cables to the carriage and lifter motors. These cables are packaged with the carriage, and can only be plugged in one way.

Illustration

Step 14: Route cables through cable carrier

The cable carrier system consists of a number of snap-together links, each with a snap-down cover. It also includes a support tray and end-brackets. With the covers snapped-up, the motor cable, plasma torch cable is safely placed in the cable carrier links which routes them to the torch carrier.

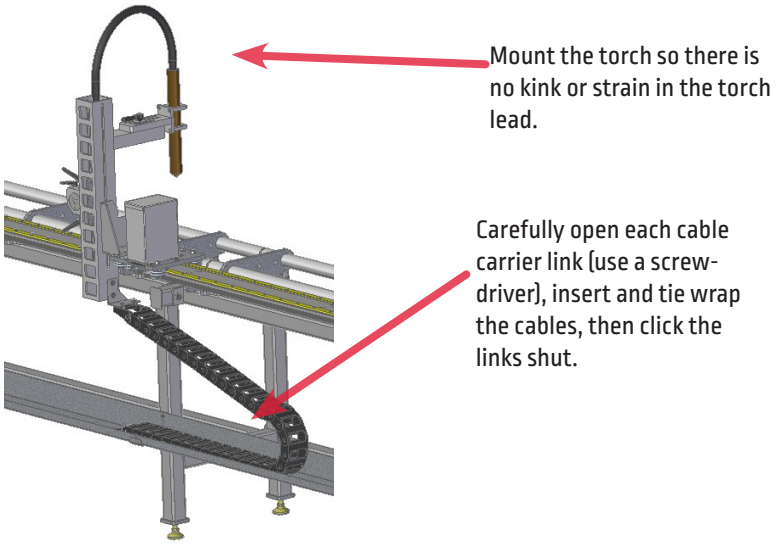
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with torch mount installed	From Step 13
1		Torch lead from plasma cutter	(separate purchase)
1		Motor cable	TMS-402-0070-01
1		Z axis motor cable	TMS-402-0071-50
1		Arc voltage ohmic cbale	TMS-101-1109-01
1		Breakaway cable	TMS-103-5000-06

Instructions

1. Attach the cable carrier links together and to their link-ends to form the cable carrier. Open each link to insert the motor cable, the torch lead cable, the breakaway cable and the arc voltage ohmic cable

Illustration



Step 15: Remove Rotating Ground and Belt Drive Cover

The Masterpipe Mini Profiler is equipped with a rotating ground located under a protective metal cover at the rear of the machine drive assembly. To install the work ground from your plasma cutter you must first remove this cover.

Required parts / components

Qty	Part	Description	Part #
1		Assembled MPMP	From Step 14
1		3/16 Allen Wrench	From your tool box

Instructions

1. Remove the two 3/16 Allen head screws from the slotted tabs that hold the cover in place
2. Save these screws for reinstallation.
3. To remove the rotating ground and belt drive cover pull the cover up and out from the 4 slots in the motor cover. Set cover aside for reinstallation after rotating ground is attached.
4. To reinstall the cover align the 4 tabs into the slots and realign the 3/16 Allen head screws.

Illustration

Remove the 3/16 Allen screws. Save for replacement.

Step 16: Attach rotating work ground

Plasma cutting depends on a low-resistance return current work lead (ground lead) and this is provided by positive contact with the chuck and its rotating connection. The ground lead from your plasma cutter is connected to the rotating ground assembly via two ¼" Allen heads inside the assembly. In addition you must provide a ground connection to the star ground on your machine. (step 22) You can utilize this assembly to make that connection.

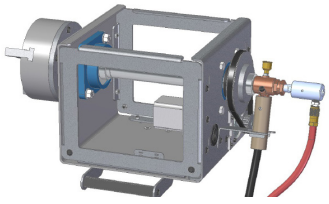
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with torch mount installed	From Step 13
1		Plasma Cutting machine	separate purchase
1		#2 slotted screw driver	From your tool box
1		1/4" Allen head driver	From your tool box
1		12 AWG Stranded Wire	seperate purchase

Instructions

1. Remove the #2 slotted setscrew from the gray plastic ground clamp shield.
2. Slide the plastic shield off the ground clamp and slide over the plasma cutter work lead
3. Slide a 12 AWG stranded wire inside the plastic shield along with the plasma work lead
4. Install the bare stranded wire from the plasma cutter work lead into the rotating ground assembly
5. Install a second 12 AWG stranded wire into the rotating ground to be attached to the star ground in step 22.
6. With both ground wires installed into the rotating ground clamp, tighten the 1/4" Allen bolts until both ground wires are firmly secured.
7. Locate the plastic shield back into the rotating ground capture and reinstall the #2 slotted set screw.
8. Reinstall the cover from step 15

Illustration



Step 17: Connect air lines

The plasma cutter typically requires a supply of dry, oil-free, regulated compressed air. In addition, some plasma operations will use other types and pressures of different compressed gases. Ensure that you have the correct supplies connected to the plasma cutter and that the flow and pressure of the supply falls within the specified ranges. The MPMP also has an air line connection for the through pipe ventilation system.

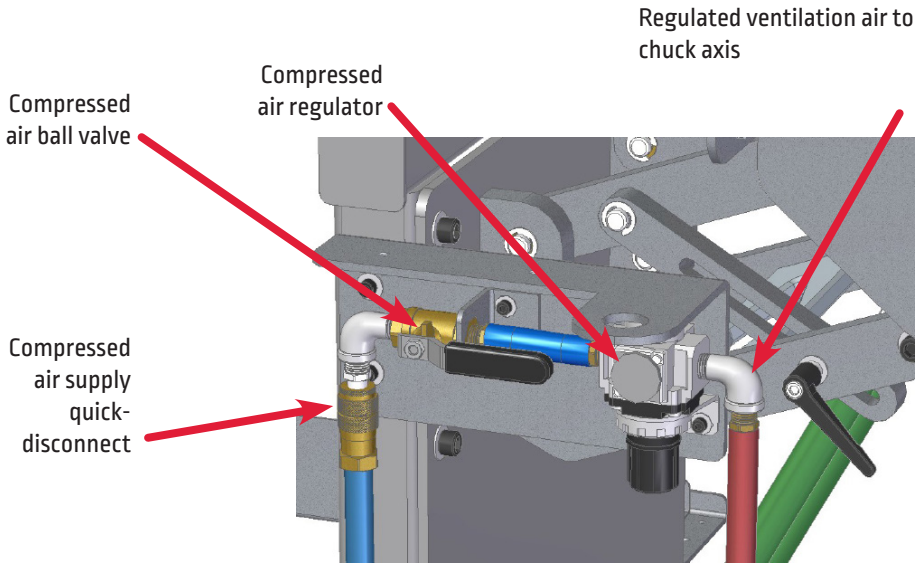
Required parts / components

Qty	Part	Description	Part #
1		Assembled Mini Profiler	From Step 14
2		Air supply hose	(from the shop air supply, dry and filtered)

