



TIP TiG - ALLINONE

Operating Manual

Version 1.6 Revision 4.24



TIP TiG – ALL IN ONE
OPERATING MANUAL

INTRODUCTION

Thank you for the trust you have placed in our company and congratulations on buying this high-quality TIP TIG product. These instructions will help you familiarize yourself with the product. Reading the instructions carefully will enable you to learn about the many different features it has to offer. This will allow you to make full use of its advantages.

Please also note the safety rules to ensure greater safety when using the product. Careful handling of the product will repay you with years of safe and reliable operation. These are essential prerequisites for excellent results.

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1. GENERAL INSTRUCTIONS

CAUTION

Read the operating instructions!

The operating instructions provide an introduction to the safe use of the products.

- Read the operating instructions for all system components!
- Observe accident prevention regulations!
- Observe all local regulations!
- Confirm with a signature where appropriate.

In the event of queries on installation, commissioning, operation or special conditions at the installation site, or on usage, please contact your sales partner or our customer service department on +43 720 303500 or office@tiptig.com.

A list of authorized sales partners can be found at www.tiptig.com.

Liability relating to the operation of this equipment is restricted solely to the function of the equipment. No other form of liability, regardless of type, shall be accepted. This exclusion of liability shall be deemed accepted by the user on commissioning the equipment.

The manufacturer is unable to monitor whether or not these instructions or the conditions and methods are observed during installation, operation, usage and maintenance of the equipment.

An incorrectly performed installation can result in material damage and injure persons as a result. For this reason, we do not accept any responsibility or liability for losses, damages or costs arising from incorrect installation, improper operation or incorrect usage and maintenance or any actions connected to this in any way.

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The content of this document has been prepared and reviewed with all reasonable care. The information provided is subject to change, errors excepted.

2. INTENDED USE

WARNING!

Hazards due to improper usage!

The machine has been constructed to the state of the art and any regulations and standards applicable for use in industry and trade. It may only be used for the welding procedures indicated at the rating plate. Hazards may arise for persons, animals and material objects if the equipment is not used correctly. No liability is accepted for any damages arising from improper usage!

- The equipment must only be used in line with its designated purpose and by trained or expert personnel!
- Do not improperly modify or convert the equipment!

2.1 Declaration of conformity

CE The labelled machine complies with the following EC directives and standards in terms of its design and construction:

- 2014/35/EU Low Voltage Directive (LVD)
- 2014/30/EU Electromagnetic Compatibility Directive (EMC)
- 2011/65/EU Restriction of Hazardous Substance (RoHS)

Standards

- IEC 60974-1: 2012 Arc welding equipment - Part 1: Welding power sources
- IEC 60974-3: 2013 Arc welding equipment - Part 3: Arc striking stabilizing devices
- IEC 60974-10: 2014 Arc welding equipment – Part 10: Electromagnetic compatibility requirements



August 1, 2018

Jürgen Plasch, CEO

Date of Declaration

In case of unauthorised changes, improper repairs, and/or prohibited modifications which have not been explicitly authorised by TIP TIG Automation GmbH, this declaration shall be voided.

2.2 Welding in environments with increased electrical hazards

S In compliance with IEC / DIN EN 60974, VDE 0544 the machines can be used in environments with an increased electrical hazard.

2.3 Calibration/Validation

We hereby confirm that this machine has been tested using calibrated measuring equipment, as stipulated in IEC/EN 60974, ISO/EN 17662, EN 50504, and complies with the admissible tolerances. Recommended calibration interval: 12 months

3. SAFETY RULES

3.1 Explanation of safety symbols

DANGER! Indicates immediate and real danger. If is not avoided, death or serious injury will result.

WARNING! Indicates a potentially situation. Death or serious injury may result if appropriate precautions are not taken.

CAUTION! Indicates a situation where damage or injury could occur. If it is not avoided, minor injury and/or damage to property may result.



NOTE! Indicates a risk of flawed and possible damage to the equipment.

IMPORTANT! Indicates tips for correct operation and other particularly useful information. It does not indicate a potential damaging or dangerous situation.

If you see any of the symbols depicted in the “Safety rules” chapter, special care is required.

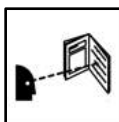
3.2 General safety instructions

CAUTION

This equipment must be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified person. Read and understand this manual before operating this equipment. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment. Read and understand the following explanations of the warning symbols. TIP TIG is not responsible for damages caused by improper installation, improper care or abnormal operation.



WARNING: This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or damage to this equipment. Protect yourself and others from possible serious injury or death.



READ AND UNDERSTAND INSTRUCTIONS: Read and understand this manual before operating this equipment. Arc welding can be hazardous. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment.



ELECTRIC SHOCK CAN KILL: Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is on. Insulate yourself from the electrode, work clamp, and connected work pieces.



ELECTRICALLY POWERED EQUIPMENT: Turn off input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.



ELECTRICALLY POWERED EQUIPMENT: Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. Do not place the electrode holder directly on the welding table or any other surface in contact with the work clamp to avoid the risk of accidental arc ignition.



ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS: Electric current flowing through any conductor creates electric and magnetic fields (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker shall consult their physician before operating this equipment.



CE COMPLIANCE: This equipment complies with the European Community Directives.



ARTIFICIAL OPTICAL RADIATION: According with the requirements in 2006/25/EC Directive and EN 12198 Standard, the equipment is a category 2. It makes mandatory the adoption of Personal Protective Equipment (PPE) having filter with a protection degree up to a maximum of 15, as required by EN169 Standard.



FUMES AND GASES CAN BE DANGEROUS: Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. To avoid these dangers the operator must use enough ventilation or exhaust to keep fumes and gases away from the breathing zone.



ARC RAYS CAN BURN: Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing. Use suitable clothing made from durable flame-resistant material to protect you skin and that of your helpers. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.



WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION: Remove fire hazards from the welding area and have a fire extinguisher readily available. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjacent areas. Do not weld on any tanks, drums, containers, or material until the proper steps have been taken to insure that no flammable or toxic vapors will be present. Never operate this equipment when flammable gases, vapors or liquid combustibles are present.



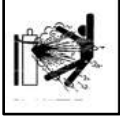
WELDED MATERIALS CAN BURN: Welding generates a large amount of heat. Hot surfaces and materials in work area can cause serious burns. Use gloves and pliers when touching or moving materials in the work area.



SAFETY MARK: This equipment is suitable for supplying power for welding operations carried out in an environment with increased hazard of electric shock.



EQUIPMENT WEIGHT OVER 30kg: Move this equipment with care and with the help of another person. Lifting may be dangerous for your physical health.



CYLINDER MAY EXPLODE IF DAMAGED: Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. Always keep cylinders in an upright position securely chained to a fixed support. Do not move or transport gas cylinders with the protection cap removed. Do not allow the electrode, electrode holder, work clamp or any other electrically live part to touch a gas cylinder. Gas cylinders must be located away from areas where they may be subjected to physical damage or the welding process including sparks and heat sources.





CAUTION: The high frequency used for contact-free ignition with TIG (GTAW) welding, can interfere with the operation of insufficiently shielded computer equipment, EDP centers and industrial robots, even causing complete system breakdown. TIG (GTAW) welding may interfere with electronic telephone networks and with radio and TV reception.

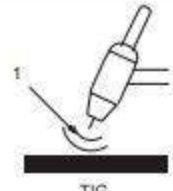


NOISE APPEARES DURING WELDING CAN BE HARMFUL: Welding arc can cause noise with high level of 85dB for 8-hour week day. Welders operating welding machines are obligated to wear the proper ear protectors /appendix No. 2 for the Decree of the Secretary of Labor and Social Policy from 17.06 1998 – Dz.U. No. 79 pos. 513/. According to the Decree the Secretary of Health and Social Welfare from 09.07.1996 /Dz.U. No. 68 pos. 194/, employers are obligated to carry examinations and measurements of health harmful factors.

The manufacturer reserves the right to make changes and/or improvements in design without upgrade at the same time the operator's manual.

Welding Processes Requiring High Frequency





TIG

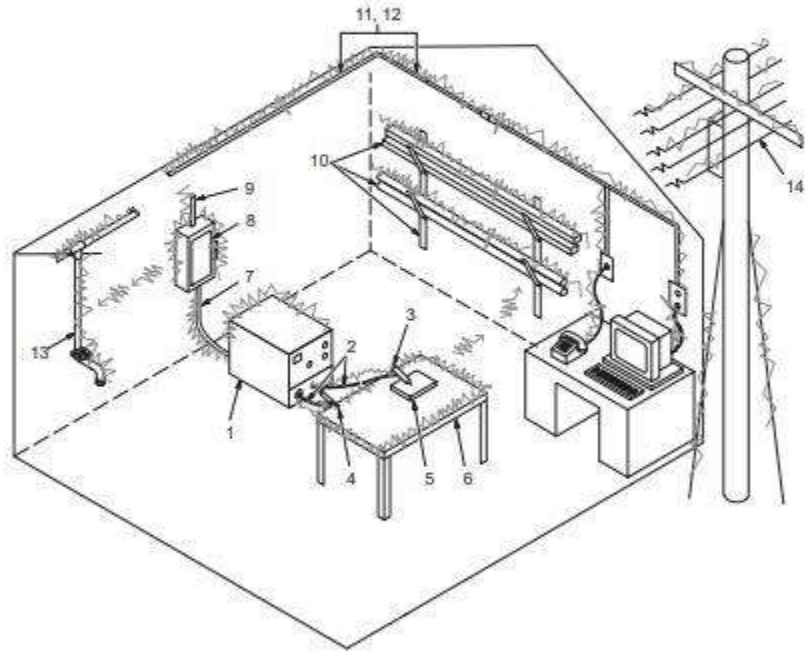
1 High-Frequency Voltage

TIG – helps arc jump air gap between torch and workpiece and/or stabilize the arc.

Installation Showing Possible Sources Of HF Interference

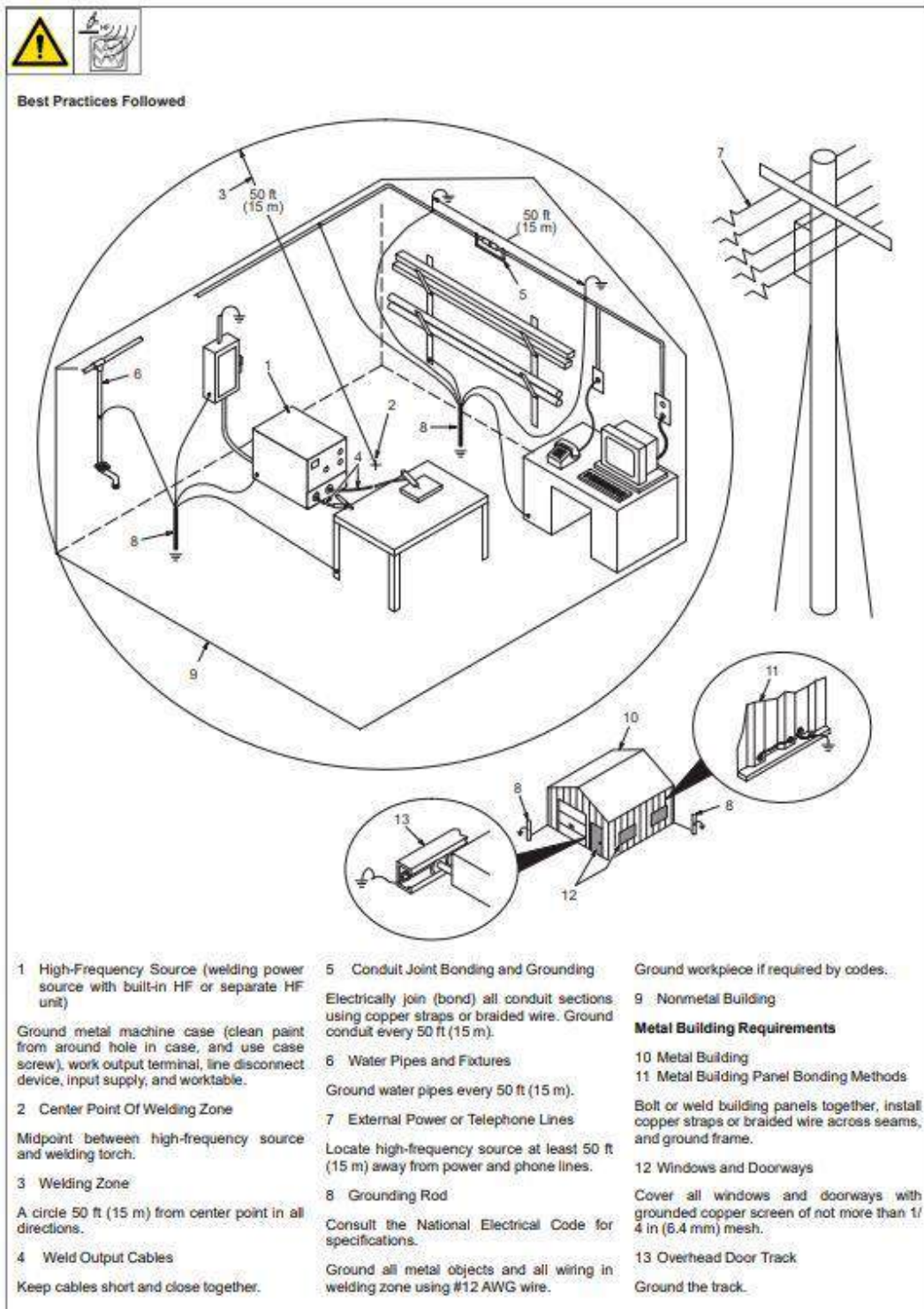



Best Practices Not Followed



Sources of Direct High Frequency Radiation	Sources of Conduction of High Frequency	Sources of Reradiation of High Frequency
1 High-Frequency Source (welding power source with built-in HF or separate HF unit)	7 Input Power Cable	10 Ungrounded Metal Objects
2 Weld Cables	8 Line Disconnect Device	11 Lighting
3 Torch	9 Input Supply Wiring	12 Wiring
4 Work Clamp		13 Water Pipes And Fixtures
5 Workpiece		14 External Phone And Power Lines
6 Work Table		

Recommended Installation to Reduce HF Interference



DO NOT INITIATE HF IN MID-AIR FROM TORCH

THIS WILL CAUSE DAMAGE TO THE UNIT AND VOID WARRANTY

4. GENERAL

4.1 Device concept



The TIP TIG – AllinOne wire feeder is contained in a metal housing and is suitable for wire spools with max. diameter of 300 mm (11.81 in.).

The 4-roller drive has good wire-feeding properties. The wire feeder is also suitable for long hose packages.

4.2 Power sources

The TIP TIG – AllinOne wire feeder can be used with many power sources available on the market. Contact the office to obtain adaptor requirements for your powersource. All units come equipped for Miller Maxstar and Dynasty. We have kits available for Lincoln Aspect, Precision Tig and Invertec V311.

4.3 Crane transport

The TIP TIG – AllinOne wire feeder can be transported by crane using its handles.

The maximum load-bearing capacity of the handles is 35 kg (77.16 lb.)

WARNING

Falling equipment can cause death or serious injury.

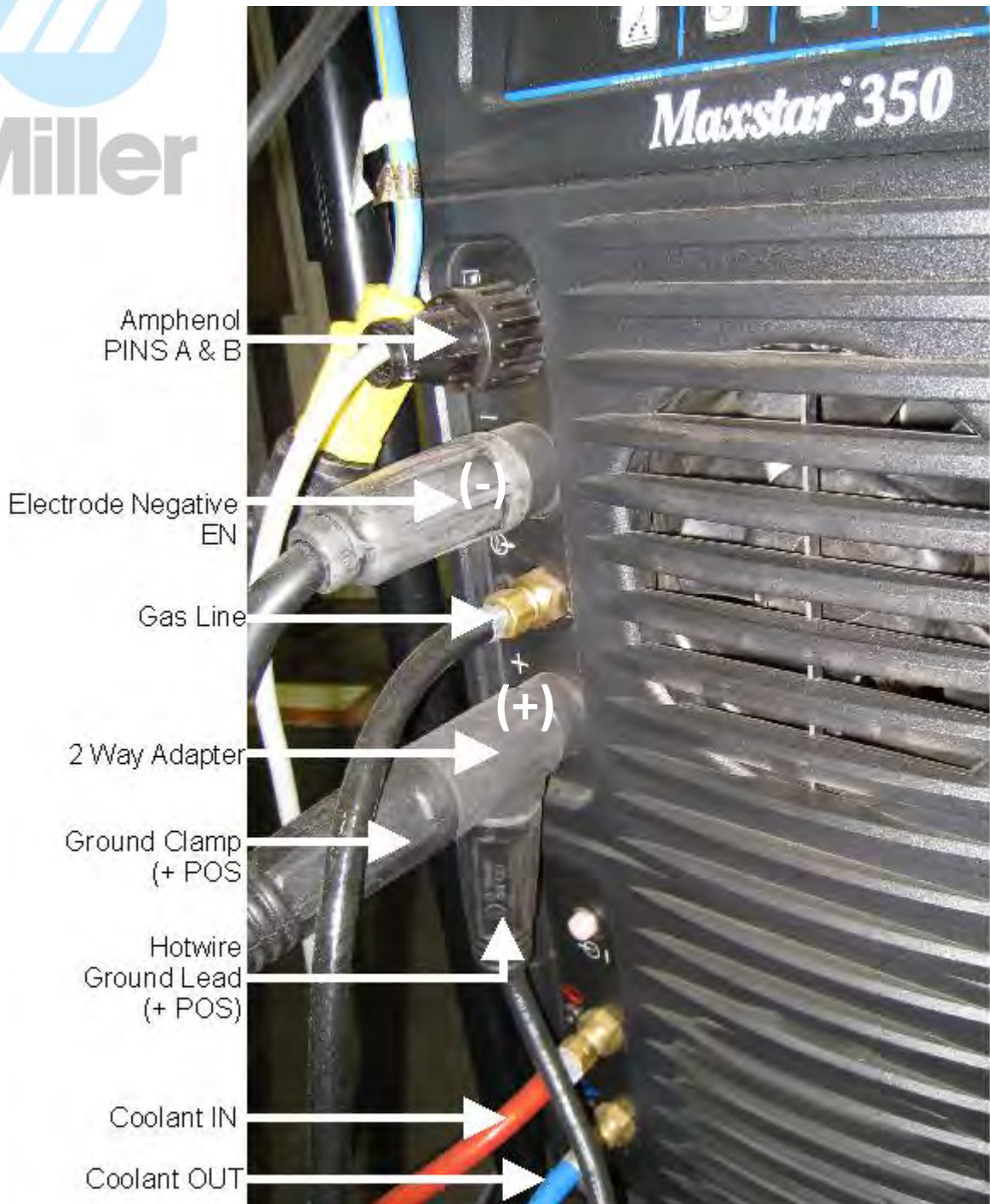
- Only use a suitable lifting tackle when transporting devices by crane (e.g. belt with round slings)
- The lifting tackle must be undamaged and in perfect condition
- Do not transport any other loads by the handle apart from the wirefeeder itself
- Do not hang from the wirefeeder as it is being transported

Before transporting by crane:

- feed out the wire electrode, remove the wire spool
- disconnect the torch hose package and interconnecting hose package from the wire feeder
- if present, unplug the coolant connections



INSTALLATION TO MILLERPOWER SOURCE



MILLER MAXSTAR CONNECTION GUIDE

**NOTE: DO NOT PLUG THE TIP TIG ONTO BACK OF POWERSUPPLY
USE SEPARATE 115V RECEPTACLE**

MILLER MAXSTAR / DYNASTY BASIC SETTINGS

POLARITY (DC) - Steel Alloys, Stainless Steel, Nickel, Copper, Titanium
(AC) - Aluminum, Magnesium

PROCESS - TIG HF IMPULSE is the standard selection for High Frequency Starts

OUTPUT - RMT 2T HOLD – is used in replace of a foot pedal to engage and hold the arc while welding.

AMP - Main Amperage Set

INERT GAS USED - 100% Argon used with a regular at 25-35 CF for most welding.

ADVANCED SETTINGS

PULSER – *Not Recommended.*

SEQUENCER - The TIP TIG Process does not require a foot pedal. The Sequencer settings is where you can control your start and stop settings in replace of the foot pedal.

INITIAL AMPERAGE (AMP VALUE)
INITIAL SLOPE TIME (TIME VALUE)
FINAL SLOPE TIME (TIME VALUE)
FINAL AMPERAGE (AMP VALUE)

GAS/DIG - PreFlow and PostFlow provide shielding before and after the starts and stops and are set in seconds.

INSTALLATION TO MILLERPOWER SOURCE

DO NOT PLUG THE TIP TIG INTO THE BACK OF YOUR POWERSUPPLY
AS THE HF INTERFERS WITH THE TIP TIG EQUIPMENT.
USE A SEPARATE 120V OUTLET.



5. CONTROLS, CONNECTIONS AND MECHANICAL COMPONENTS

5.1 System overview

Front of TIP TiG – AllinOne wire feeder



No.	Description
-----	-------------

(1)	Carrying handle
-----	-----------------

(2)	Control panel – See 5.7 Control panel
-----	---------------------------------------

(3)	Hotwire indicator lamps
-----	-------------------------

Temperature fault indicator (left)

is lit in the case of overheating. It extinguishes after a few minutes when the unit has cooled down.

Hotwire-on indicator (right)

(1) is lit when there is live operating voltage and the hot wire unit is ready for service,

(2) blinks in case of a fault.

(4)	Wire electrode connection – for connecting the welding torch wire feed
-----	--

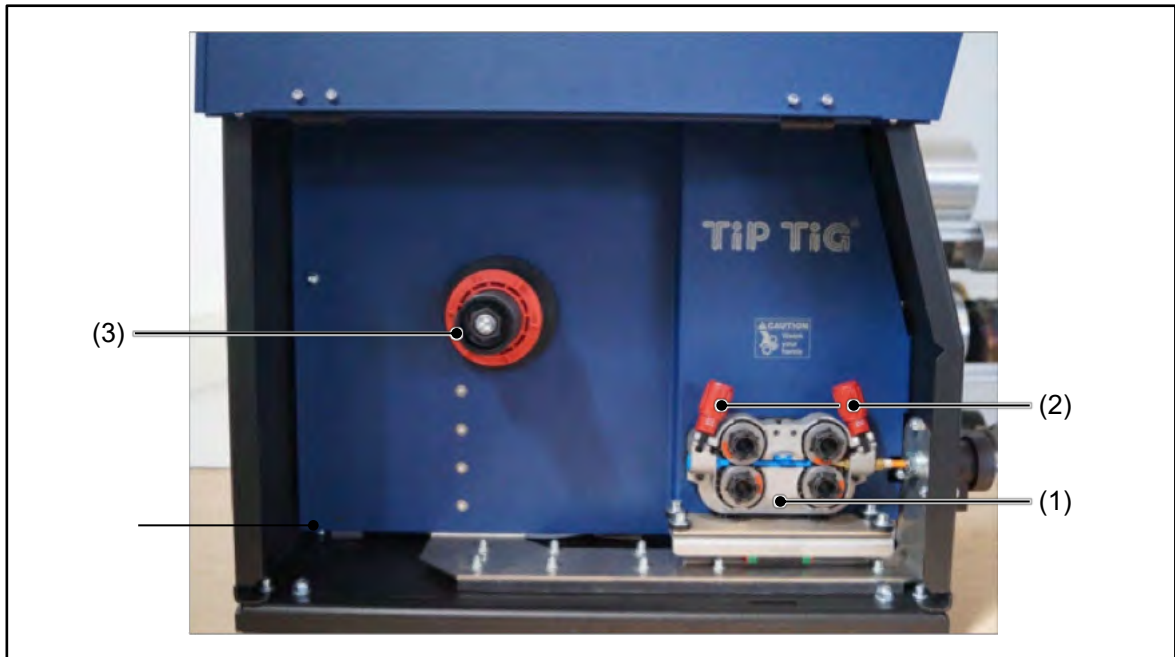
(5)	Front connection – See 5.2 Front connection
-----	---

(6)	Cooling air inlet
-----	-------------------

Rear of TIP TiG – AllinOne wire feeder



No.	Description
(1)	Main power switch with fuses – See 5.4 Main power switch with fuses
(2)	Cooling air outlet
(3)	Rear connection – See 5.3 Rear connection
(4)	Protective cap Cover for the wire feed mechanism and other operating elements.
(5)	Lock for the protective cap

TIP TiG – AllinOne wire feeder: operating elements in the machine**No. Description**

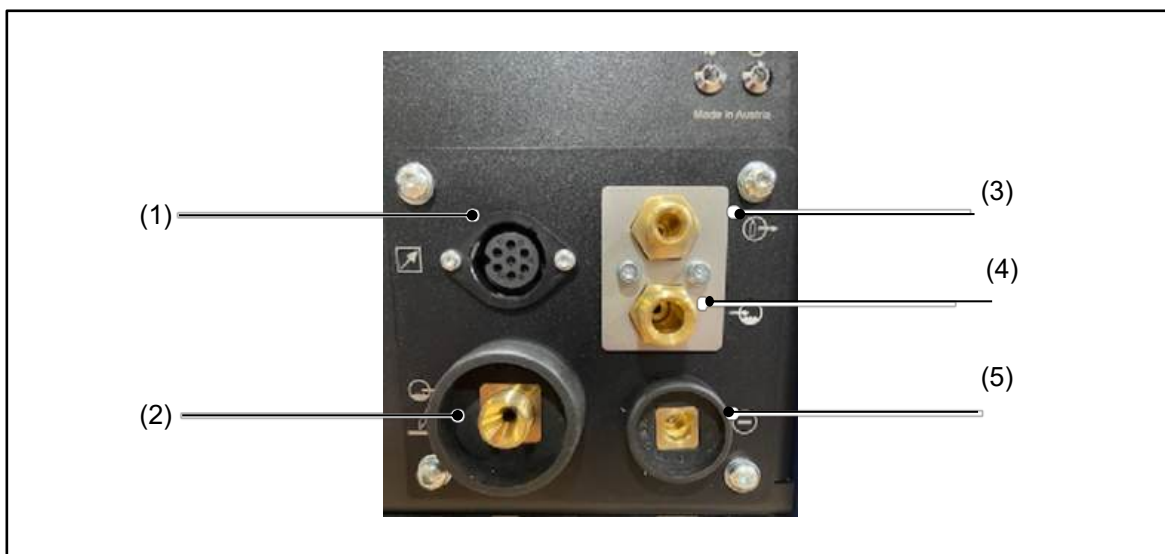
(1) Four roll wire drive

(2) Clamping levers
for setting the contact pressure of the feed rollers

(3) Wires pool holder with brake

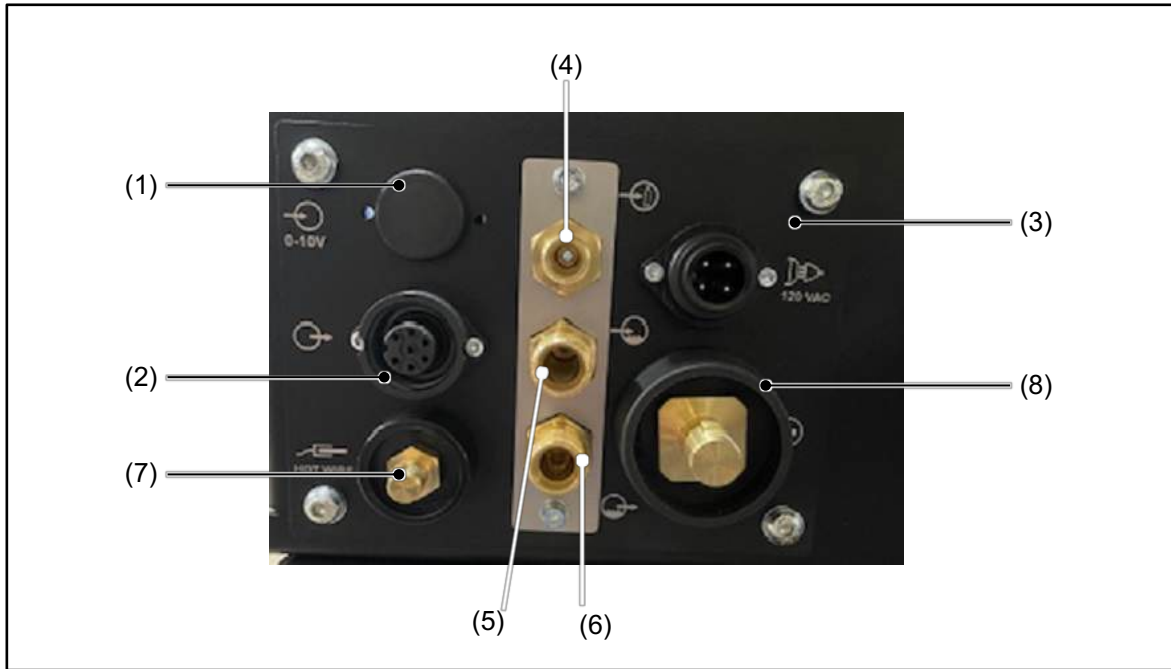
for holding standard wire spools with max. diameter of 300 mm (11.81 in.) and max. weight of 15 kg (33.1 lb.)

5.2 Front connection



No.	Description
(1)	Connection socket control lead (7-pole) for connecting control lead from the welding torch hose package
(2)	Connecting nipple current / coolant supply (blue) for connecting current / coolant supply (G3/8" RH) from the welding torch hose package
(3)	Connecting nipple shielding gas for connecting shielding gas (G1/4" RH) from the welding torch hose package
(4)	Connecting nipple coolant return (red) for connecting coolant return (G3/8" LH) from the welding torch hose package
(5)	Connection socket hot wire for connecting hot wire power from the welding torch hose package, minus potential

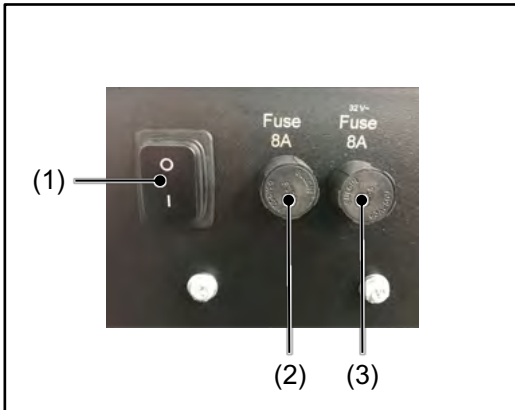
5.3 Rear connection



No.	Description
-----	-------------

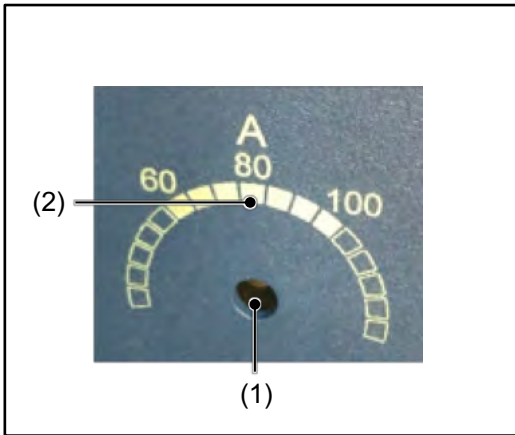
- | | |
|-----|---|
| (1) | Connector plug (7-pole) – option
for connecting TIP TIG Automation 0-10V (AUTOMATION ONLY) |
| (2) | Connection socket (7-pole)
Communication Connection for the welding machine |
| (3) | Connector plug (4-pole) – Mains connection
120/230 VAC main power connection |
| (4) | Connecting nipple shielding gas
for connecting shielding gas (G1/4" RH) from the interconnection hose package |
| (5) | Connecting nipple coolant supply (blue)
for connecting coolant supply (G3/8" RH) from the interconnection hose package |
| (6) | Connecting nipple coolant return (red)
for connecting coolant return (G3/8" LH) from the interconnection hose package |
| (7) | Connector plug hot wire and workpiece
for connecting hot wire power from the interconnection hose package, plus potential, workpiece connection |
| (8) | Connector plug welding current
for connecting welding current, minus potential from the interconnection hose package |

5.4 Main power switch with fuses



No.	Description
(1)	Main power switch machine on/off
(2)	Mains fuse T8 A, 120/230 VAC
(3)	Feeder fuse T8 A, 32 VAC

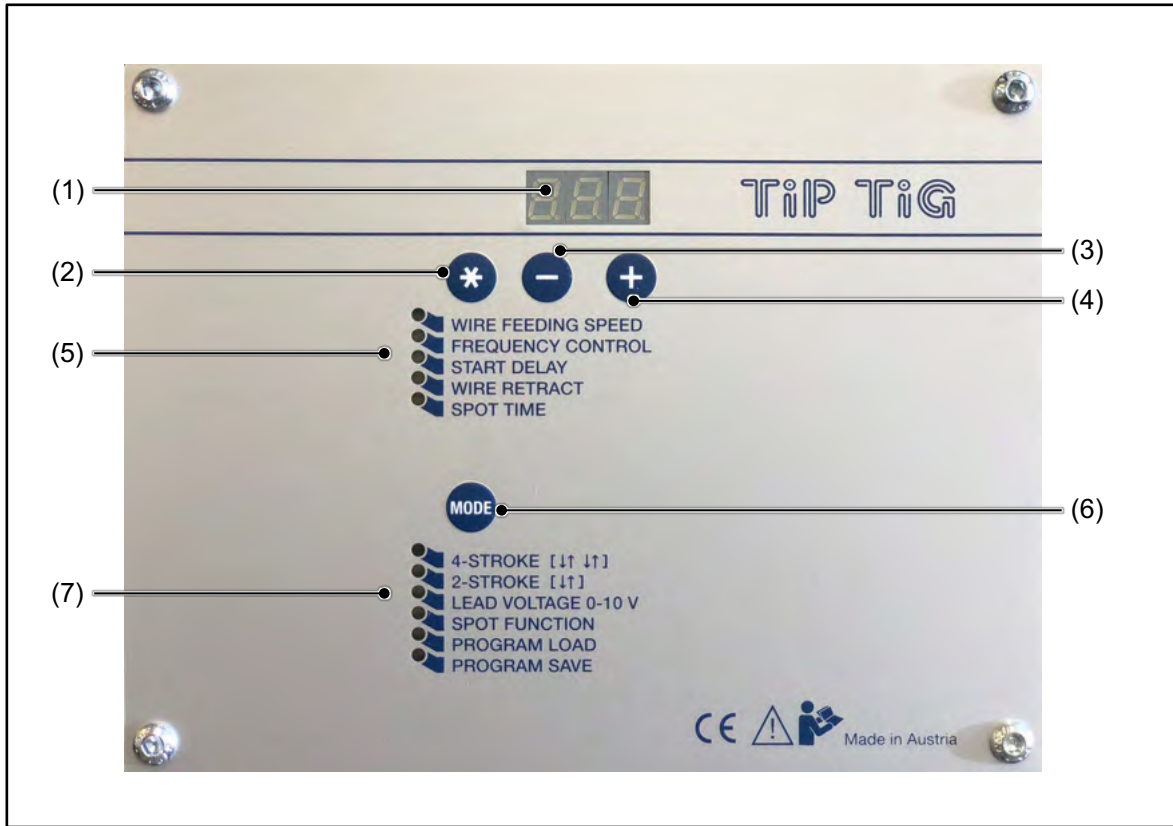
5.5 Hotwire amperage adjustment



No.	Description
(1)	Adjustment screw adjust the setting with a flat screw driver
(2)	Adjustment range 60 – 100 A Presetting 80 A (optimum setting point)

This amperage adjustment is for units sold prior to February 2022. New amperage adjustment is now located on the control board.