Instructions

1. Check the specifications supplied with your plasma cutter for the required gases. This would included specifications for flow volume, pressure, and quality. Ensure that you have the appropriate regulators and filters for the air (or other gas) lines.
2. Connect one air hose to your plasma cutter and the other to the compressed air connection near the chuck mount. Route the compressed gas lines so that they will not be damaged when handling material before, during, or after cutting.
3. Set the regulator for the chuck air supply to about 35–45 lbs. Open the ball valve to allow air to flow through the chuck and through the pipe being cut. This directs air through the chuck and out into the pipe being cut, helping to prevent dust and smoke from entering the chuck and chuck box.
4. Always turn the air supply to chuck on before starting a cut.

Illustration (with cover removed)



Step 18: Connect motor cables to CNC Controller

The CNC Controller's motor cables connect to the chuck motor (X-cable) to the torch carrier motor (Y-cable) and the lifter station cable (z axis).

Required parts / components

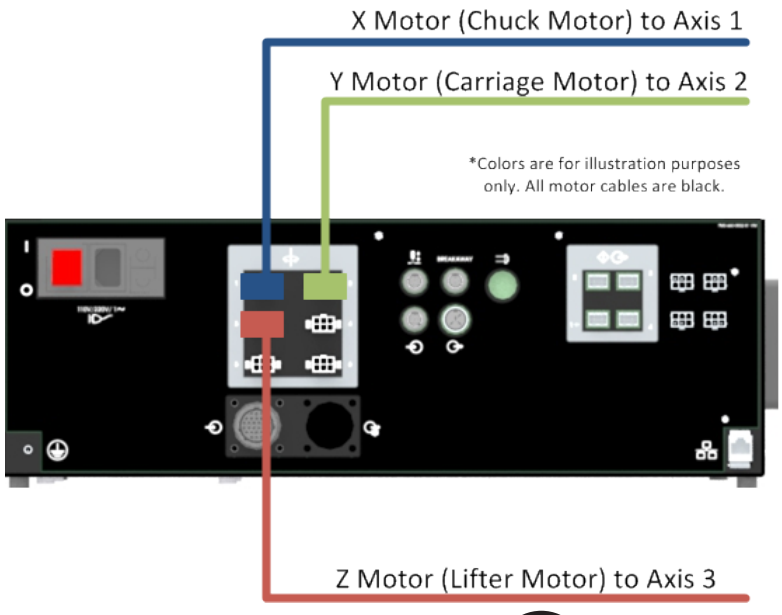
Qty	Part	Description	Part #
1		Mini Profiler with X- and Y- motor cables routed	From Step 15
1		ACCUMOVE 3 CNC controller (rear view)	TMS-407-0072-01
3		Motor cables (already attached to MPMP)	TMS-402-0070-01 TMS-402-0071-01

Instructions

1. The ACCUMOVE 3 CNC Controller has motor cable connections on the rear panel. The connectors click into place to provide a secure connection.
2. Connect the chuck motor cable (X-cable) to the AXIS 1 connector.
3. Connect the torch carrier motor cable (Y-cable) to the AXIS 2 connector.
4. Connect the lifter motor cable (Z cable) to the axis 3 connector.
5. Place the CNC controller well away from the plasma power source to avoid electromagnetic interference (EMI).
   - Note: The ACCUMOVE 3 CNC Controller can use either a 115VAC power outlet or a 230VAC power outlet. This is set with the switch next to the power cable connector. Be sure to select the correct voltage for your power service.

Never Plug Motor Cables In While The ACCUMOVE Is Powered On!

Illustration



Step 19: Connect CNC cable to CNC Controller

The plasma cutter's CNC interface cable connects to the tool 1 terminal of the ACCUMOVE 3 CNC Controller. This connection allows the CNC Controller to operate the plasma cutter's plasma arc under CNC control.

Required parts / components

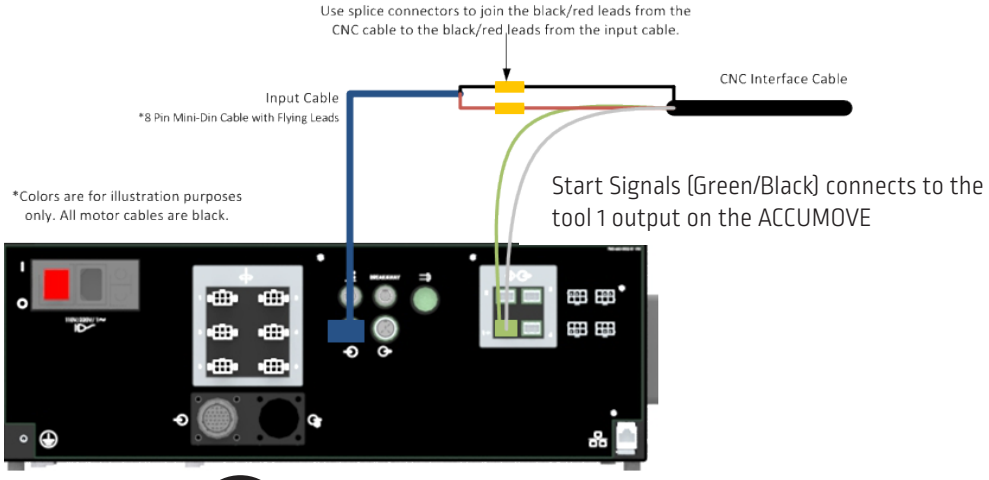
Qty	Part	Description	Part #
1		ACCUMOVE 3 CNC Controller	From Step 13
1		CNC interface cable	(Supplied with your plasma cutter)
2		Electrical Splice Connectors	From Your Tool Box

Instructions

1. The plasma cutter CNC interface cable provides a pair of wires (colored green and black) that should be connected to the tool 1 terminal on the ACCUMOVE 3 CNC Controller.
2. You may have to cut off existing lug connectors and strip the insulation from the wires to insert them into the terminal connectors on the CNC Controller (this is the normal procedure).
3. Tighten the screw to provide electrical and mechanical contact. The terminals shoud grip the wire and not the insulation and the insulation should not be stripped back so far that bare wires can make contact.
4. Connect the included Input Cable (8-Pin Mini-Din cable with flying leads) to the Accumove controller.
5. Connect the red and black flying leads from the Input Cable to the OK-To-Move wires coming from the CNC Interface cable. The wires from the CNC interface cable are usually red and black as well. Use common splice connectors to join these wires together.