5.6 Control panel – D24B2M1.6



No. Function

-
- (1) **Display**
shows the current figure of the selected parameter
-
- (2) **Parameter selection button**
for selecting the parameters listed below (5)
-
- (3) **Adjusting button -**
for negative adjustment of the selected parameter (5)
-
- (4) **Adjusting button +**
for positive adjustment of the selected parameter (5)
-
- (5) **Parameter indicator**
shows which parameter is selected:
- Wire Feeding Speed
- Frequency Control
- Start Delay
- Wire Retract
- Spot Time
-
- (6) **Mode button**
for selecting the desired mode (7)
-

- (7) **Mode indicator**
 shows which mode is selected:
- 4-Stroke
 - 2-Stroke
 - Lead Voltage 0-10 V
 - Spot Function
 - Program Load
 - Program Save

Display values

Wire Feeding Speed **Display value multiplied by 0,0635 is the wire feed speed in m/min or display value multiplied by 2,5 is the wire feed speed in IPM (WIRE FEED SPEED = 0,0635*Display value)**

Example: Factor 100 = 6,35 m/min or 250 IPM

For more information please go to Appendix 9.2.1 or visit <https://www.tiptig.com/english/support/>

CAUTION

The wire feed speed may have a variation of ± 10%. It depends on the settings of the feed roll tensioner (see 5.5 (2)) and the quality of the wire.

Frequency Control **The value is as shown as factor**
 For all applications use 230 = 17 Hz

Start Delay **The value is as shown as factor (optional)**
 Useful for track weld

Wire Retract **The value is as shown as factor (optional)**
 Is an option – normally not used

Spot Time **The value is as shown as factor (optional)**
 Only for spot weld
 To use spot time it's needed to adjust the mode spot function

Modes

4-Stroke **Generally select 4-Stroke mode for hand welding**

2-Stroke **2-Stroke mode mostly used for tack welding**

Lead Voltage 0-10 V **optional**

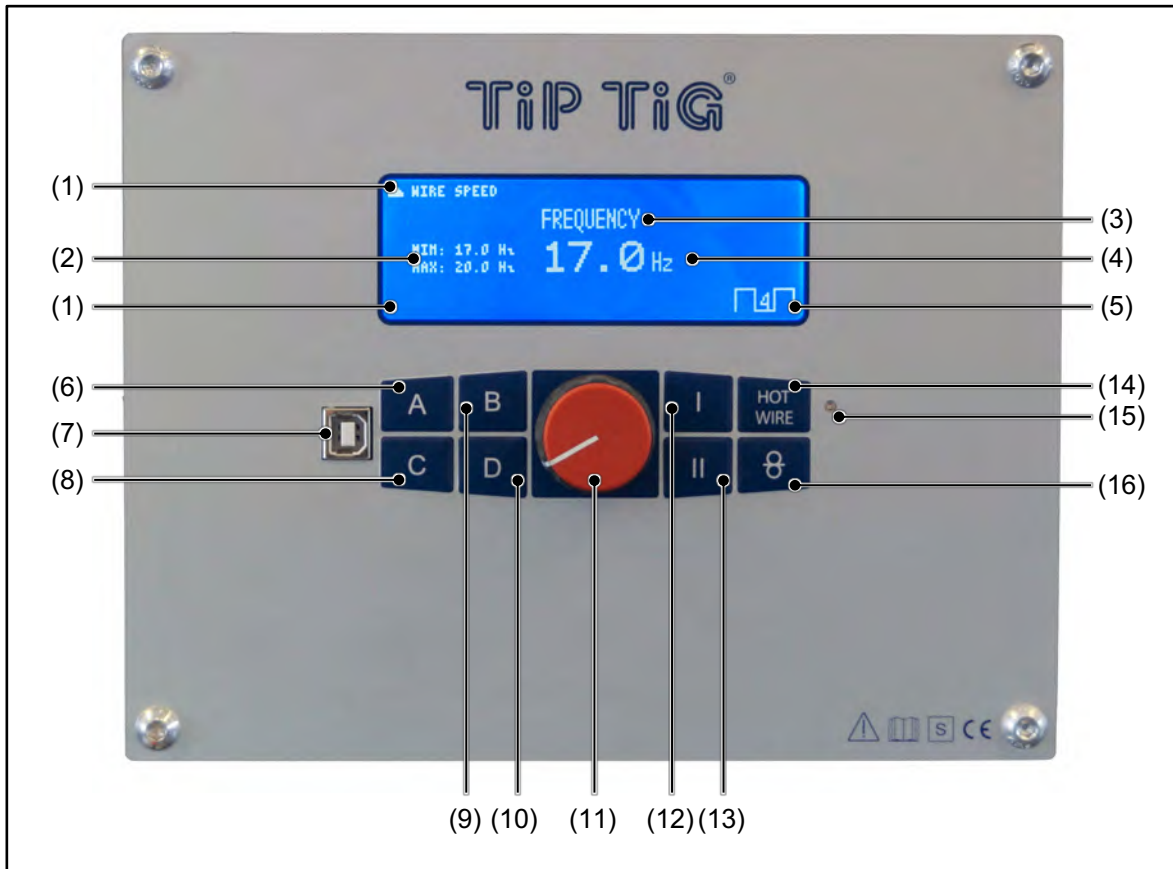
Spot Function **optional**

Program Load **optional**

Program Save **optional**

5.7 Control panel – Version 2.0

Display – Parameters and Modes



No. Function

-
- (1) **Menu (parameter) forecast up/down**
shows which parameter will be selected when switching menu up/down
-
- (2) **Parameter range indicator**
shows min. and max. value of the selected parameter
-
- (3) **Menu (parameter) indicator**
shows which parameter is selected:
- Wire speed
- Frequency
- Hotwire amps
-
- (4) **Parameter**
shows the current value and unit of the selected parameter
-
- (5) **Mode indicator**
shows which mode is selected:
- 2-Step
- 4-Step
-
- (6) **A – Menu (parameter) up button**
switching menu up
-

-
- (7) **Software update port**
to update provided TIP TIG software
-
- (8) **C – Button not assigned**
button is not assigned in this software version
-
- (9) **B – Menu (parameter) down button**
switching menu down
-
- (10) **D – Button not assigned**
button is not assigned in this software version
-
- (11) **Rotary knob**
to adjust the selected parameter (parameter positive adjustment – rotate clockwise /
parameter negative adjustment – rotate counter-clockwise)
-
- (12) **I – Mode button**
for selecting the desired mode (5)
-
- (13) **II – Settings button**
press and hold for 3 seconds to enter settings menu
-
- (14) **HOT WIRE button on/off**
for switching hot wire on/off
-
- (15) **Hot wire indicator**
shows if hotwire is switched on (green) or off (no light)
-
- (16) **OIO – Wire inching button**
potential- and oscillation-free inching of the wire through the hose package to the
welding torch
-

Display – Settings menu



No. Function

(1) Software version
indicates the installed software version number

(2) Settings menu
highlights the selected parameter and its value

- Hotwire amps (on/off)
- Hotwire amps max
- Hotwire amps offset
- Automation (on/off)
- Remote control (on/off)
- Up/Down (Wire/Amps)
- Language (EN/DE/CN)
- Invert colors (on/off)

(3) A – Menu (parameter) up button
switching menu line up

(4) B – Menu (parameter) down button
switching menu line down

(5) Rotary knob
to adjust the selected parameter value (parameter value positive adjustment – rotate clockwise / parameter value negative adjustment – rotate counter-clockwise)

(6) II – Settings button
press and hold for 1 second to exit settings menu

*Display values***WIRE SPEED**

Display value multiplied by 0,0657+0,17 is the wire feed speed in m/min!

(WIRE FEED SPEED = 0,0657*Display value+0,17)

Example: Factor 100 = 6,74 m/min or 265,35 IPM

For more information please go to Appendix 9.2.2 or visit

<https://www.tiptig.com/english/support/>

CAUTION

The wire feed speed may have a variation of $\pm 10\%$. It depends on the settings of the feed roll tensioner (see 5.5 (2)) and the quality of the wire.

*Modes***2-Step**

2-Stroke mode mostly used for tack welding

4-Step

Generally select 4-Stroke mode for hand welding

6. INSTALLATION AND COMMISSIONING

6.1 Before installation and commissioning

Safety

WARNING

Incorrect operation or shoddy workmanship can cause serious injury or damage. All work described in this document must only be carried out by trained and qualified personnel. All functions described in this document must only be used by trained and qualified personnel. Do not carry out any of the work or use any of the functions described until you have fully read and understood the following documents:

- this document
- all the operating instructions for the system components, especially the safety rules

Ambient conditions

The machine must not be operated in the open air and must only be set up and operated on a suitable, stable and level base!

- The operator must ensure that the ground is non-slip and level, and provide sufficient lighting for the place of work.
- Safe operation of the machine must be guaranteed at all times.

Unusually high quantities of dust, acid, corrosive gases or substances may damage the equipment.

- Avoid high volumes of smoke, vapor, oil vapor and grinding dust!
- Avoid ambient air containing salt (sea air)!

In operation

Temperature range of the ambient air:

- -25 °C to +40 °C

Relative air humidity:

- Up to 50% at 40 °C
- Up to 90% at 20 °C

Transport and storage

Storage in an enclosed space, temperature range of the ambient air:

- -30 °C to +70 °C

Relative air humidity:

- Up to 90% at 20 °C

Machine cooling

Insufficient ventilation results in a reduction in performance and equipment damage.

- Observe the ambient conditions!
- Keep the cooling air inlet and outlet clear!
- Observe the minimum distance of 0.5 m from obstacles!

6.2 Connecting the interconnection hose package, welding torches and workpiece lead

Safety

WARNING

An electric shock can be fatal. Before starting the work described below:

- turn the power source mains switch to the „0“ position
- disconnect the power source from the mains
- ensure that the power source remains disconnected from the mains until all work has been completed

General information

The wire feed unit is connected to the power source using the interconnection hose package.

6.2.1 Connecting the interconnection hose package

CAUTION

Risk of injury and damage from loose connections. All cables, lines and hose package must be properly secured, undamaged, insulated and adequately dimensioned at all times.



No.	Description
(1)	Power source
(2)	Interconnection hose package
(3)	Connecting nipple shielding gas for connecting shielding gas (G1/4" RH) from the interconnection hose package
(4)	Connection socket control lead (7-pole) – option for connecting control lead from the interconnection hose package

(5) Connecting nipple coolant supply (blue) – option
for connecting coolant supply (G3/8" RH) from the interconnection hose package

(6) Connecting nipple coolant return (red) – option
for connecting coolant return (G3/8" LH) from the interconnection hose package

(7) Connector plug welding current
for connecting welding current, minus potential from the interconnection hose package

- Push the cable socket for the welding current (TIG) onto the connector plug (TIG) and lock by turning to the right.
- Screw the crown nuts of the cooling water tubes watertight to the connecting threads (G3/8"): Return line red to connecting nipple, red (coolant return) and supply line blue to connecting nipple, blue (coolant supply).
- Insert the control cable plug into the connection socket (7-pole) and secure (the plug can only be inserted into the connection socket in one position).
- Screw the crown nut on the shielding gas lead gastight to the connecting thread (G1/4").

6.2.2 Connecting the workpiece lead



NOTE! The item described in the following is part of the machine's scope of delivery.



No.	Description
-----	-------------

(1)	Workpiece
-----	------------------

(2)	Connector plug hot wire and workpiece for connecting hot wire power, plus potential, workpiece connection
-----	---

- Push the cable socket for the hot wire current onto the connector plug (TIG hot wire) and lock by turning to the right.

6.2.3 Connecting a welding torch

CAUTION

Risk of injury and damage from loose connections. All cables, lines and hose package must be properly secured, undamaged, insulated and adequately dimensioned at all times.

Prepare welding torch according to the welding task in hand (see operating instructions for the torch).



No.	Description
(1)	Welding torch Observe additional system documents
(2)	Welding torch hose package
(3)	Connecting nipple shielding gas for connecting shielding gas (G1/4" RH) from the welding torch hose package
(4)	Connection socket control lead (7-pole) – option for connecting control lead from the welding torch hose package
(5)	Wire electrode connection – for connecting the welding torch wire feed
(6)	Connecting nipple current / coolant supply (blue) – option for connecting current / coolant supply (G3/8" RH) from the welding torch hose package
(7)	Connection socket hot wire for connecting hot wire power from the welding torch hose package, minus potential
(8)	Connecting nipple coolant return (red) – option for connecting coolant return (G3/8" LH) from the welding torch hose package

- Extend and lay out the torch hose package.
- Insert the wire feed plug of the welding torch into the wire electrode connector and lock by turning to the right.
- Push the cable plug for the welding current (TIG) onto the connection socket (TIG hot wire) and lock by turning to the right.
- Screw the crown nut on the shielding gas lead gastight to the connecting thread (G1/4" RH).
- Insert welding torch control lead into the 7-pole connection socket and secure with the crown nut.

If fitted:

- Screw the crown nuts on the cooling water tubes watertight to the connecting threads (G3/8"): Return line red to crown nut, red (coolant return) and supply line blue to crown nut, blue (coolant supply).
- Push the cable plug for the hot wire current onto the connection socket (TIG hot wire) and lock by turning to the right.

6.3 Inserting/replacing feed rollers

Safety

WARNING

An electric shock can be fatal. Before starting the work described below:

- turn the power source mains switch to the „0“ position
- disconnect the power source from the mains
- ensure that the power source remains disconnected from the mains until all work has been completed

General information

In order to achieve optimum wire electrode feed, the feed rollers must be suitable for the diameter and alloy of the wire being welded.



NOTE! Only use feed rollers that match the wire electrode.

Inserting/replacing feed rollers

- Slide new drive rollers into place so that the diameter of the wire used is visible on the drive roller.
- Fix the drive rollers in place with the built in lock system (no tools needed).

6.4 Inserting the wires pool

Safety

WARNING

An electric shock can be fatal. Before starting the work described below:

- turn the power source mains switch to the „0“ position
- disconnect the power source from the mains
- ensure that the power source remains disconnected from the mains until all work has been completed

CAUTION

Risk of injury from springiness of spooled wire electrode. When inserting the wire spool/basket-type spool, hold the end of the wire electrode firmly to avoid injuries caused by the wire electrode springing back.

CAUTION

Risk of injury from falling wire spool/basket-type spool. Ensure that the wire spool/basket-type spool and basket-type spool adapter are always seated securely on the wire spool holder.

Inserting the wire spool

Standard D300 wire spool holder can be used. Adapters are required when using standardized basket coils (DIN 8559).

- Loosen knurled nut from spool holder.
- Fix welding wire reel onto the spool holder so that the carrier pin locks into the spool bore.
- Fasten wire spool using knurled nut.

6.5 Inching the wire electrode*Safety***CAUTION**

Risk of injury and material damage from the welding current and accidental ignition of an arc. Before starting work, disconnect the ground earth connection between the welding system and the workpiece.

CAUTION

Risk of damage to the welding torch from sharp end of wire electrode. Deburr the end of the wire electrode well before feeding in.

CAUTION

Risk of injury from springiness of spooled wire electrode. When inserting the wire electrode into the 4-roller drive, hold the end of the wire electrode firmly to avoid injuries caused by the wire springing back.

General Information

Incorrect contact pressure will cause extensive wear of the wire feed rollers!

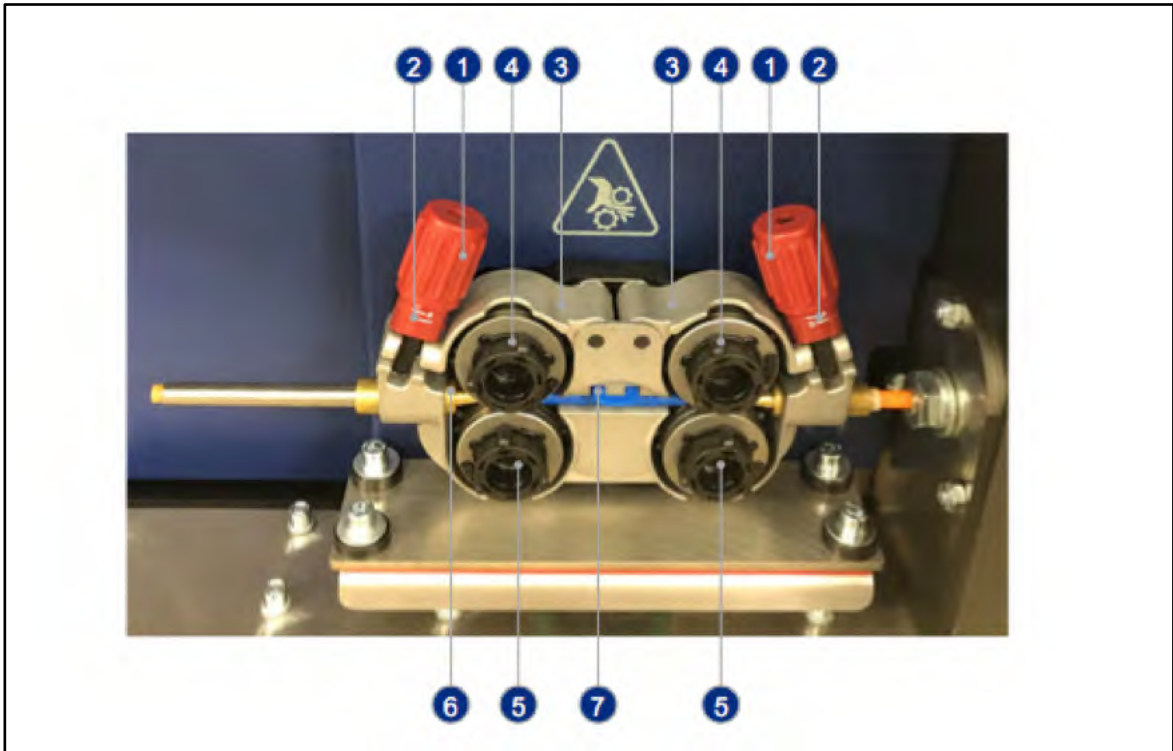
- With the adjusting nuts of the pressure units set the contact pressure so that the wire electrode is conveyed but will still slip through if the wire spool jams.
- Set the contact pressure of the front rollers (in wire feed direction) to a higher value!

Inching the wire electrode

CAUTION

Risk of injury and damage from wire electrode emerging. While working:

- hold the welding torch with the point directed away from the face and body
- wear suitable protective goggles
- do not point the welding torch at people
- make sure that the wire electrode does not touch any conductive or earthed parts, such as the housing, etc.



No.	Description
-----	-------------

(1)	Adjusting nut
-----	----------------------

(2)	Feed roll tensioner for fixing the clamping unit and setting the pressure.
-----	--

(3)	Clamping unit
-----	----------------------

(4)	Pressure roller
-----	------------------------

(5)	Drive roller
-----	---------------------

(6)	Wire feed nipple
-----	-------------------------

(7)	Guide tube
-----	-------------------

- Extend and lay out the torch hose package.
- Unfasten pressure units and fold out (clamping units and pressure rollers will automatically flip upwards).

- Unwind welding wire carefully from the wire spool and insert through the wire inlet nipple over the drive roller grooves and the guide pipe into the capillary tube and teflon core using guide pipe.
- Press the clamping element with the pressure roller back downwards and fold the wire units back up again (wire electrode should be in the groove on the drive roller).
- Set the contact pressure with the adjusting nuts of the pressure unit.
- Press the wire inching button until the wire electrode projects out of the welding torch.

6.6 Spool brake setting

Safety

CAUTION

Risk of injury and material damage from the welding current and accidental ignition of an arc. Before starting work, disconnect the ground earth connection between the welding system and the workpiece.

CAUTION

Risk of injury and damage from wire electrode emerging. While working:

- hold the welding torch with the point directed away from the face and body
- wear suitable protective goggles
- do not point the welding torch at people
- make sure that the wire electrode does not touch any conductive or earthed parts, such as the housing, etc.

General Information

After releasing the torch trigger the wire spool must stop unreeling. If it continues unreeling, readjust the brake.

Setting the brake

- Tighten the Allen screw (8 mm) in the clockwise direction to increase the braking effect.

7. START-UP

Safety

WARNING

Incorrect operation or shoddy workmanship can cause serious injury or damage. All work described in this document must only be carried out by trained and qualified personnel. All functions described in this document must only be used by trained and qualified personnel. Do not carry out any of the work or use any of the functions described until you have fully read and understood the following documents:

- this document
- all the operating instructions for the system components, especially the safety rules

Prerequisites

When commissioning the wire-feed unit, the following requirements must be met:

- Wire-feed unit connected to the power source using the interconnection hose package
- Welding torch connected to wire-feed unit
- Feed rollers inserted in the wire-feed unit
- Wire spool or basket-type spool and adapter inserted in the wire-feed unit
- Wire electrode threaded in
- Feed roller contact pressure set
- Brake adjusted
- All covers closed, all side panels in place, all protection devices intact and in their proper place

General

The wire-feed unit is started by pressing the torch trigger (for manual applications) or by means of a welding start-up signal (for automatic applications).

8. TROUBLESHOOTING, MAINTENANCE AND DISPOSAL

8.1 Troubleshooting

Safety

WARNING

Work that is carried out incorrectly can cause serious injury or damage. All the work described below must only be carried out by trained and qualified personnel. Do not carry out any of the work described below until you have fully read and understood the following documents:

- this document
- all the operating instructions for the system components, especially the safety rules

WARNING

An electric shock can be fatal. Before starting the work described below:

- turn the power source mains switch to the "0" position
- disconnect the power source from the mains
- ensure that the power source remains disconnected from the mains until all work has been completed

After opening the device, use a suitable measuring instrument to check that electrically charged components (e.g. capacitors) have been discharged.

CAUTION

Risk of scalding by hot system components. Before starting work, allow all hot system components to cool down to room temperature (+25 °C, +77 °F). For example:

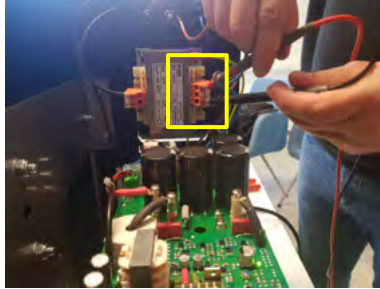
- coolant
- water-cooled system components
- wire-feed unit drive motor

General

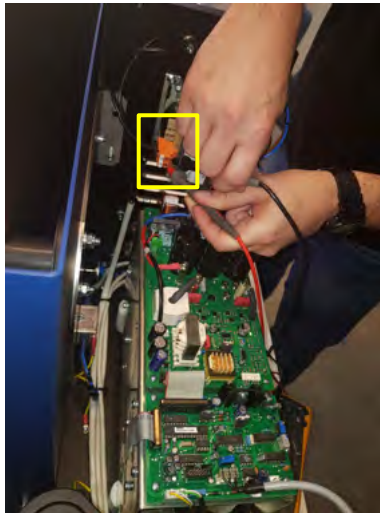
All products are subject to rigorous production checks and final checks. If, despite this, something fails to work at any time, please check the product using the following checklist. If none of the fault rectification procedures described leads to the correct functioning of the product, please inform your authorized dealer.

*Troubleshooting-Checklist***PC Board will not power / Display Blank**

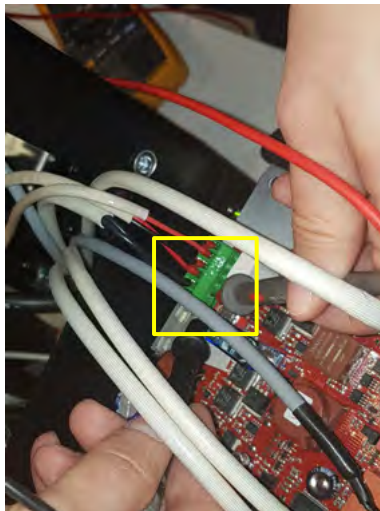
- Check 120/230V AC Input Power Supply from power cord plug end
- Check fuses on the rear panel
- Check 120/230V AV at transformer with meter



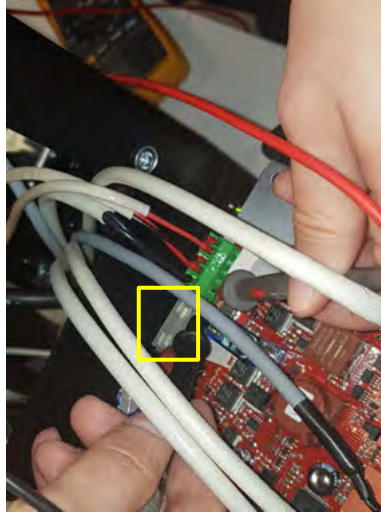
- Check 32V AC at transformer with meter



- Remove front panel PC Board. Test plug X2-1S for 32V AC



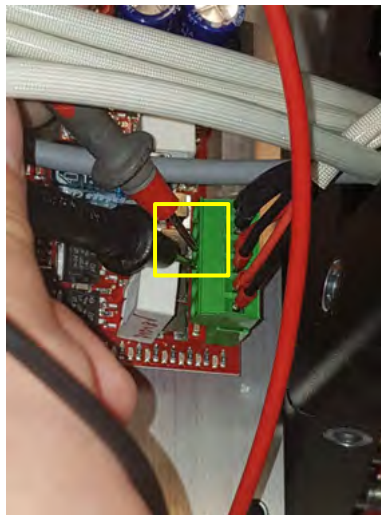
- Check fuse on the PC Board



If all of the above checks show voltage, PC Board is faulty and needs to be replaced.

Feeder Motor will not operate when button pressed on

- Check to make sure PC Board has voltage
- Check fuses on the rear panel
- Check plug X2-1S for DC voltage.
Press wire feed button on torch.
If voltage is present, wire feed motor is faulty
If voltage is not present, check torch button

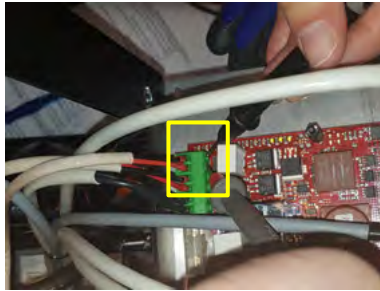


If all of the above checks show voltage, wirefeed motor is faulty and needs to be replaced.

Oscillator Motor will not operate when button pressed on

- Check to make sure PC Board has voltage
- Check fuses on the rear panel
- Check plug X2-1S for DC voltage.
Press wire feed button on torch.

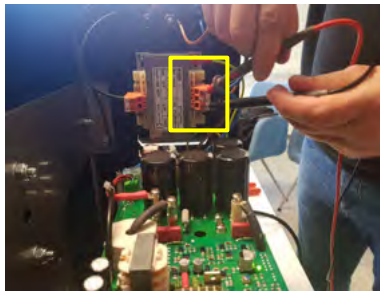
If voltage is present, oscillator motor is faulty
 If voltage is not present, bad PC Board



If all of the above checks show voltage, Oscillator Motor is faulty and needs to be replaced.

No Hotwire Input Power

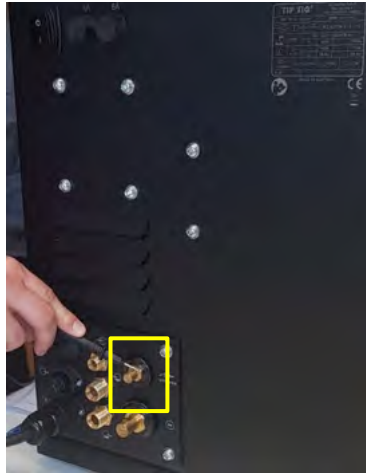
- Check to make sure Main power switch on rear panel is on. (see 5.4)
- Check to make sure GREEN LED is on. (see 5.1)
- Check 120/230V AV at transformer with meter



If all of the above checks show voltage, Hotwire is faulty and needs to be replaced.

No Hotwire Output Amperage / Voltage

- Check to make sure Main power switch on rear panel is on. (see 5.4)
 - Check to make sure GREEN LED is on. (see 5.1)
 - Check to make sure all Dinse connections are properly installed
 - Check to make sure Hotwire ground is connected to power supply
 - Check "Connector plug hot wire and workpiece" (See 5.3) and "Connection socket hot wire" (See 5.2) with meter.
- Press wire feed button on torch.
 If ~12 V DC is present, Hotwire unit is OK
 If voltage is not present, bad Hotwire unit
-



- Connect "Connector plug hot wire and workpiece" (See 5.3) and "Connection socket hot wire" (See 5.2) with the Hotwire test cable and put a meter clamp around the test cable.

Press wire feed button on torch.

You should see your amp setting on your meter

Turn the Hotwire adjustment screw (see 5.5) to ensure proper function and that the amperage changes

If no adjustment is seen, replace potentiometer





If all of the above checks show no amperage, Hotwire is faulty and needs to be replaced.

Coolant error / no coolant flowing

Insufficient coolant flow	<ul style="list-style-type: none"> - Check coolant level and refill if necessary - Eliminate kinks in conduit system (hose package) - Reset automatic cutout of the coolant pump by activating
---------------------------	---

Air in the coolant circuit	<ul style="list-style-type: none"> - Vent coolant circuit
----------------------------	--

Functional errors

All machine control signal lights are illuminated after switching on	<ul style="list-style-type: none"> - Phase failure > check mains connection (fuses)
--	---

No machine control signal light is illuminated after switching on

No welding power

Connection problems	<ul style="list-style-type: none"> - Make control lead connections and check that they are fitted correctly.
---------------------	---

Welding torch overheated

Loose welding current connections	<ul style="list-style-type: none"> - Tighten power connections on the torch and/or on the workpiece - Tighten contact tip correctly
-----------------------------------	---

Overload	<ul style="list-style-type: none"> - Check and correct welding current setting - Use a more powerful welding torch
----------	--

Unstable arc

Unsuitable or worn welding torch equipment	<ul style="list-style-type: none"> - Adjust contact tip to wire diameter and -material and replace if necessary - Adjust wire guide to material in use, blow through and replace if necessary
--	---

Material inclusions in the tungsten electrode due to contact with filler material or workpiece	<ul style="list-style-type: none"> - Regrind or replace the tungsten electrode
--	---

Incompatible parameter settings	<ul style="list-style-type: none"> - Check settings and correct if necessary
---------------------------------	---

Wire feed problems

Unsuitable or worn welding torch equipment	<ul style="list-style-type: none"> - Adjust contact tip (cold wire/hot wire) to wire diameter, blow through and replace if necessary - Adjust wire guide to material in use, blow through and replace if necessary
--	--

Contact tip blocked	<ul style="list-style-type: none"> - Clean, spray with anti-spatter spray and replace if necessary
---------------------	---

Setting the spool brake > see chapter 6.6 Spool brake setting	<ul style="list-style-type: none"> - Check settings and correct if necessary
---	---

Setting pressure units > see chapter 6.5 Inching the wire electrode - Check settings and correct if necessary

Worn wire rolls - Check and replace if necessary

Wire feed motor without supply voltage - Check and replace fuse if necessary

Kinked hose packages - Extend and lay out the torch hose package

Incompatible parameter settings - Check settings and correct if necessary

Arc between gas nozzle and workpiece (metal vapor on the gas nozzle) - Replace gas nozzle

Porosity

Inadequate or missing gas shielding - Check shielding gas setting and replace shielding gas cylinder if necessary
 - Shield welding site with protective screens (draughts affect the welding result)
 - Use gas lens for aluminum applications and high-alloy steels

Unsuitable or worn welding torch equipment - Check size of gas nozzle and replace if necessary

Condensation (hydrogen) in the gas tube - Replace hose package

8.2 Care, maintenance and disposal

General

Under normal operating conditions, the device requires only a minimum of care and maintenance. However, it is vital to observe some important points to ensure the welding system remains in a usable condition for many years.

Safety

WARNING

Work that is carried out incorrectly can cause serious injury or damage. All the work described below must only be carried out by trained and qualified personnel. Do not carry out any of the work described below until you have fully read and understood the following documents:

- this document
- all the operating instructions for the system components, especially the safety rules

WARNING

An electric shock can be fatal. Before starting the work described below:

- turn the power source mains switch to the "0" position
- disconnect the power source from the mains
- ensure that the power source remains disconnected from the mains until all work has been completed

After opening the device, use a suitable measuring instrument to check that electrically charged components (e.g. capacitors) have been discharged.

CAUTION

Risk of scalding by hot system components. Before starting work, allow all hot system components to cool down to room temperature (+25 °C, +77 °F). For example:

- coolant
- water-cooled system components
- wire feed unit drive motor

Every start-up

- Check all hose package and the ground earth connection for damage. Replace any damaged components.
- Check feed rollers and inner liners for signs of damage. Replace any damaged components.
- Check contact pressure of feed rollers and adjust if necessary.

Every 6 months



NOTE! Risk of damage to electronic components. Do not bring the air nozzle too close to electronic components.

- Open covers, remove device side panels and clean inside of device with dry reduced compressed air. After cleaning, restore device to its original state.

Disposal

Dispose of in accordance with the applicable national and local regulations.

9. TECHNICAL DATA

Hot wire current setting range	60 A to 100 A
Max. hot wire voltage	10,5 V
Duty cycle at 40 °C ambient temperature	
60% DC	100 A
100% DC	80 A
Load cycle	10 min. (60% DC; 6 min. welding, 4 min. pause)
Open circuit voltage	82 V
Reduced open circuit voltage	10,5 V
Mains voltage (tolerances)	1 x 120 V (-20% to +20%) 1 x 230 V (-20% to +25%)
Frequency	50/60 Hz
Mains fuse	T8 A 120/230 VAC
Feeder fuse	T8 A 32 VAC
Max. connected load	2.6 kVA
Recommended generator rating	3.4 kVA
cosφ / efficiency	0.99 (86%)
Insulation class / protection classification	H/IP 23
Ambient temperature	-25 °C to +40 °C
Machine cooling	Fan
Hot wire current welding lead	25 mm ²
Welding current welding lead	95 mm ²
Wire feed speed	0.15 m/min. to 17 m/min. 5.6 IPM to 670 IPM
Standard WF roller equipment	0.8 + 1.0 mm (for steel wire)
Drive	4 rolls (37 mm)
Torch connector	Decentral
Forward/backward motion frequency	0–20 Hz

Dimensions L/W/H	600 x 352 x 525 mm 23.62 x 13.85 x 20.66 in
Weight	34 kg 74 lb.
EMC class	A
Safety identification	EAC/S/CE
Harmonized standards used	see declaration of conformity (machine documentation)

10. APPENDIX

10.1 Spare part list

10.1.1 Front of TIPTIG (Page 17)

Pos. (in pic)	Description	Item-No.
(4)	Wire electrode connection (complete with plastic cover) for connecting the welding torch wire feed	77700051

10.1.2 Front connection (Page 20)

Pos (in pic).	Description	Item-No.
(1)	Connection socket control lead (7-pole) for connecting control lead from the welding torch hose package	95500202
(2)	Connecting nipple current / coolant supply (blue) for connecting current / coolant supply (G3/8" RH) from the welding torch hose package	77700162
(3)	Connecting nipple shielding gas for connecting shielding gas (G1/4" RH) from the welding torch hose package	88800430
(4)	Connecting nipple coolant return (red) for connecting coolant return (G3/8" LH) from the welding torch hose package	88800431
(5)	Connection socket hot wire for connecting hot wire power from the welding torch hose package, minus potential	95500200

10.1.3 Rear connection (Page 21)

Pos (in pic).	Description	Item-No.
(1)	Connector plug (7-pole) – option for connecting TIP TIG Automation 0-10V (AUTOMATION ONLY)	95500205
(2)	Connection socket (7-pole) Communication Connection for the welding machine	95500210
(3)	Connector plug (4-pole) – Mains connection 120/230 VAC main power connection	95500215
(4)	Connecting nipple shielding gas for connecting shielding gas (G1/4" RH) from the interconnection hose package	88800430
(5)	Connecting nipple coolant supply (blue) for connecting coolant supply (G3/8" RH) from the interconnection hose package	88800432
(6)	Connecting nipple coolant return (red) for connecting coolant return (G3/8" LH) from the interconnection hose package	88800431
(7)	Connector plug hot wire and workpiece for connecting hot wire power from the interconnection hose package, plus potential, workpiece connection	95500220
(8)	Connector plug welding current for connecting welding current, minus potential from the interconnection hose package	95500225

10.1.3.1 Hose

Pos. (in pic)	Description	Item-No.
	Inside Hose kit	
	<ul style="list-style-type: none"> • Coolant supply • Coolant return • Shielding gas 	95500250