Illustration

The CNC Interface cable's wires 3 and 4 or Green and Black go to the Tool 1 connector. The wire ends should be stripped, inserted in the connector, and screwed down tightly.



Step 20: Connect CNC cable to AVHC

The AVHC Controller will connect both to the plasma cutter raw arc voltage terminals, its CNC interface cable (two wire pairs), and to the CNC Controller.

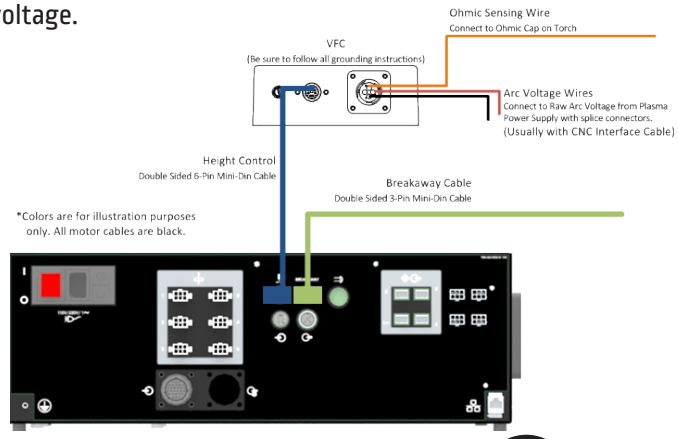
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with cables routed to CNC Controller	From Step 18
1		VFC controller	TMS-101-1100-01
1		CNC interface cable	(Supplied with plasma cutter)
1		Height control cable	TMS-103-5000-01
1		Arc voltage ohmic cable	From step 14
1		break away cable	From step 14
2		Electrical splice connector	From your toolbox

Instructions

1. Connect the Breakaway Cable, which has one end connected at the torch side to the magnetic breakaway, to the Breakaway connector on the Accumove 3. The breakaway cable is the double sided 3-pin mini-din cable.
2. Connect the Height Control Cable (Double Sided 6-Pin Mini-Din Cable) from the Accumove 3 to the VFC box. Place the VFC box near the plasma power supply.
3. Connect the Arc Voltage Cable (3 wire cable with red/black/orange wires) to the VFC.
4. The opposite end of the orange wire should already be connected to the ohmic cap of the plasma torch.
5. Using standard splice connectors, connect the red and black wires from the Arc Voltage Cable to the raw arc voltage signal coming from the plasma power supply. Depending on the power supply, these wires may be a part of the CNC Interface Cable, or they may be wired separately.
6. Consult the plasma power supply's user manual for more information on accessing raw arc voltage.

Illustration



Step 21: Connect Computer to CNC Controller

The computer that runs your Driver software can be a desktop or a laptop. It connects to the ACCUMOVE 3 CNC Controller with a standard USB printer cable.

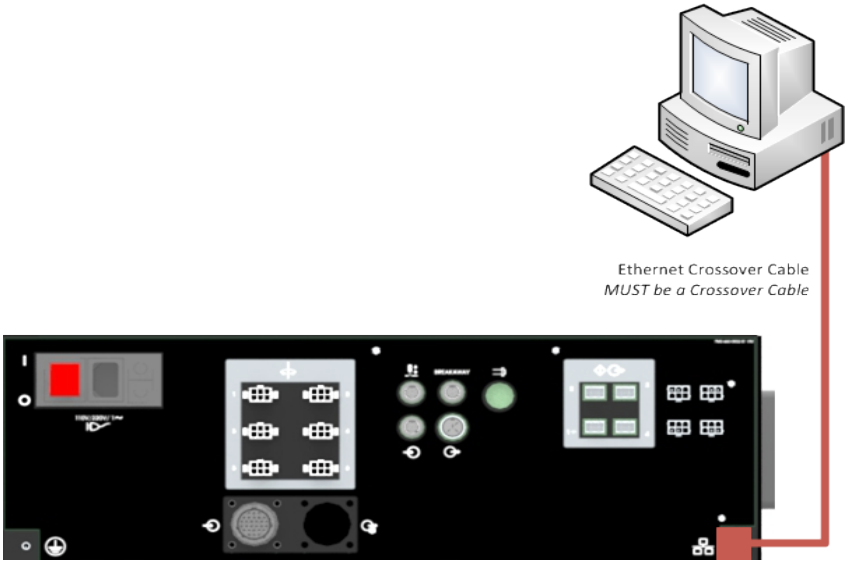
Required parts / components

Qty	Part	Description	Part #
1		Accumove 3 CNC Controller	TMS-407-0072-01
1		Desktop or laptop computer	(separate purchase)
1		Ethernet Crossover	TMS-103-5000-07

Instructions

1. Use the ethernet crossover cable to connect the computer (laptop or desktop) to the CNC controller.
2. Consider locating the computer (and the CNC Controller as far from the plasma cutter as possible. This helps reduce electromagnetic interference (EMI). EMI can reduce cut quality.

Illustrations



Step 22: Grounding Your Equipment

Proper grounding must be provided to ensure personnel safety and to suppress high frequency noise. The foundation of good grounding is an effective earth ground rod. A star ground point usually connects to the rod with a short, heavy conductor. Lines radiate out from this ground point to each component of the system, establishing a central grounding point. A simple copper clad steel rod can be driven into the ground to create a Grounding Rod; however, the rod must be driven into the ground deep enough such that it comes into contact with the water table to ensure a proper earth ground.

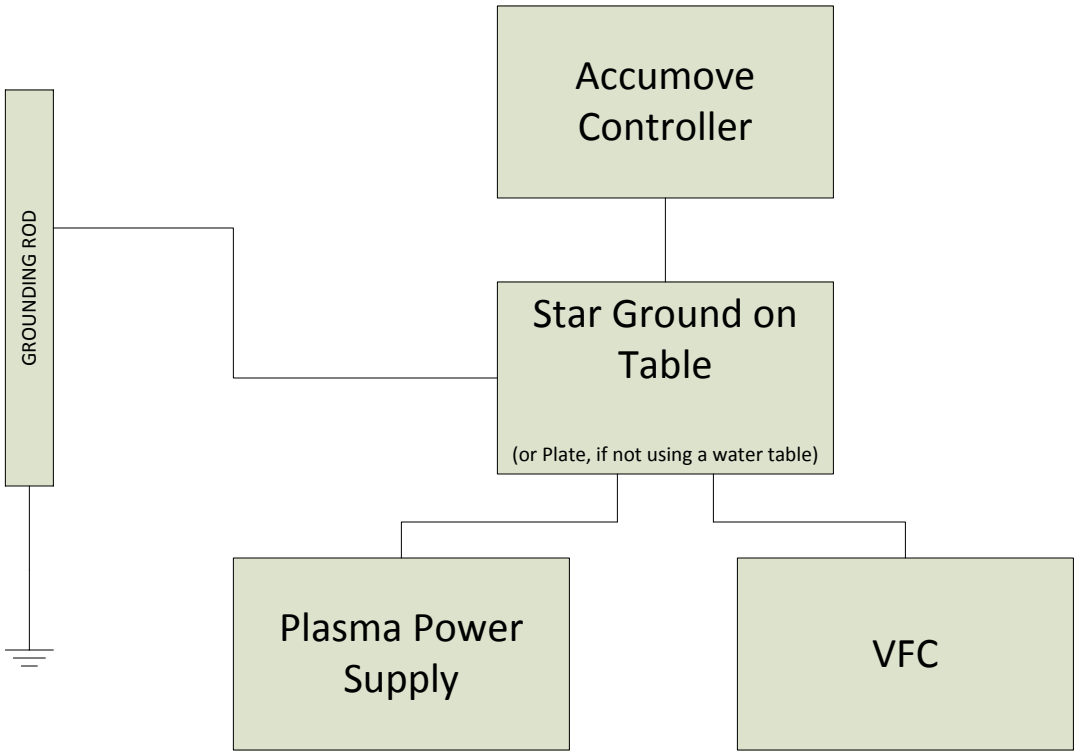
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with CNC Controller and computer	From Step 18
1		Copper Clad Ground Rod	Supplied by Other

Instructions

1. Consult with a qualified electrical technician to verify your system grounding.
2. Use 12 AWG Stranded Wire to connect the ground of each system component to the Star Ground on the table.

Illustration



Step 23: Install software and drives

With your desktop or laptop computer setup, you can install the VMD from the USB flash drive.

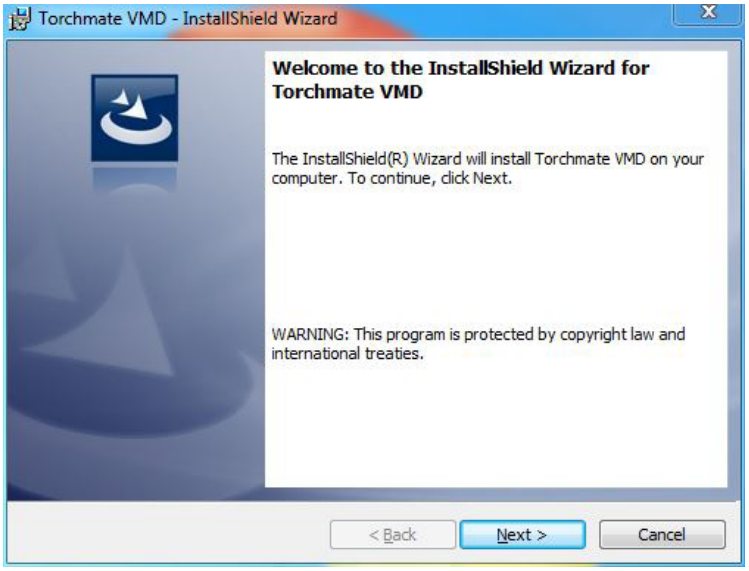
Required parts / components

Qty	Part	Description	Part #
1		Laptop or PC with Microsoft Windows® 8 or Windows 7	From Step 19
1		USB flash drive: Driver software and owners manuals.	TMS-100-1100-11

Instructions

1. The VMD, WinMPM software and sentinel protection to be installed are on the USB Flash Drive in a folder called Driver Software.
2. Double click on VMD setup.
3. The installer wizard will start and ask to continue installation. Approve and click Next.
4. Install any other additional packages if propted during installation.
5. Click Finish.
6. Repeat steps 2-5 for WinMPM and Sentile Protection
7. You can now remove and store the USB flash drive.

Illustration



Step 24: Configure the IP Address

The Accumove Motion Controller uses an advanced communication protocol which requires an Ethernet connection (instead of a USB connection). In order for a computer to establish a connection with the motion controller the computer needs to be set to a specific IP address. Though this address can be changed later, the first connection must use these configuration parameters. This guide will show you how to configure the IP address of your computer to connect with Accumove.

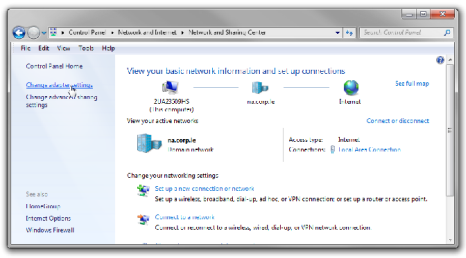
Required parts / components

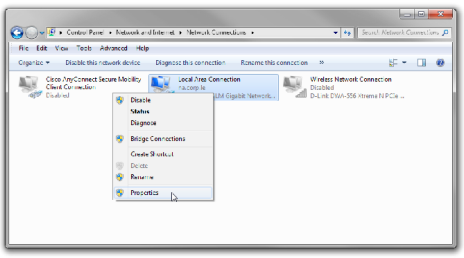
Qty	Part	Description	Part #
1		Mini Profiler with CNC Controller	From Step 17
1		Laptop or PC with Torchmate Driver software.	From Step 21

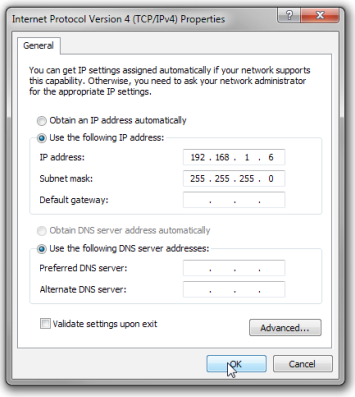
Instructions

1. Leave the Accumove controller powered OFF.
2. Open the Network and Internet page
   - Start button on bottom left
   - Go to the Control Panel and click on 'Network and Internet'
3. From the Network and Internet page, open the Network and Sharing Center
4. On the left side of the Network and Sharing Center, click on 'Change Adapter Settings'
5. Right click on your Local Area Connection (there should only be one that is enabled) and then click 'Properties'
6. In the properties window click the option that reads 'Internet protocol Version 4(TCP/IPv4), then press the 'Properties' button located below the list.
7. Change your IP address:
   - Select 'Use the following IP address'
   - In the 'IP Address' field, type the new address: 192.168.1.6
   - Press the 'tab' key and Windows will automatically fill in the value for the 'Subnet mask'
8. Press 'OK' to save the new IP address.