10.1.4 Main power switch

Pos. (in pic)	Description	Item-No.
(1)	Main power switch ON/OFF	95500260

10.1.5 Control Panel

Pos. (in pic)	Description	Item-No.
(1)	Control Panel Front Panel + PC Board	20000005

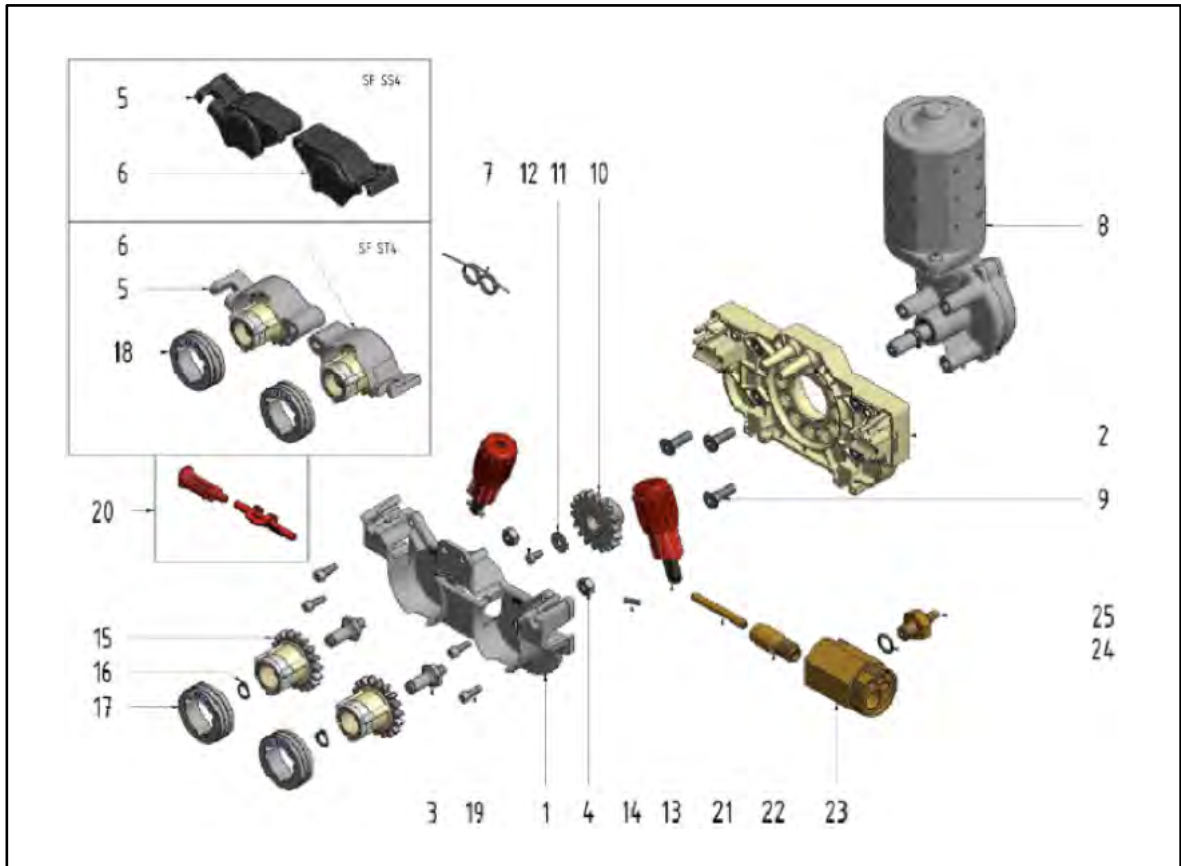
10.1.6 Hotwire Unit

Pos. (in pic)	Description	Item-No.
	Hotwire Unit	10001306

10.1.7 Motors

Pos. (in pic)	Description	Item-No.
	Oscillator Motor	77700134
	Oscillator drive kit Ball bearings	88800460
	Feed Motor see (8) at 10.1.8	88807212

10.1.8 Four roll wire drive



Pos.	Description	Item-No.
(1)	Feed plate front	88807200
(2)	Feed plate rear	88807202
(3)	Feed roll shaft	88807204
(4)	Hex-nut M6	88807206
(5)	Pressure arm assembly left SFT4	88807208
(6)	Pressure arm assembly right SFT4	88807208
(7)	Torsion spring	88807210
(8)	Motor-New Wire Drive	88807212
(9)	Motor fixation screws	88807214
(10)	Drive Gear	88807216
(11)	Flat washer	88807218
(12)	Machine screw	88807220
(13)	Pressure adjustment unit	88807222
(14)	Tapered pin	88807224
(15)	Quick change carrier gear	88807226
(16)	Circlip	88807228
	Quick change feed roll (0.8 / 1.0)	88807158
	Quick change feed roll (1.0 / 1.2)	88807160
(17)	Quick change feed roll (1.2 / 1.6)	88807162
(18)	Quick change feed roll (0.8 / 0.8)	88807170
	Quick change feed roll (0.9 / 0.9)	88807172
	Quick change feed roll (1.0 & 1.0)	88807174
(19)	Machine screw	88807232
(20)	Wire guide set blue	88807234

10.1.9 Power transformer and Filters

Pos. (in pic)	Description	Item-No.
	Power transformer 230V/115V/32V-160VA	11000155
	Filter DGF3	11000101
	Filter Schurter 10A	77700092

10.1.10 Setup Kit

Pos. (in pic)	Description	Item-No.
	Setup Kit for alignment of wire feeding system	99909995

10.2 Wire Feed Speed

10.2.1 Control panel – D24B2M1.6

Display Value	m/min	IPM
5	0,32	12,50
10	0,64	25,00
15	0,95	37,50
20	1,27	50,00
25	1,59	62,50
30	1,91	75,00
35	2,22	87,50
40	2,54	100,00
45	2,86	112,50
50	3,18	125,00
55	3,49	137,50
60	3,81	150,00
65	4,13	162,50
70	4,45	175,00
75	4,76	187,50
80	5,08	200,00
85	5,40	212,50
90	5,72	225,00
95	6,03	237,50
100	6,35	250,00
105	6,67	262,50
110	6,99	275,00
115	7,30	287,50
120	7,62	300,00
125	7,94	312,50

130	8,26	325,00
135	8,57	337,50
140	8,89	350,00
145	9,21	362,50
150	9,53	375,00
155	9,84	387,50
160	10,16	400,00
165	10,48	412,50
170	10,80	425,00
175	11,11	437,50
180	11,43	450,00
185	11,75	462,50
190	12,07	475,00
195	12,38	487,50
200	12,70	500,00
205	13,02	512,50
210	13,34	525,00
215	13,65	537,50
220	13,97	550,00
225	14,29	562,50
230	14,61	575,00
235	14,92	587,50
240	15,24	600,00
245	15,56	612,50
250	15,88	625,00
255	16,19	637,50

CAUTION

The wire feed speed may have a variation of $\pm 10\%$. It depends on the settings of the feed roll tensioner (see 5.5 (2)) and the quality of the wire.

10.2.2 Control panel – Version 2.0

Display Value	m/min	IPM
5	0,50	19,63
10	0,83	32,56
15	1,16	45,49
20	1,48	58,43
25	1,81	71,36
30	2,14	84,29
35	2,47	97,22
40	2,80	110,16
45	3,13	123,09
50	3,46	136,02
55	3,78	148,96
60	4,11	161,89
65	4,44	174,82
70	4,77	187,76
75	5,10	200,69
80	5,43	213,62
85	5,75	226,56
90	6,08	239,49
95	6,41	252,42
100	6,74	265,35
105	7,07	278,29
110	7,40	291,22
115	7,73	304,15
120	8,05	317,09
125	8,38	330,02
130	8,71	342,95
135	9,04	355,89

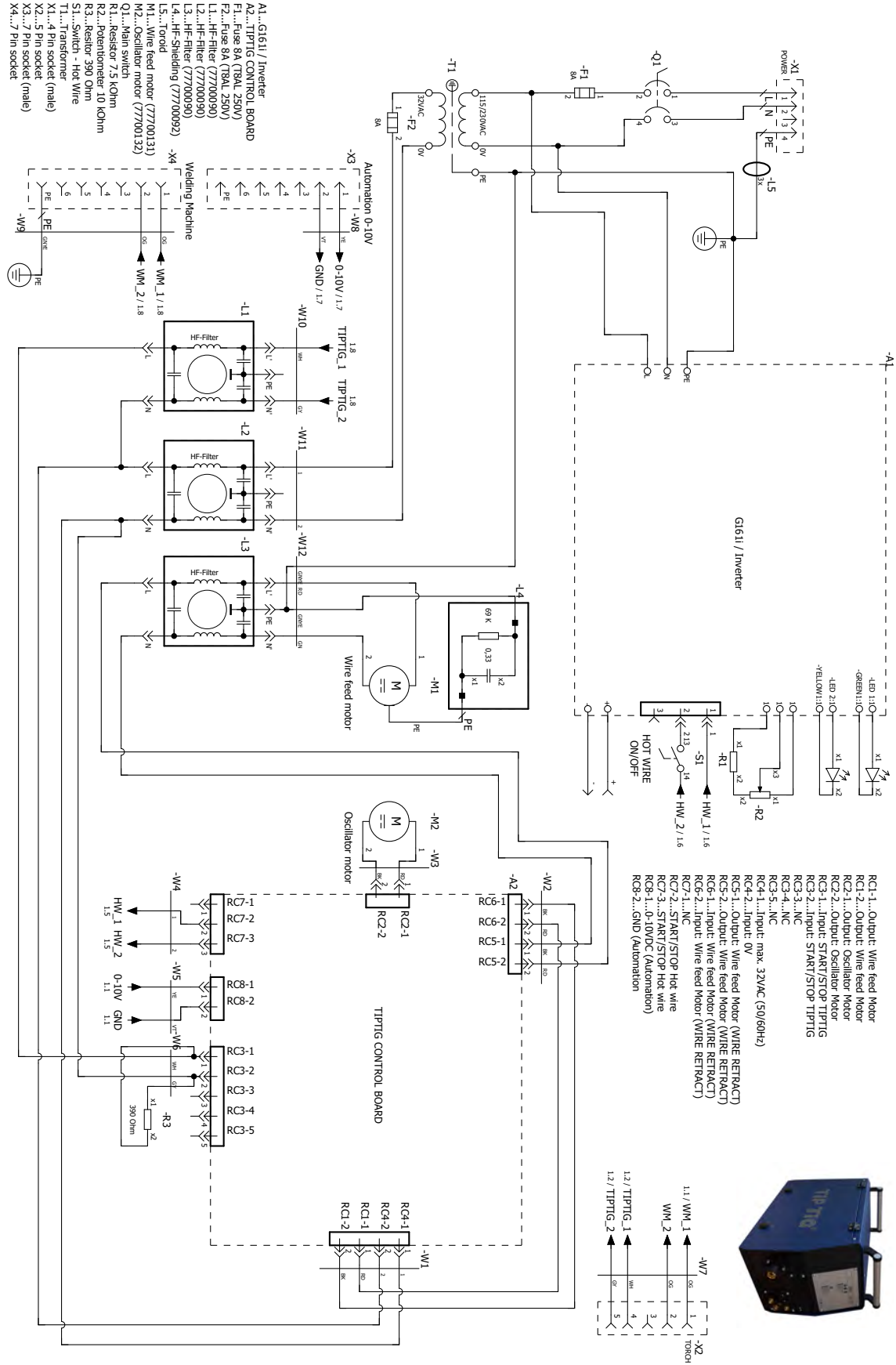
140	9,37	368,82
145	9,70	381,75
150	10,03	394,69
155	10,35	407,62
160	10,68	420,55
165	11,01	433,48
170	11,34	446,42
175	11,67	459,35
180	12,00	472,28
185	12,32	485,22
190	12,65	498,15
195	12,98	511,08
200	13,31	524,02
205	13,64	536,95
210	13,97	549,88
215	14,30	562,82
220	14,62	575,75
225	14,95	588,68
230	15,28	601,61
235	15,61	614,55
240	15,94	627,48
245	16,27	640,41
250	16,60	653,35
255	16,92	666,28

CAUTION

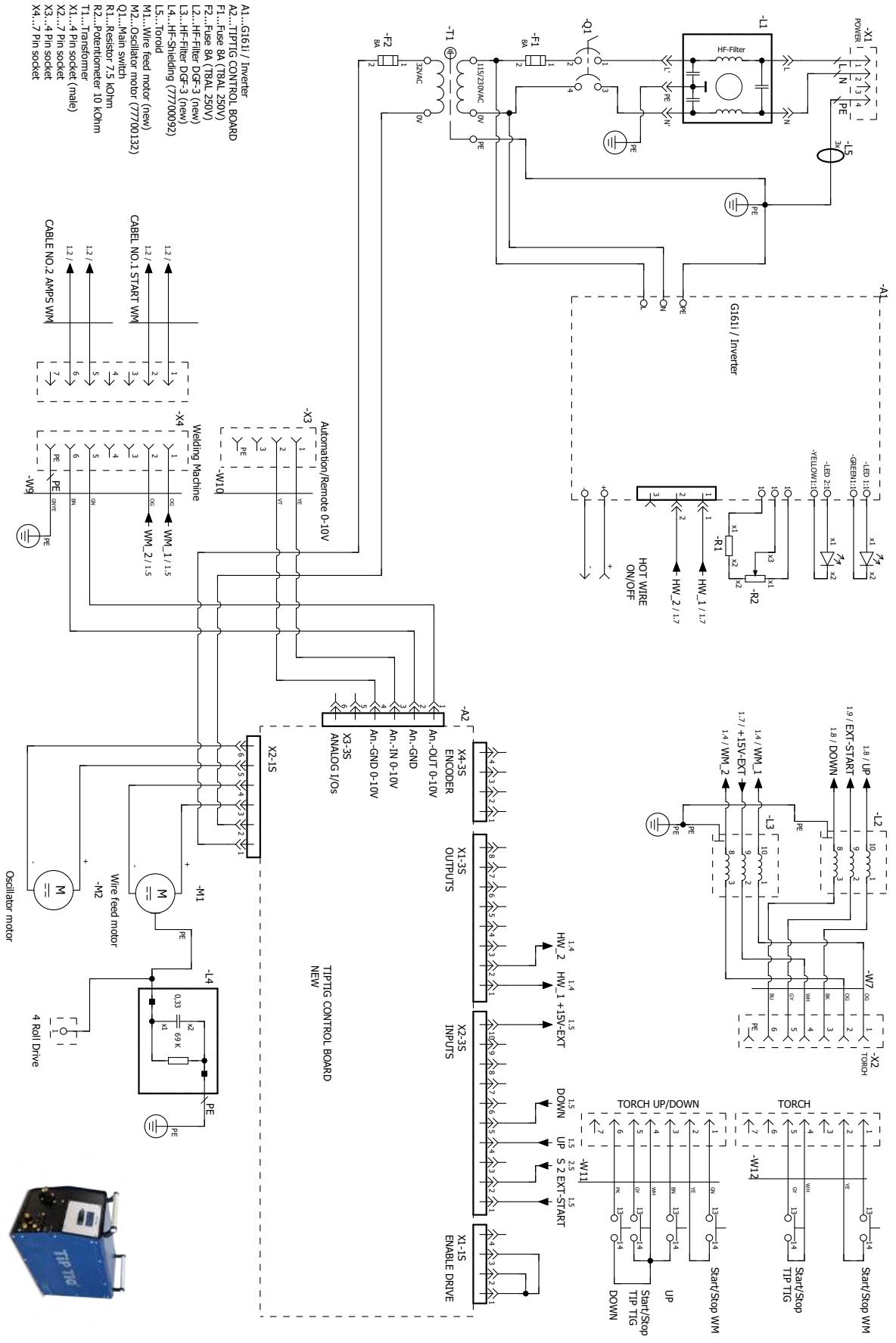
The wire feed speed may have a variation of $\pm 10\%$. It depends on the settings of the feed roll tensioner (see 5.5 (2)) and the quality of the wire.

10.3 Wiring diagram

10.3.1 Control panel – D24B2M1.6



10.3.2 Control panel – Version 2.0

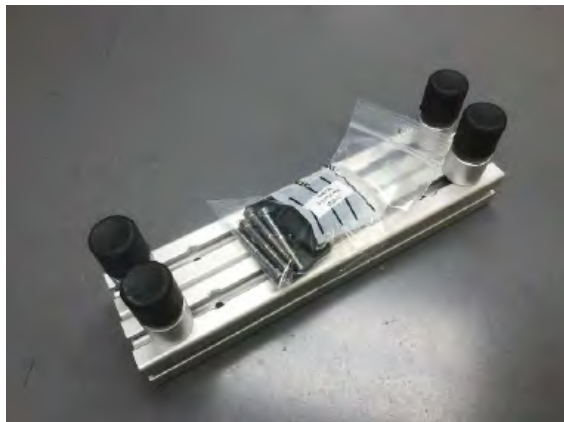


INSTALLATION TO MILLERPOWER SOURCE

Remove the 4 black screws on the top of your Miller power supply.