Illustration







Step 25: Load Configuration File

The VMD software has been used in a variety of cutting products. Each type of cutting system / tool combination has a different configuration file. The MASTERPIPE® Mini Profiler comes with configuration files to help tune the machine for various diameter pipe cutting jobs.

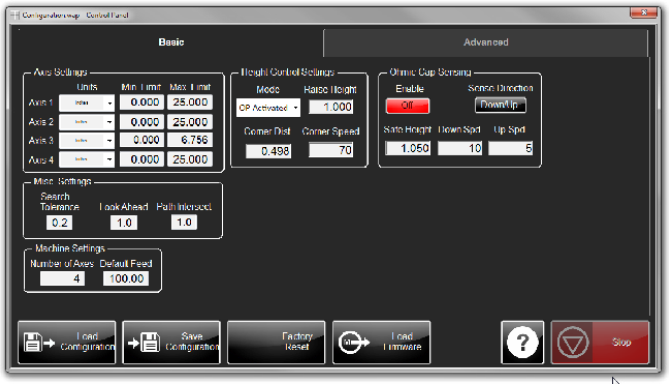
Required parts / components

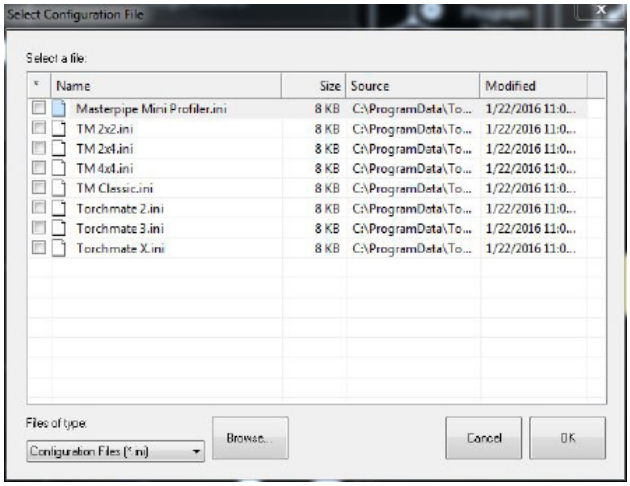
Qty	Part	Description	Part #
1		Laptop or PC with VMD software.	From Step 22

Instructions

1. Launch the VMD software by clicking the icon on the desktop located at top right 
2. Log in as the “Admin” user. The password is 1234.
3. Open the machine settings window and press the load configuration button.
4. Select the Masterpipe Mini Profiler by double clicking it from the list of configurations.

Illustration





Step 26: Test Motor Jogging

Before pipe gets loaded onto the MPMP machine, you can test the operation by jogging the motors forward and backward in both the X and Y directions.

Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with CNC Controller	From Step 24
1		Laptop or PC with VMD.	From Step 25

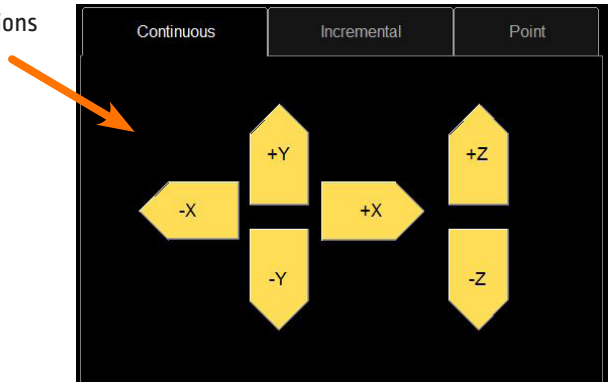
Instructions

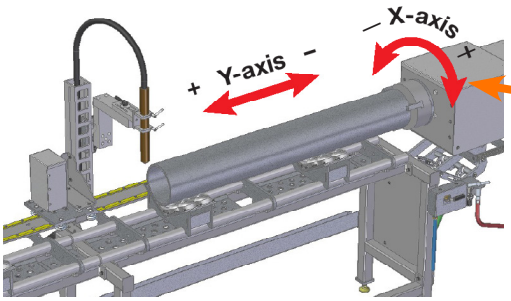
1. Turn on power to the CNC Controller.
2. Open the VMD software.
3. Press the datum button.
4. Click on the yellow jog arrows to jog the torch, the chuck and the lifter. Click and hold the jog arrow buttons to get continuous motion. Make sure the torch and chuck move in both forward and reverse directions.
5. If the motion is not satisfactory or troubled, check the connection status, the configuration file, and the motor cable connections. If problems persist, contact Torchmate Technical Support.

TECHNICAL SUPPORT
Toll Free: 1-866-571-1066
International: 775-673-2200
Fax: 775-673-2206
Email: support@torchmate.com

Illustration

Use the Jog arrow buttons to test the movement of the motors in all four directions





Ensure the axes are correctly oriented, so that once a pipe is loaded, it jogs as illustrated.

Step 27: Load material for speed and demo cuts

Your MASTERPIPE Mini Profile can manage material from 1" to 8" in production work, so changing pipe diameter is important. .

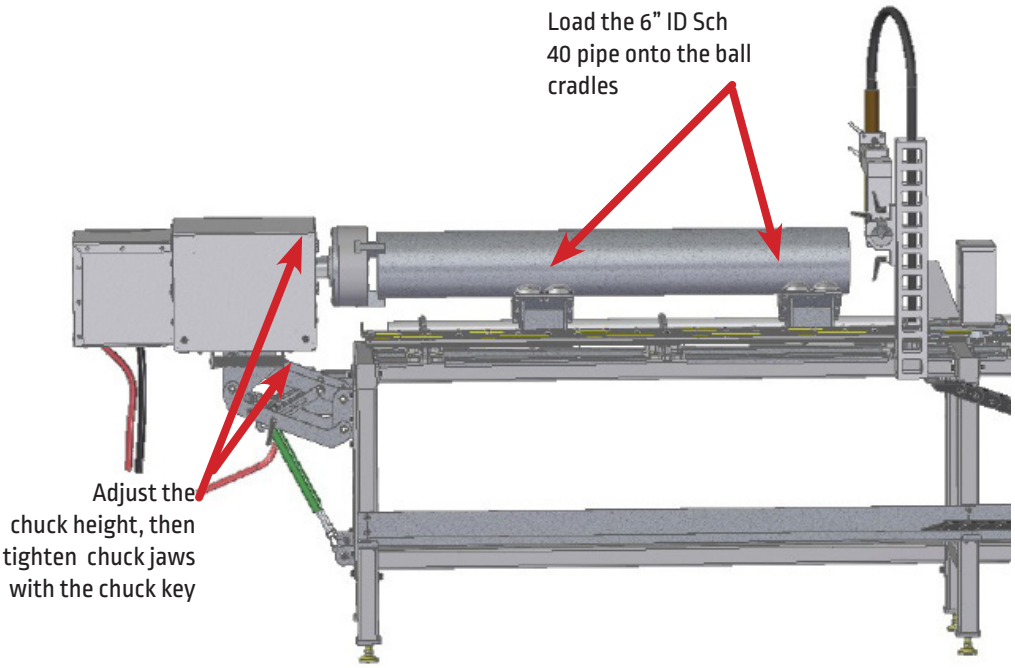
Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with CNC Controller and computer	From Step 26
1		Chuck key	Included with base machine chuck
1		4' or greater length of 6" I.D. Sch. 40 pipe	(from your stock or scrap)

Instructions

1. Obtain a 4' or longer length of Sch. 40 pipe with an O.D. of 6.625" and load it onto the ball transfer cradles. (6"ID Schedule 40)
2. Loosen the height adjustment levers and set the chuck height and jaw opening to hold the pipe.
   - Lightly tighten the jaws with the chuck key.
   - Jog the chuck (X-axis) in either direction. Refer to Step 24. Tighten the jaws with a medium tightness, and lock the height.
   - There is no need to over tighten the chuck jaws.

Illustration



Step 28: Set the AVHC Parameters

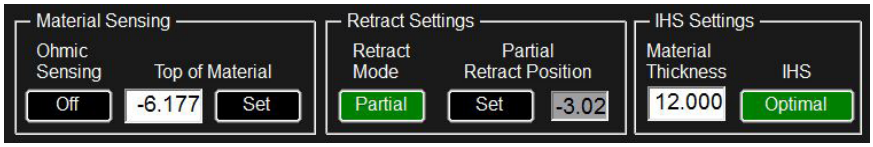
A plasma cut that does not begin at the edge of the material needs to complete its pierce before beginning the cut motion. The amount of delay to complete the pierce depends on the material type and thickness. Find the delay on the cut chart and set the value in the VMD output panel.

Qty	Part	Description	Part #
1		Mini Profiler with CNC Controller	From Step 27
1		Laptop or PC with VMD.	From Step 26

Required parts / components

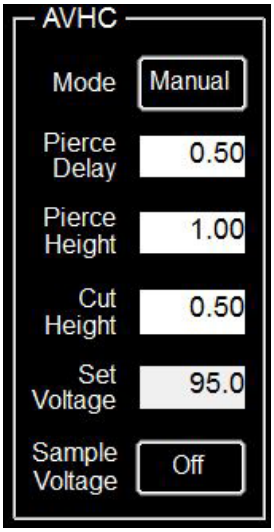
Instructions

- 1.) Using the cut charts included in with your plasma power supply, type in the pierce delay, pierce height, cut height and set voltage. You may also watch a video on how to properly use these settings by following the link to the right.
- 2.) Put the height control in 'Auto' mode and turn on the 'Sample Voltage' function.
- 3.) Configure the ohmic sensing setting
- a. Open the 'Job Setup' window.
- b. If using ohmic sensing, leave it enabled.
- c. If not using ohmic sensing, turn the feature off. Lower the torch using the jog buttons until the tip of the torch is resting on the pipe, then click the 'Set' button to record the top of the material.
- 4.) Configure the retract settings
- a. Open the 'Job Setup' window
- b. Choose either 'Full' or 'Partial' retract mode.
- i. In 'Full' mode, the torch will travel all the way to the top of the Z axis between each pierce.
- ii. In 'Partial' mode, the torch will travel to a preset location between cuts, saving some production time.
- c. If using 'Partial' mode, set the partial retract height by jogging the z axis up to the desired location and pressing the 'Set' button from the partial retract height.



Use the QR Code or visit https://www.youtube.com/watch?v=-OT8UWz69s0 for a video tutorial on setting the AVHC parameters.

Illustration



Step 29: Design a Simple Pipe in WinMPM

WinMPM is a text based CAD system developed by Lincoln Electric to design pipes and generate the required gm code. The software is designed to be straightforward and easy to use, and includes a comprehensive user manual available from within the software. This guide will walk through how to program a very simple pipe. Feel free to substitute your own values based on the pipe size you intend to use.

Required parts / components

Qty	Part	Description	Part #
1		MPMP with CNC Controller and computer	From Step 28
1		Chuck key	Included with base machine chuck
1		4' or greater length of 6" I.D. Sch. 40 pipe	(from your stock or scrap)

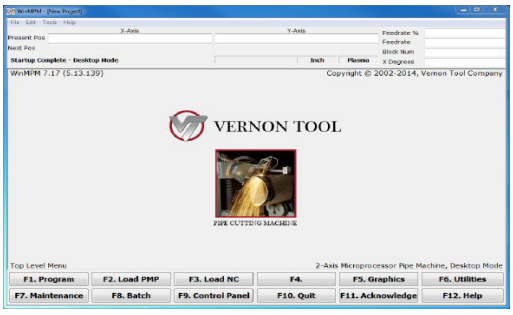
Instructions

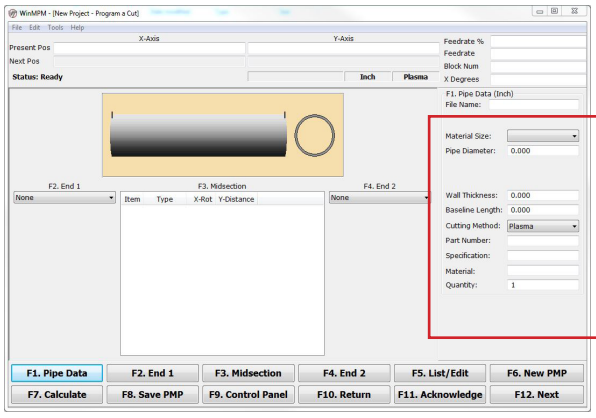
Access and read the WinMPM user manual in the help tab in the tool bar located at the top of your screen.