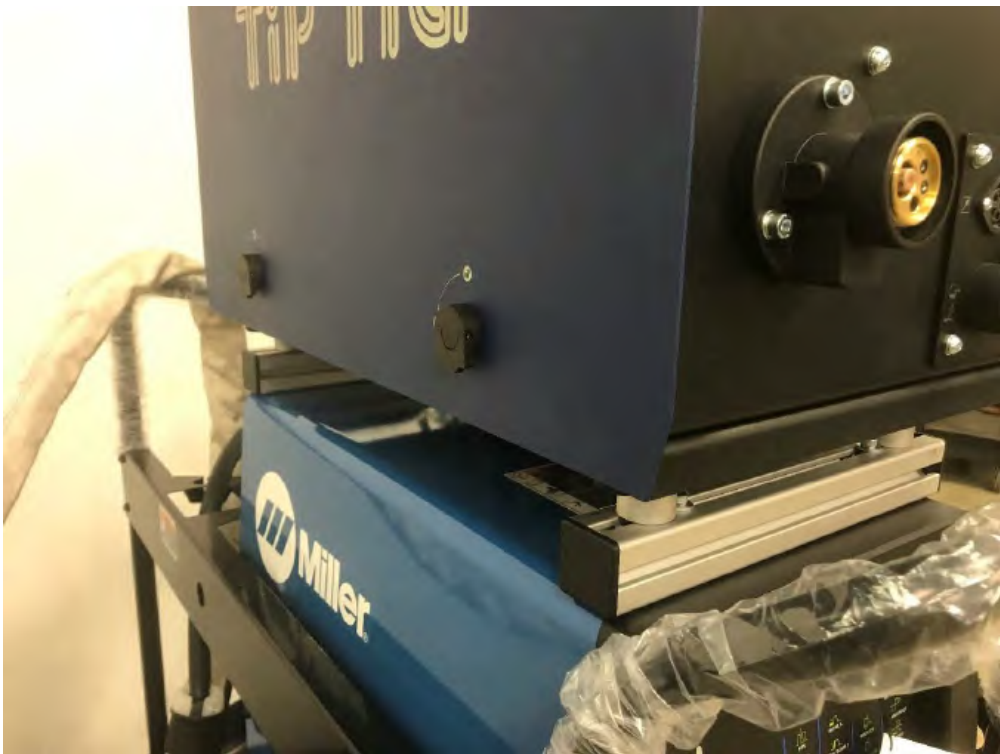
Mounting Kit PN#10000085



INSTALLATION TO MILLERPOWER SOURCE

Set mounting hardware in place and install.

Adjust feet and position TIP TIG on top of resting pads as shown



HF Interference Recommendations



GETTING STARTED SET AND TEST HOTWIRE AMPS

Make sure the interconnect cable is installed to the primary power supply and that the TIP TIG Unit is plugged into 120V.

Turn on the Primary Power Supply and Pump On.

Turn on Argon Gas and set to range of 25- 45.

Turn the TIP TIG power switch located at the rear of the unit on.

The Hotwire Power button is located at the front of control panel.

When first Powered On, The LED Indicator light will flash several times then become solid.

If welding Aluminum. DO NOT USE HOTWIRE....Power Off Hotwire

The Hot Wire Unit is activated.

The Hot Wire Amp Range is from 60 to 100. **PRESET AT 80AMPS**



- Recommended to always Use a Good Quality Weld Wire.
- The preferred wire diameter is .030", .035", .045" based on wire type and availability.
- Plastic Reels are preferred over the Wire Steel Reels.
- Wire Steel Reels may ***Bend or Break Causing Wire Feed Problems.***
- With TIP TIG the Wire Cast and Helix are Important for good Feedability.
- Use standard 10LB, 33LB , 40LB Wire Spools on 8" and 12" DIA.

DO NOT INITIATE ARC MID-AIR FROM THE TORCH

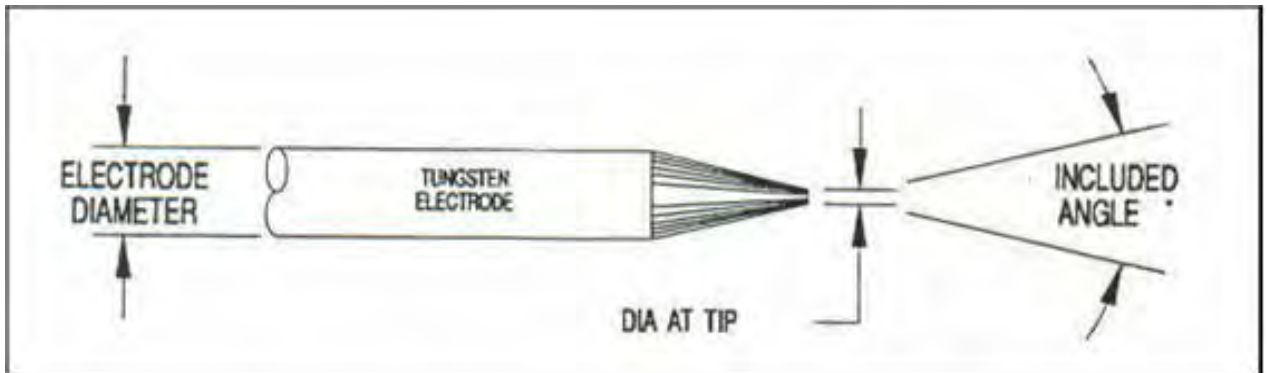
THIS WILL CAUSE DAMAGE TO THE UNIT AND VOID YOUR
WARRANTY

Tungsten Electrodes Sizes to Amperage Ranges

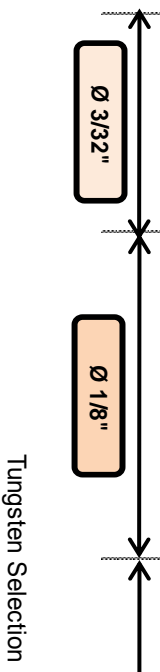
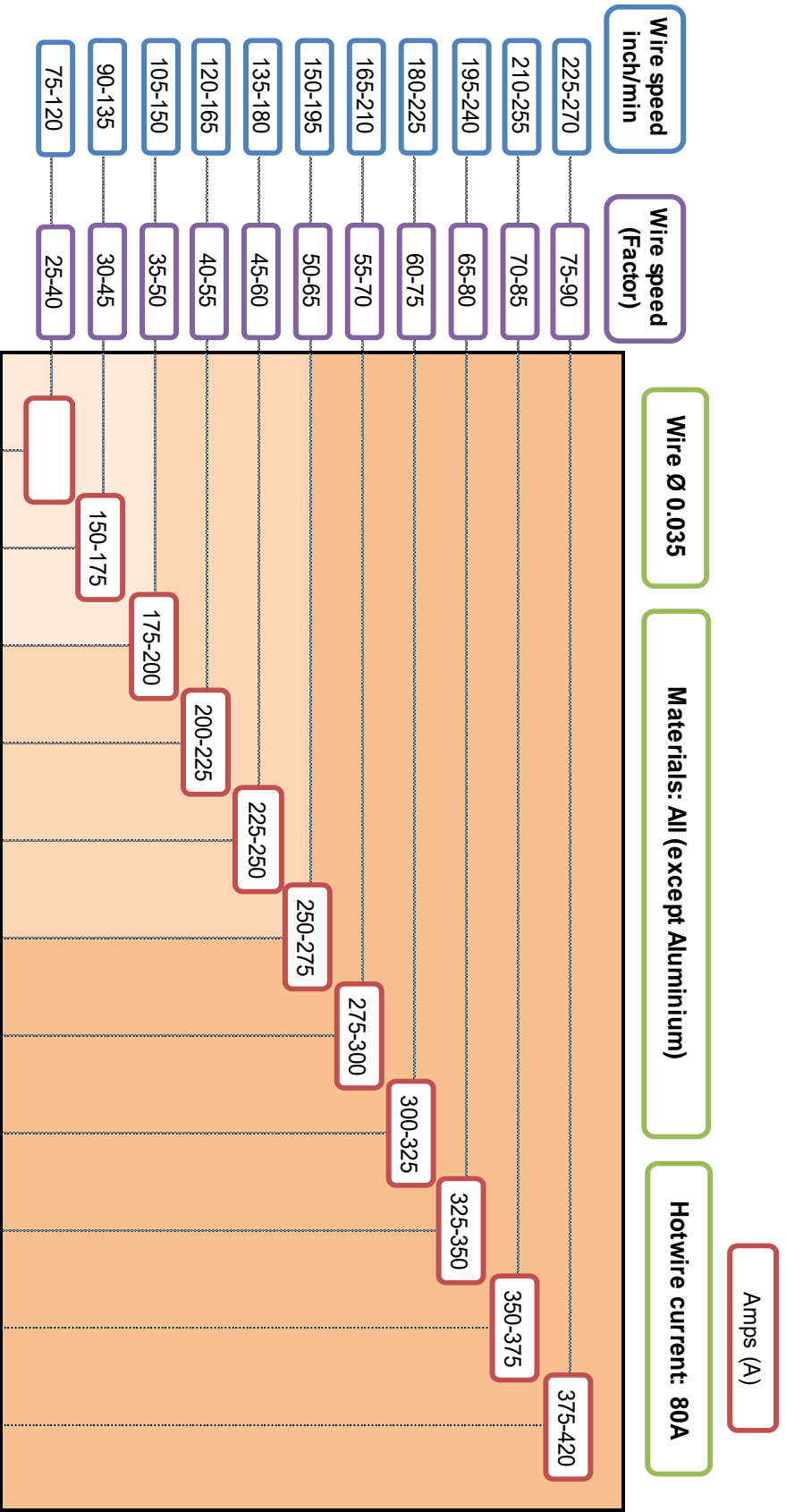
3/32" (.093") 2.4 mm = 60 - 200

1/8" (.125") 3.2 mm = 100 - 275

5/32" (.156") 4.0 mm = 160 - 500



TIP TIG WELD DATA CHART

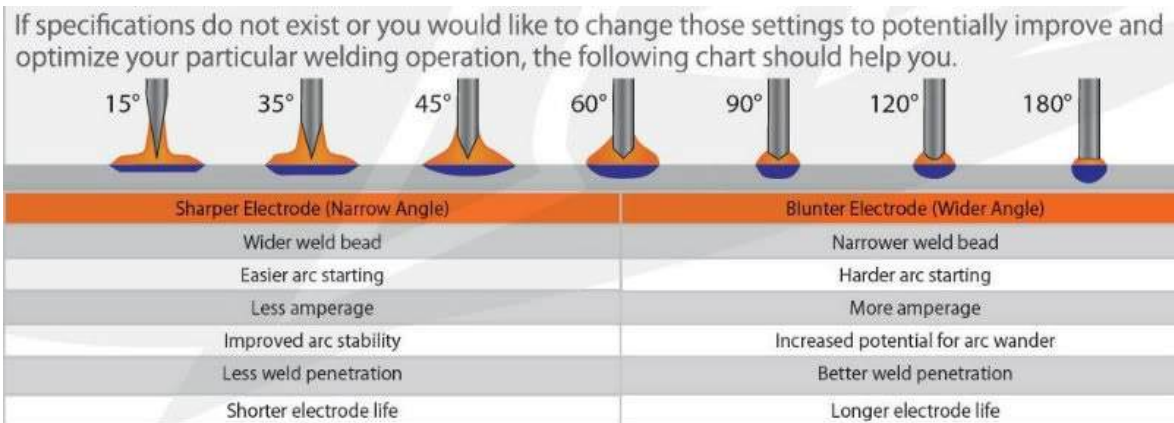


TIP TIG Hand Hotwire Welding Wire Ø 0.035 and Ø0.045in!

Baseline Start Up Parameters!

Please test all parameters before start of any work!

With the TIP TIG Process, you will be welding with more wire so your weld current will be higher than normal. 65 – 350 amps is typical. You will have much longer arc on times. How the tungsten is sharpened will have dramatic effect on the weld duty.



When installing a wire spool, make sure the drive wheels are set to the correct wire diameter.

Each drive wheel is reversible.

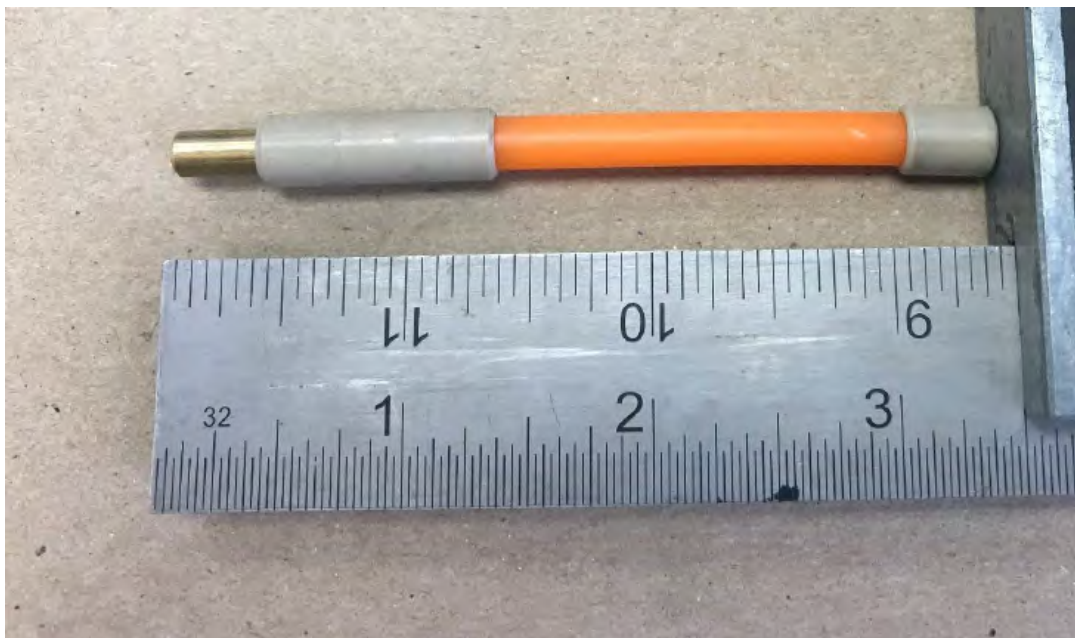
The number shown on the front side of the drive wheel indicates the correct wire size used.

Available Drive Roll Sizes (.8-1.0) (.9)(1.0-1.2)(.1.2) (1.2-1.6)

When removing or installing the torch, make sure the TIP TIG TEFLON OUTLET TUBE is installed inside the main connection terminal as shown below

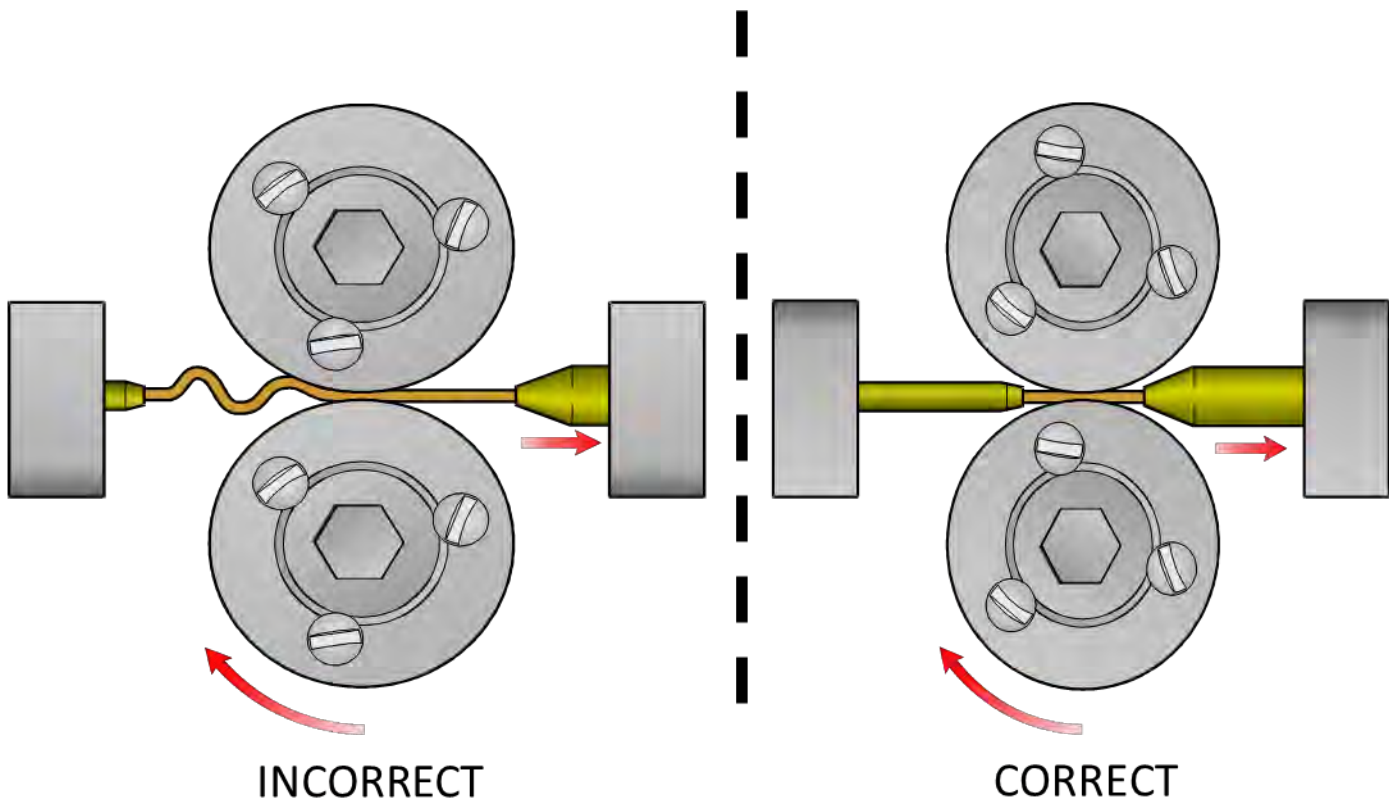
The TIP TIG TEFLON OUTLET TUBE is 3.5" Long.

The purpose of the TIP TIG TEFLON OUTLET TUBE is to keep the wire centered from the action of the wire feeder's forward and backwards motion and acts as the outlet guide for the wire.



Make sure the Inlet Guide and the Outlet Guide are as close to the drive rolls as possible.

This will greatly reduce any wire feed issues.