Your machine is pre configured to baseline, to change this configuration to workpoint, please follow the proceedure located in the WinMPM help feature

- 1.) Launch the WinMPM software by double clicking the WinMPM icon on the desktop. Press the 'Program' button on the bottom left of the screen to start programming a pipe.
- 2.) On the right side of the window, give the pipe a file name pipe diameter, wall thickness, and baseline length. Unless the WinMPM default settings have been changed, all settings should be input in inches.
- a. If using standard pipe sizes, the Material Size drop down list may be used to define the pipe diameter.
- b. The 'Baseline Length' is from the shortest point on the first cut to the shortest point on the second cut, measured along the inside of the pipe. Keep this in mind when programming miter or saddle end cuts!
- Step 29 continued on next page

Illustration





Enter Parameters Here

Step 29 continued: Design a Simple Pipe in WinMPM

WinMPM is a text based CAD system developed by Lincoln Electric to design pipes and generate the required gm code. The software is designed to be straightforward and easy to use, and includes a comprehensive user manual available from within the software. This guide will walk through how to program a very simple pipe. Feel free to substitute your own values based on the pipe size you intend to use.

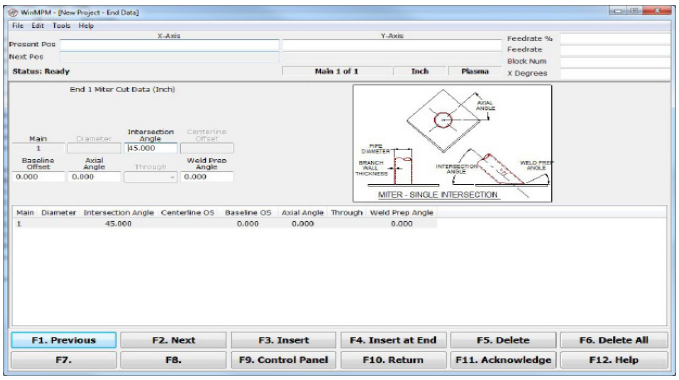
Required parts / components

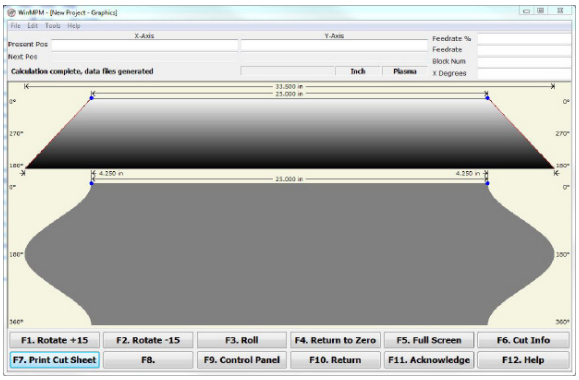
Qty	Part	Description	Part #
1		MPMP with CNC Controller and computer	From Step 29
1		Chuck key	Included with base machine chuck
1		4' or greater length of 6" I.D. Sch. 40 pipe	(from your stock or scrap)

Instructions

- Continued from page 41:
- 3.) Using the drop down selectors, choose the type of end cuts for each end of the pipe.
- a. Click the 'Edit' at button left after selecting an end cut to program the cuts parameters. These parameters change based on the type of end cut selected. The cut highlighted in red is the cut sample.
- b. Click the 'Return' button after entering the end-cut parameters to return to the main screen.
- 4.) Optional: Add mid-section features following the same process.
- 5.) Once all of the parameters for the cuts have been entered, click the 'Calculate' button to see a preview of the programmed pipe. This will also save a gm file of the job to the C:\WinMPM\Torchmate VMD Jobs folder for later use in the Torchmate VMD software.
- 6.) If the preview looks correct, proceed to the next step to cut the pipe using the Torchmate VMD software. If the preview is incorrect, press the 'Return' button to go back and make modifications to the pipe design.

Illustration





Step 30: Running a Job

After designing a pipe, the VMD software is used to control the MPMP machine and plasma power supply to cut the pipe. After testing the jogging of the machine and configuring the height control settings, a job can be loaded and executed.

Required parts / components

Qty	Part	Description	Part #
1		Mini Profiler with CNC Controller and computer	From Step 27
1		Chuck key	Included with base machine chuck
1		4' or greater length of 6" I.D. Sch. 40 pipe	(from your stock or scrap)

Instructions

1. Press the 'Select Job' button.

· Navigate to the folder where the gm file for the pipe is located. By default, this will be in the C:\WinMPM\Torchmate VMD Jobs folder.

· Double click on the desired job to open it in VMD.

2. Use the Jog keys to move the carriage to the far end of the pipe, making sure to travel far enough to allow the pipe to be cut.

· Once the carriage has been moved to the opposite end of the pipe (away from the chuck) press the 'Set Program Zero' button. This will be the origin point of the job.

3. Set the cut speed for the job by inputting the desired speed into the program federate override text box below the jog keys.

· The cut speed should be set based on the cut chart from the user manual of the plasma power supply.

4. Double check that the plasma power settings are correct, the consumables are loaded, and the AVHC settings have been configured properly for the job.

5. Press the 'Run' button to cut the pipe!

· To perform a test run of the job, VMD can be put into 'Dry Run' mode. This will allow the machine to execute the motions of the job without actually firing the torch, thereby allowing the user to evaluate the job without the risk of wasting material.

· To put VMD into 'Dry Run' mode, click the 'Active Run/Dry Run' toggle button located above the jog keys.

Cutting an optional straight cut off bevel

The MasterPipe Mini includes a manual adjustment to provide for a bevel angle on a straight cut off. This feature requires the operator to perform adjustments to the pivot point in an effort to maintain proper torch height. AVHC compounds this adjustment due to the torch meeting the material outside the normal plane of operation. The following is a brief instruction on performing this operation, but the operator will need to experiment to achieve satisfactory results. To obtain a true bevel cut a 5 axis machine is suggested.

Manual Beveling Without Arc Voltage Height Control (AVHC)

1. Set the torch height – The plasma head tip needs to be aligned exactly with the center of the horizontal bevel pivot point (see picture attached). Rotate the manual torch height knob to move the torch head up or down and use a square to align it with the center, making sure it's level from side to side and front to back. Once found, put a collar with a set screw on the torch head above the torch mount clamp so that you can maintain the position and find it again easily.

2. Find the ID – Once the torch height is found drop the vertical support assembly down by releasing the vertical support Levers until the torch tip rests on the top (OD) of the pipe and then lock it down. Now raise the torch head itself until you see a gap between the collar positioned in step one and the top of the torch mount that equals the wall thickness of your pipe. For the second time, drop the vertical support down until the torch tip rests on the OD of the pipe. You are now set to the ID and your pipe lengths will come out correct when beveling pipe as measured from the ID of End 1 to the ID of End 2. The key to this is aligning the center of the pivot point with the ID of the pipe. You can now back the torch off to desired cutting height, approx. 1/8"

3. Find the Angle – Tilt the torch by loosening the pivot clamp, pushing the torch over to the desired angle as confirmed with the angle gauge, and lock it down.

Manual Beveling With AVHC

1. Set the torch height – Move the torch to the bottom of its travel, then adjust the vertical support up or down by the two locking levers in back until the torch tip aligns with the center of the horizontal pivot point (see picture attached) using a square. Lock down the vertical support levers, making sure it's level from side to side and front to back.

2. Find the ID – First set the cut height parameter for your AVHC to the wall thickness of the pipe. With your plasma cutter off, or your height controller set to have plasma NOT fire, toggle the plasma button in the control panel to activate the height control so that it drops down to the bottom of its travel and backs off to the set cut height (which you set to equal the pipe wall thickness). Now lower the vertical support until the torch tip touches the OD of the pipe. Lock down the vertical support and reprogram your cut height to the appropriate height for cutting.

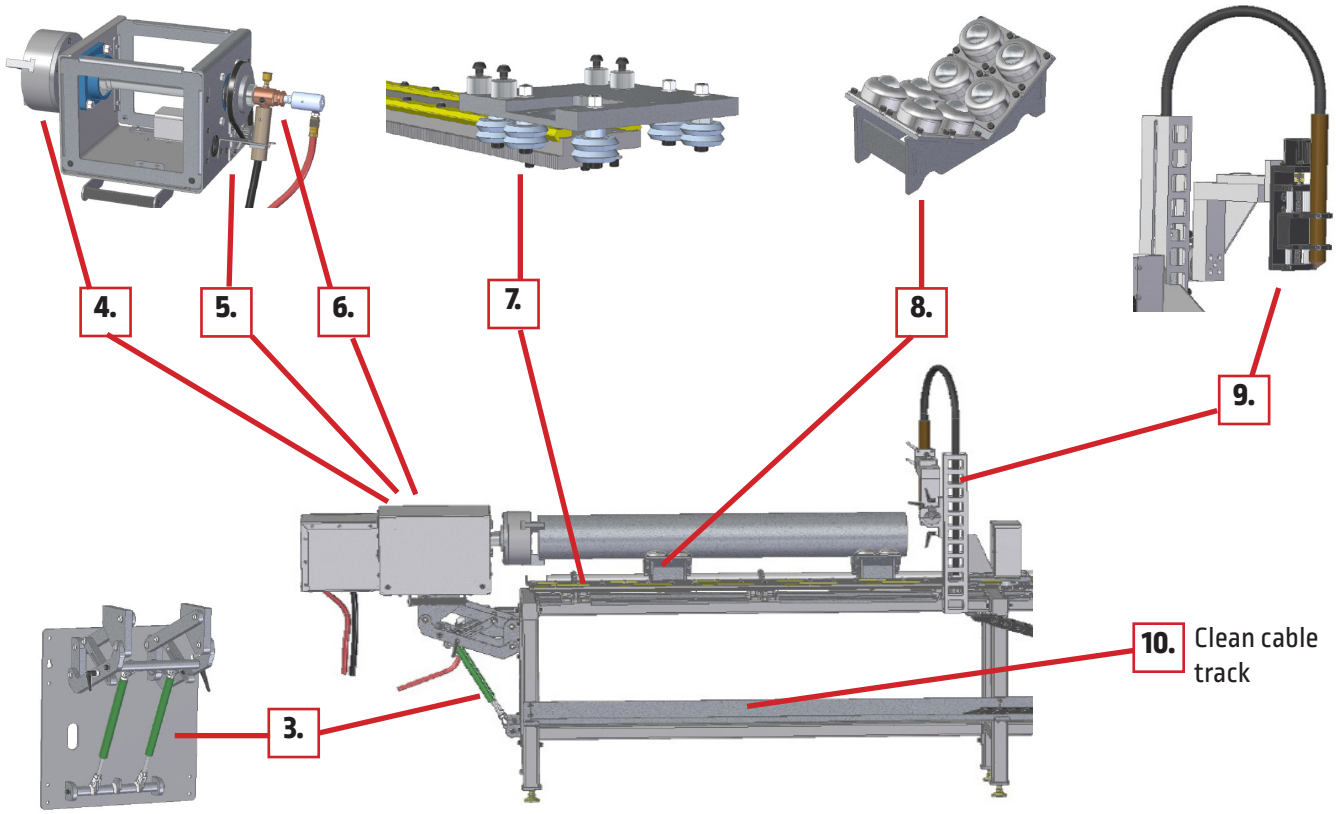
3. Find the Angle – (same as without an AVHC)

If you are having issues with lengths when bevels are present recheck steps 1 through 3. It is likely that your initial torch head placement was not aligned with the center of the horizontal pivoting point or that you did not exactly match the gap placed between the collar and torch mount to the wall thickness of the pipe (or set your cut height right for AVHC's). It could also be that your Kerf compensation has not been properly set in the machine options of WinMPM, but this is a separate issue from bevel angle and pivot point calibration. Kerf problems will show up on cuts with and without beveling. Problems with beveling alignment will only show up when bevels are present.

Maintaining your MasterPipe Mini Profiler

The MasterPipe Mini Profiler is designed to offer consistent cut quality, when maintained. Cut quality and repeatability are dependent on routine maintenance of the mechanical system of the machine as well as proper plasma consumable use, and a clean reliable air supply. For maintenance details and consumable replacement schedules please refer to the plasma cutter owners manual. The following maintenance should be performed on the mechanical system after every 40 hours of use.

1. Use appropriate lock out tag out practices when performing mechanical maintenance.
2. Dry graphite should be used, petroleum based products should not be used on assemblies.
3. Clean and lubricate hinge points on floating chuck.
4. Clean chuck assembly (compressed air) Tighten X-belt (remove cover)
5. Lube rotating ground (remove cover)
6. Clean chuck assembly (compressed air)
7. Clean and lubricate Y rail assembly and bearings (V rail and rack)
8. Remove debrise from ball transfer cradle (use compressed air)
9. Clean AVHC assembly (use compressed air)
10. Clean cable track



LINCOLN® ELECTRIC | Cutting Systems

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