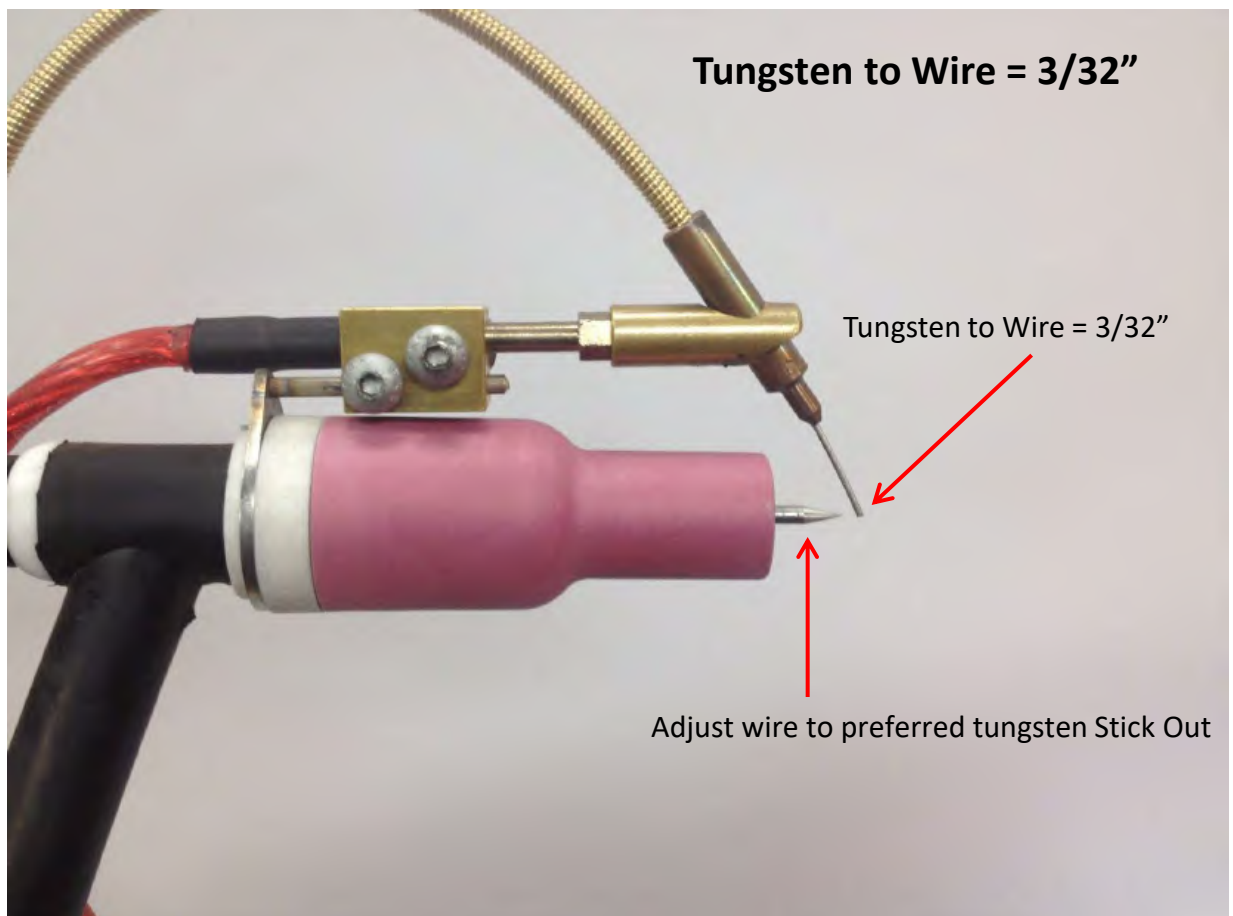


When installing the TIP TIG BRASS GUIDE, please ensure that the Brass guide is as close to the drive rolls without making contact with them.

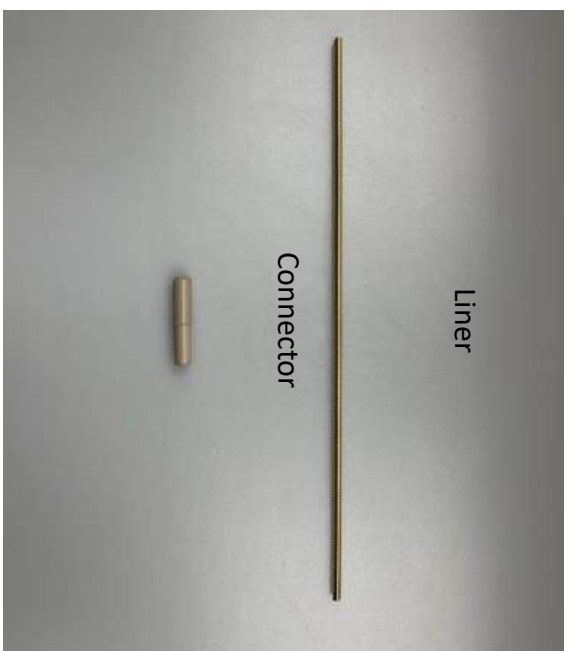
Refer to the correct diagram above.

LOADING THE WIRE

1. Remove all liner consumables so the torch is bare.
2. Make sure the correct drive rolls are installed.
3. Set the wire feed speed to 100.
4. Use a file to round off wire before inserting in into the TIP TIG.
5. Run the wire until it is about 12 inches past the handle.
6. Install liner and guide blocks...Make all settings as shown below.
7. Orientate the guide block to the desired position.
8. Run 15 inches of wire to ensure the wire cast has been straightened.
9. Set tensioners to around 3 and you are ready to weld.
10. Run the wire out for 30 seconds with the wire speed at 30 produce 45 linear inches of wire.
11. Adjust tension to achieve 45" of wire +/- 5 in 30 seconds



NEW QUICK DISCONNECT LINER

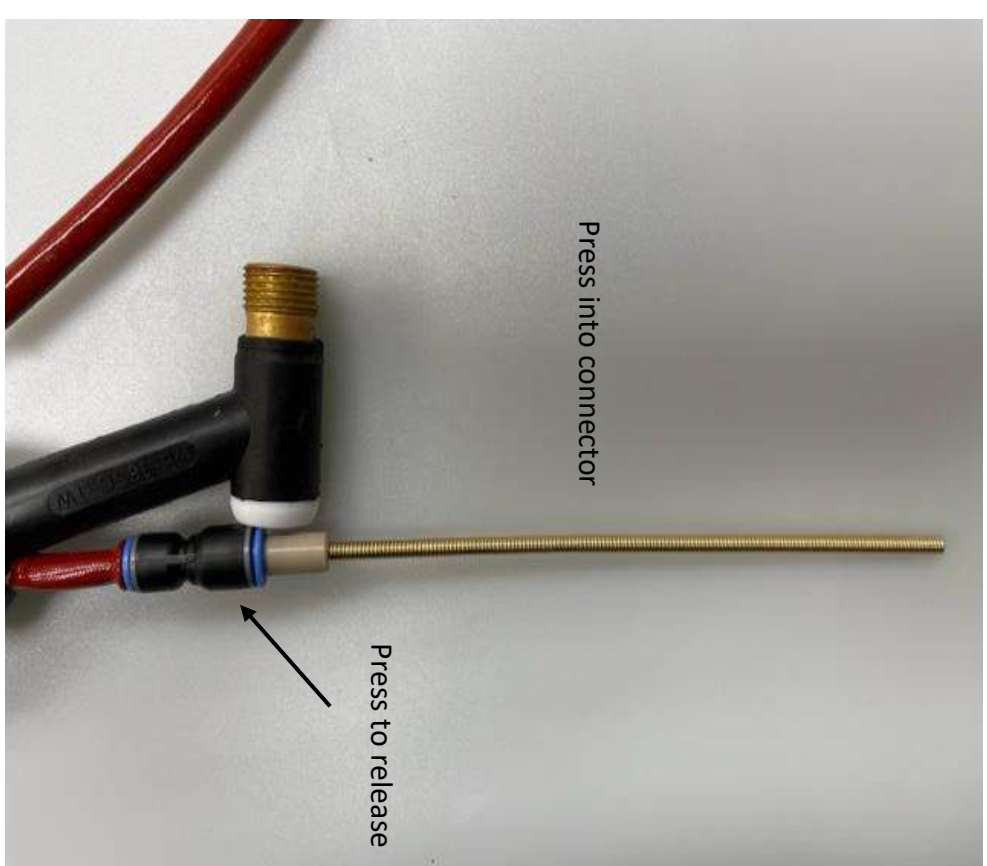


Insert connector onto liner and slide to the opposite end to thread into connector

May require a slight expansion of one end of the liner for secure fit



The Evolution of TIG



TIPTIG WP 18 SC TORCH AND CONNECTIONS

Part Number # 10002461

NEW!!

TIPTIG EXTREME

Hotwire 18 Water Cooled Torch

Standard Length 14ft (4.25m)

Duty cycle 400A/100%



Up Function = Arc On and Off

Down Function = Wire On and Off

To Start the Weld process

Step 1 – Press Up Button to Start Arc

Step 2 – Press Down Button to Start Wire

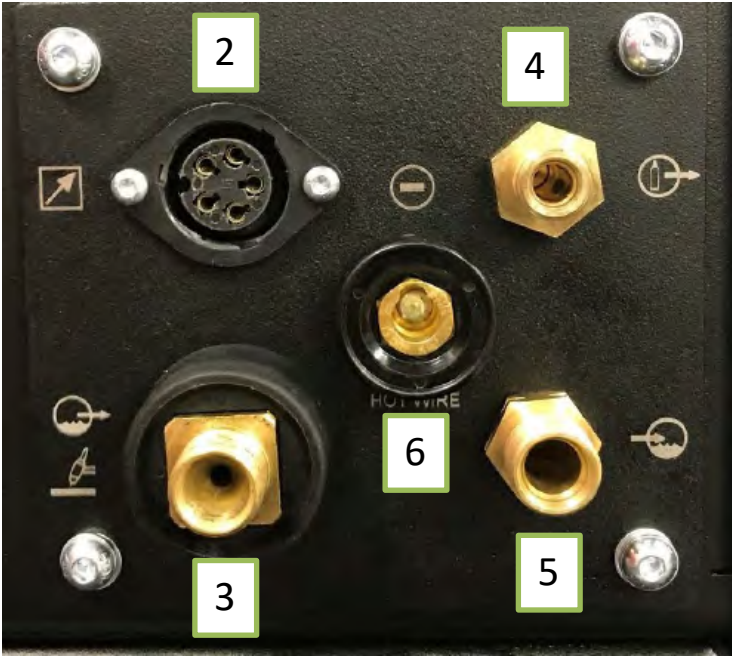
To Stop the Weld Process

Step 3 – Press Down Button to Stop Wire

Step 4 – Press Up Button to Stop Arc

TIPTIG WP 18 SC TORCH AND CONNECTIONS

TIP TIG FRONT CONNECTION



TIP TIG FEEDER

1 – 77700046 / 77700048

Main Torch Connection Terminal

2 – 88800457

5 Pin Female Bajonet Connector

3 – 77700162

Current / Water Connection G3/8 RH

4 -88800430

Gas Connection G1/4 RH

5 – 88800431

Water Inlet Connection G3/8 LH

6 – 88800426

Hotwire Terminal 25



TIP TIG TORCH

1 - Torch Connection

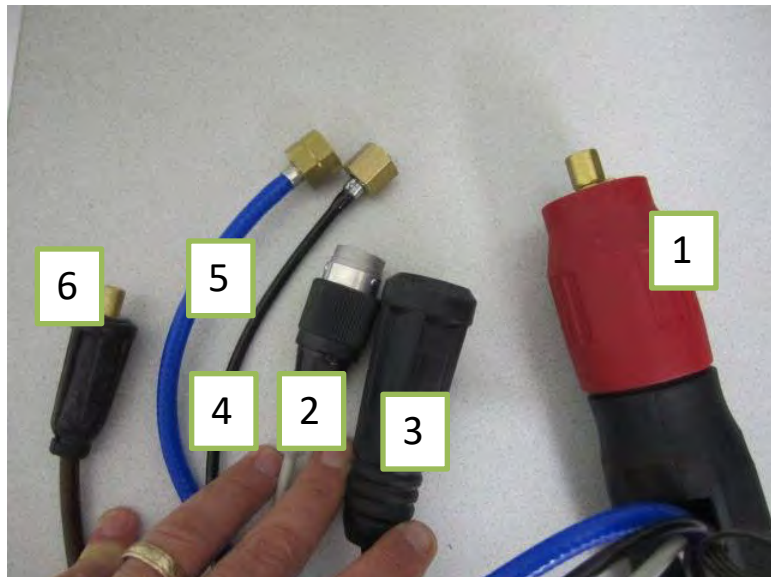
2 - 5 Pin Male Bajonet Connector

3 - Current / Water Connection G3/8 RH

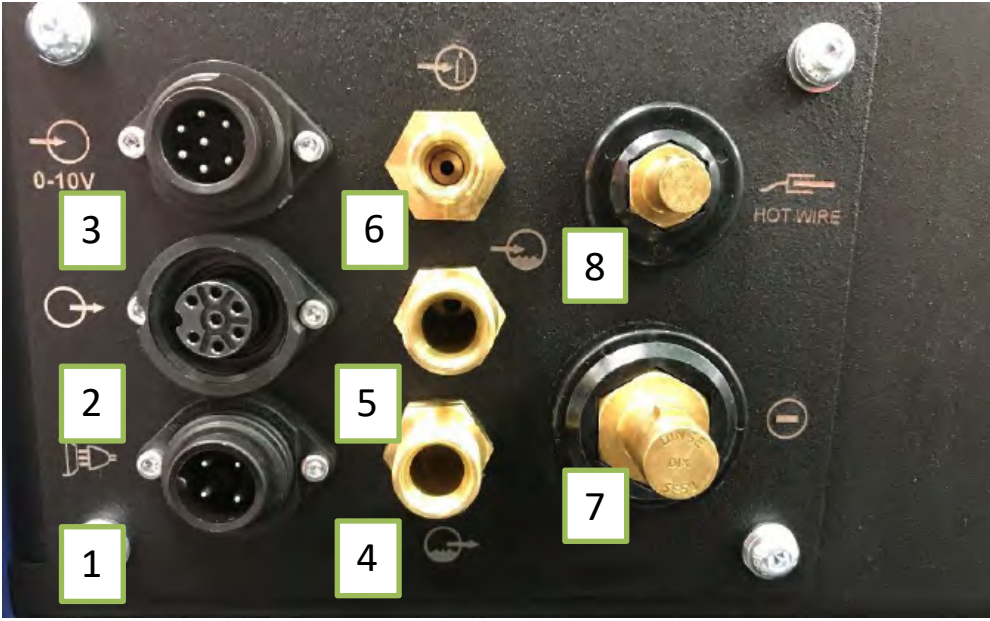
4 - Gas Connection G1/4 RH

5 - Water Inlet Connection G3/8 LH

6 - Hotwire Terminal SK25



TIP TIG INTERCONNECTION CABLE AND GROUND



TIP TIG REAR CONNECTION

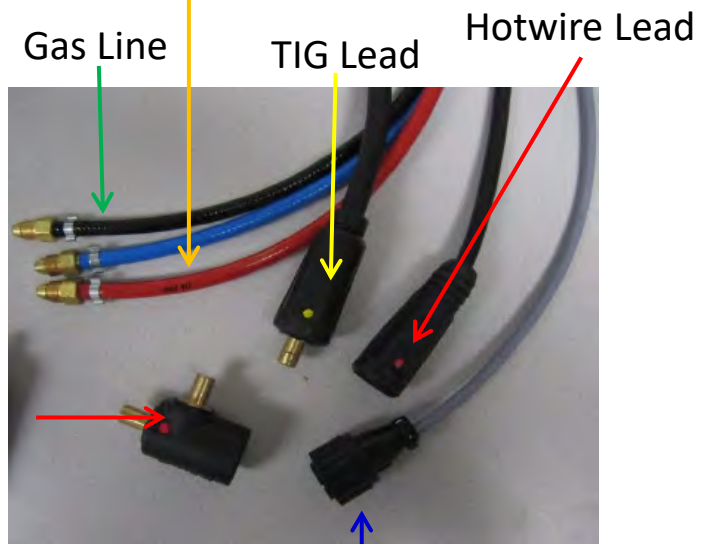
- 1) 120 VAC POWER TERMINAL
- 2) TIP TIG COMMUNICATION CONNECTION
- 3) TIP TIG 0-10V (AUTOMATION ONLY)
- 4) LH WATER FITTING 3/8"
- 5) RH WATER FITTING 3/8"
- 6) GAS FITTING 1/4"
- 7) Electro Negative Terminal
- 8) Hotwire Terminal

- 88800458
- 0902160007
- 0942200007
- 88800431
- 88800430
- 88800429
- 77700050
- 88800454

Working Ground Connection



2 Way Adapter



Miller Plug

WARRANTY INFORMATION

TIP TIG FEEDERS, TIPTIG HOTWIRE MODULES, TIP TIG POWERSUPPLYS

All TIP TIG systems have been calibrated from the manufacturer and are in compliance .

Within the warranty period of 12 Months from the date of purchase, TIP TIG USA will replace any warranted parts or components that fail due to such defects in material or workmanship. TIP TIG USA must be notified in writing within thirty (30) days of such defect or failure, at which time TIP TIG USA will provide information on the warranty claim procedures to be followed.

TIP TIG USA shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the delivery date of the equipment to the original end-user purchaser, and not to exceed one year after the equipment is shipped to a North American location.

TIP TIG USA shall not bear the costs of transportation.

12 Month Parts and Labor

- Transformer
- Hotwire Unit
- PC Board
- Feed and Oscillator Motor
- Linear Motion Slide and Extenders
- Torches (Upon Initial Delivery Only)

What is Not Covered Under the Warranty

Consumable components; such as contact tips, nozzles, insulators, rings, collets gas lenses, back caps, liners, tungsten, universal tip guides or any torch accessory
Is not covered under the manufactures warranty.

Causes for Warranty to be Voided

Damage, fault or failure due to alteration or repairs made by anyone other than Tip Tig
USA shall void the warranty

For TIPTIG Service please call:
856-312-8166

TIP TIG USA 155 E 9th Ave Suite A Runnemede, NJ 08078

WP18 SC LARGE CONFIGURATION

TIP TIG Extreme HW Torch SC18 4.0M

20002900

TIP TIG 18SC Torch Body Replacement

99903360



HD Insulator



Gas Lens

3/32"	99900524
1/8"	99900526
5/32"	99900528

Collets

3/32"	99901031
1/8"	99901032
5/32"	99901033

Ring

Outside Long	77700630
Inside Regular	77700631

Standard Insulator

Ring	77700214
Nozzle	77700605

HD Insulator

Ring 1	77700208
Ring 2	77700209
Nozzle	77700210

Nozzles

#6 3/8" 77700530	#6XL 3/8" 77700575
#8 1/2" 77700532	#8XL 1/2" 77700576
#10 5/8" 77700533	#10XL 5/8" 77700577
#12 3/4" 77700534	#12XL 3/4" 77700578
#6L 3/8" 77700570	#6XXL 3/8" 77700585
#8L 1/2" 77700571	#8XXL 1/2" 77700586
#10L 5/8" 77700572	#10XXL 5/8" 77700587
#12L 3/4" 77700573	#12XXL 3/4" 77700588

Back Caps

Small	77700240
Med	77700241
Large	77700242

Tip Holder

39 Deg Fillet	77700686
42 Deg Butt	77700685

Liner

Bronze Liner	77700566-A
--------------	------------

Insulator

Fiber Sleeve	60000215-A
--------------	------------

Tips Regular

Cooper .035"	77700536
Cooper .045"	77700537
Cooper .068"	77700538

Narrow Groove Tips

.035"	77700536B
.045"	77700537B

WP18 SC MEDIUM CONFIGURATION

TIP TIG Extreme HW Torch SC18 4.0M

20002900

TIP TIG 18SC Torch Body Replacement

99903360

Gas Lens

3/32"	99900024
1/8"	99900026
5/32"	99900028

Collets

3/32"	99901031
1/8"	99901032
5/32"	99901033

Ring

77700631

Ring Insulator 77700214

Nozzle Insulator 77700252

Nozzles

#5 5/16"	99902050
#6 3/8"	99902052
#7 7/16"	99902054
#8 1/2"	99902056
#5L 5/16"	99902060
#6L 3/8"	99902062
#7L 7/16"	99902064
#8L 1/2"	99902066

Back Caps

Small	77700240
Med	77700241
Large	77700242

Tip Holder

39 Deg Fillet	77700686
42 Deg Butt	77700685

Liner

Bronze Liner 77700566-A

Insulator

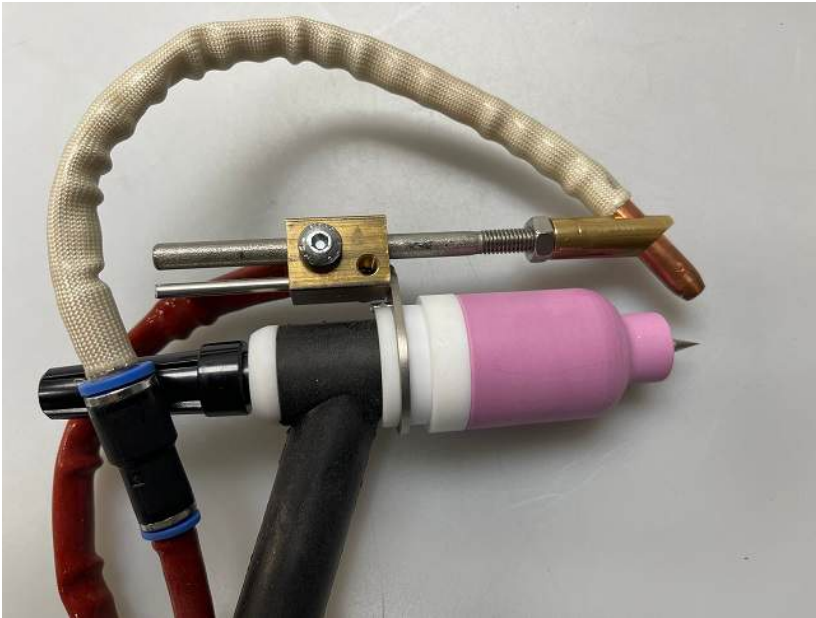
Silicone Sleeve 60000215-A

Tips Regular

Cooper .035"	77700536
Cooper .045"	77700537
Cooper .068"	77700538

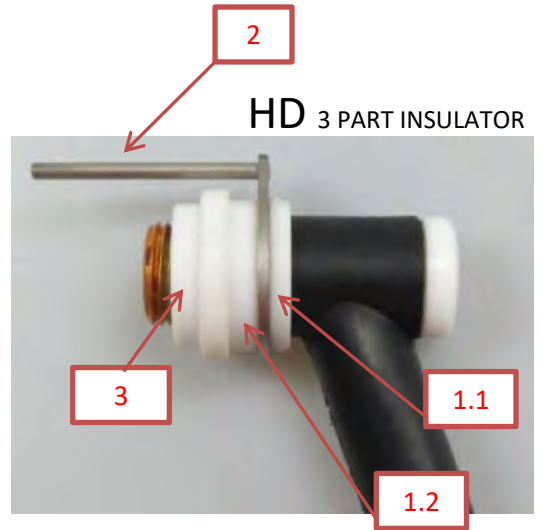
Narrow Groove Tips

.035"	77700536B
.045"	77700537B



WP18 SC TORCH INSTRUCTIONS

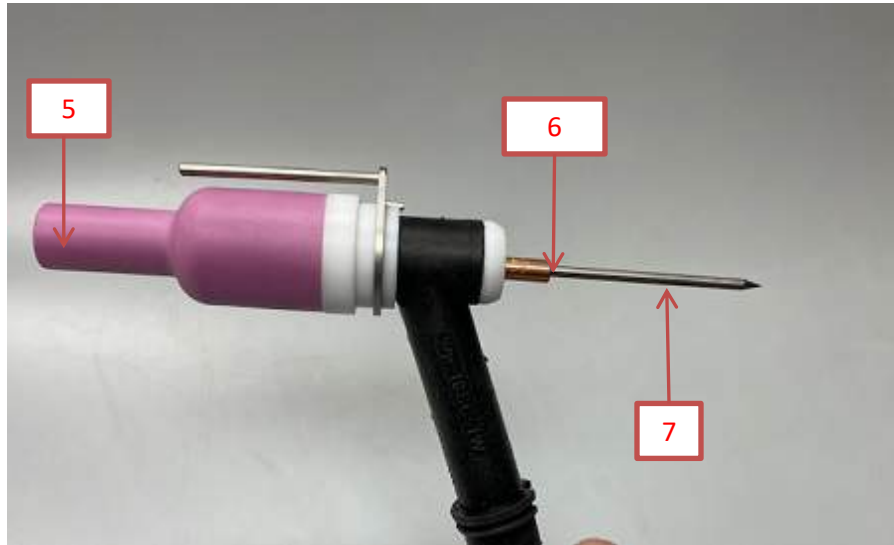
Standard



- Step 1- Install the Ring Insulator
- Step 2- Install the Ring for Universal Tip Holder
- Step 3- Install the Nozzle Insulator



Step 4- Install the Gas Lens by hand, then tighten slightly with pliers 79 OF 91 as shown.



Step 5- Install the Gas Nozzle

Step 6- Install the Collet

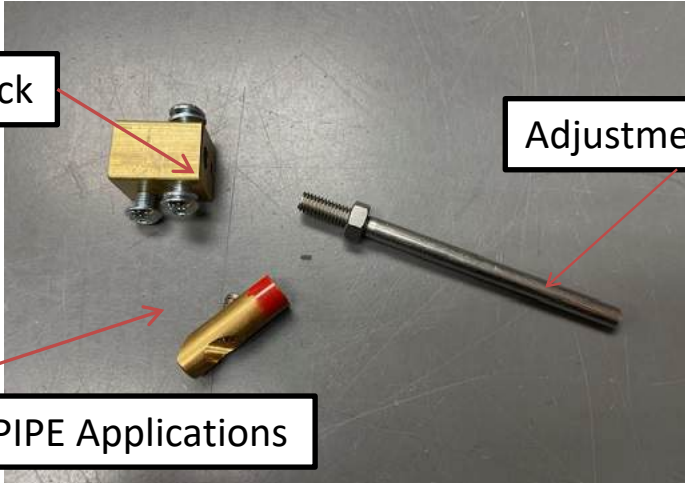
Step 7- Install the Tungsten



Step 8- Install the Back Cap and tighten to secure the tungsten in place.

Assembly Holder Block

Adjustment Shaft



42 (RED) Deg Tip Holder for PIPE Applications

Also Available in 39 (BLUE) Deg Tip Holder for PLATE Applications

Tip / Liner Assembly

Includes:
Contact Tip
.035, .045
Liner
Silicone Sleeve

7.5" Liner Assembly will work on Regular and Large Nozzle Sizes



WP18 SC TORCH INSTRUCTIONS



Loosen the Set Screw inside the Tip Holder



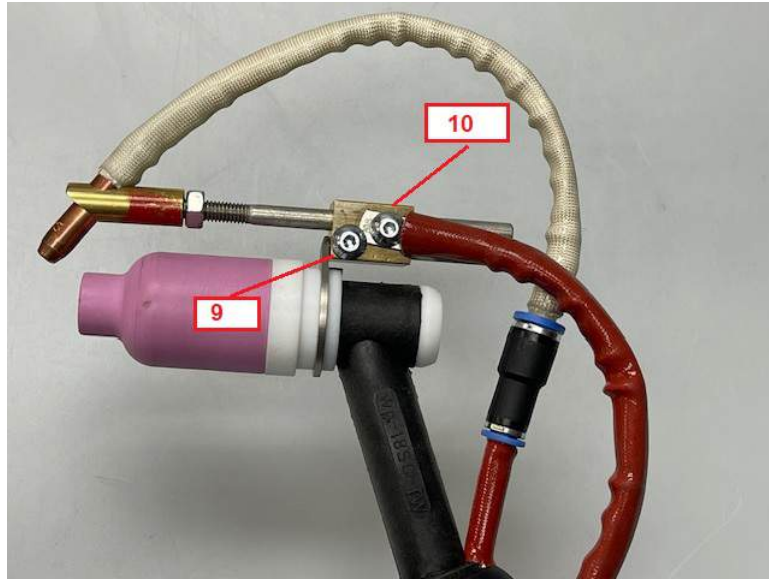
Install the weld repellent tape as shown.

Install the Tip Assembly into the Tip Holder and tighten.



Install the Tip Assembly Shaft.

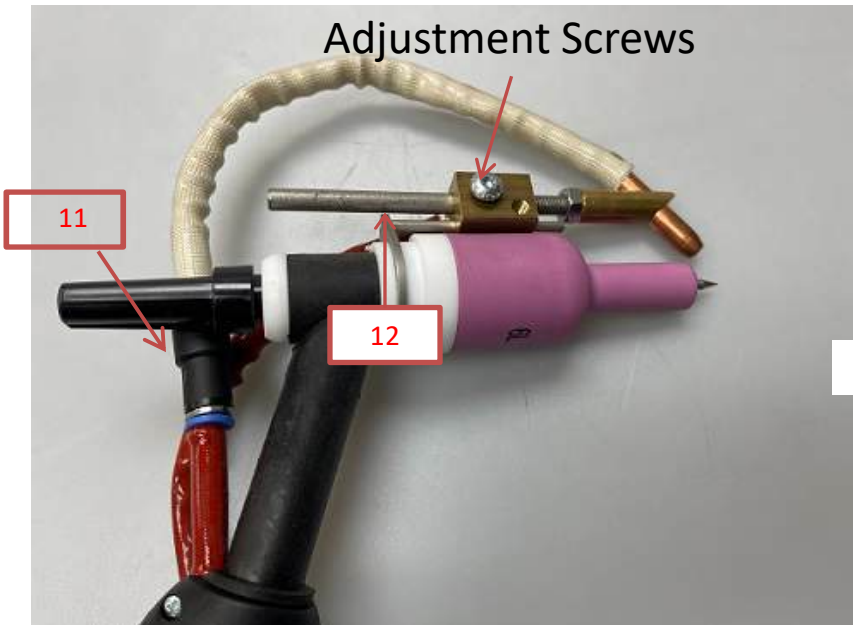
WP18 SC TORCH INSTRUCTIONS



Step 9- Install the Assembly Holder Block to the Ring and secure with screw.

Step 10- Attach Hotwire Cable to Assembly Holder Block with screw..

Radius of Tip Assembly needs to have a uniformed radius as shown for best wire feeding results

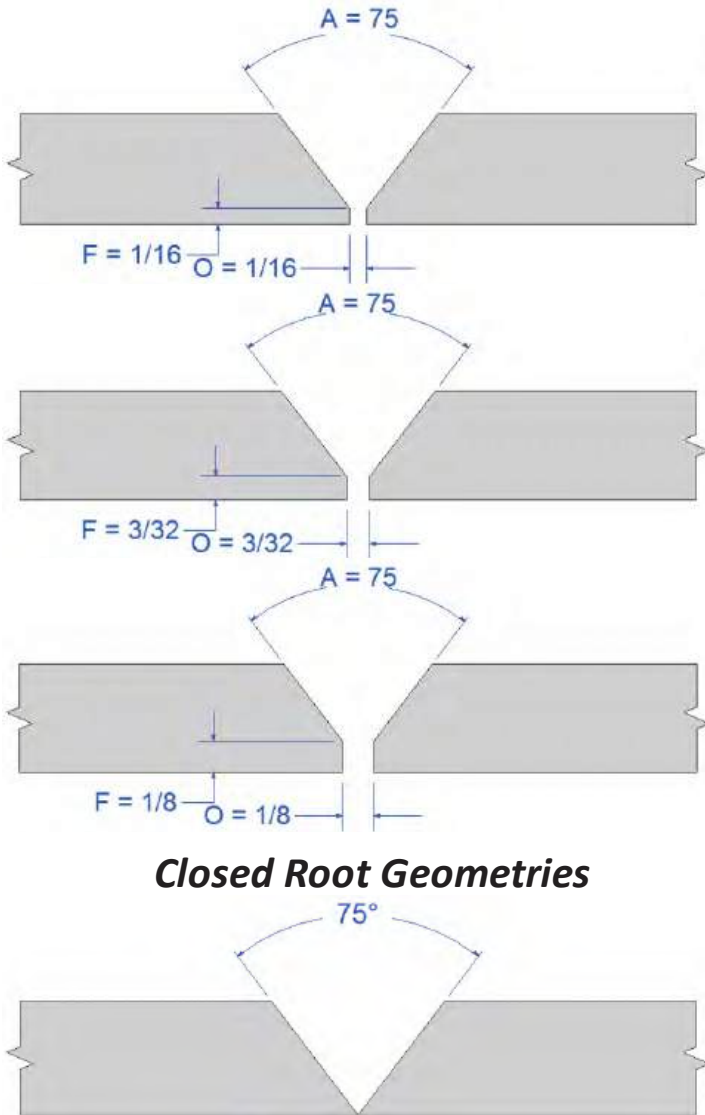


Push in liner and twist counter clockwise to seat in place.

Step 11- Push in Liner Assembly to Hull Adapter on torch

Step 12- Connect Adjustment Shaft to Assembly Holder Block and tighten screws

Open Root Geometries



PASS 1

OPEN ROOT (.035 Wire)

125 to 145 amps - 25 to 35 WFS

CLOSED ROOT (.035 Wire)

170 to 200 amps - 20 to 30 WFS

The heavier the wall the greater the amperage, as it acts as a heat sync.

Amperage also depends on the operator and his WFS and travel speed.

When rooting the pipe, you must stay on the leading edge of the puddle and maintain this throughout the process.

PASS 2 FILL

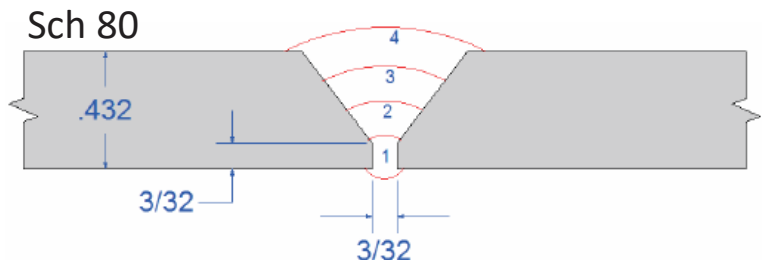
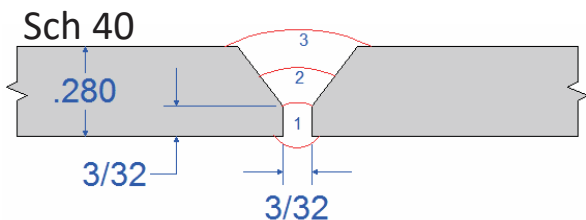
200 to 250 amps - 45 to 60 WFS

PASS 3 or PASS 3 - 4 CAP

170 to 200 amps - 30 - 40 WFS

2G Fixed, 5G Fixed, 6G Incline Fixed use lower settings.

1G Rotating use higher settings.



Semi-automatic HP GTAW Training Techniques To Use With 5G Pipe Coupon (6"-XXS)

WELD COUPON PREPARATION

When you grind the coupon lands, use a 6" grinder with a ¼" thick blade, while pressing down flat to achieve a near perfect land. Finish with a file. Land size should be close to 3/32".

WELD COUPON TACKS

Fit coupons using a 3/32" wire for the gap. Tack coupon with 4 tacks, the bottom tack will be approximately 1" long with the other 3, a ½" long. Feather all of the tacks, with the ½" tacks ground considerably more, to be able to consume them, if the welder is able to run past them when coming up the wall. Only feather the 1" tack on the ends, because you will need the extra metal in the center to start on.

TORCH SET-UP AND WELDING OF ROOT WELD BEAD

Start with a #8 cup.

Tungsten stick-out will be determined by positioning torch vertical to the top tack, and loosen tungsten until it hits the tack, then tighten it.

Position the wire feed guide even with the cup. Run wire out past the tungsten, and set a 7/64" to 3/32" gap between the wire and the tungsten by loosening the 2 thumb screws located at the rear of the wire feeder block rod.

An Allen wrench can be used as a feeler gauge.

While holding torch vertical, twist feeder block until wire is in a vertical line with the tungsten. Set machine to parameters located on the parameter limit sheets.

Position the tungsten at the center of the bottom tack. (This machine has an upslope, to give you time for last second adjustments.) Press the power on switch and weave tungsten across tack until achieving full power. Continue weaving while holding the torch in the same place until tack becomes fluid. Press wire on switch, and start welding while rocking the cup in a Z type weave. Hold on the sides, and move across center rapidly. Your progression will be slower on the bottom, and faster on the sides and top. Torch angle will be determined by the tungsten tip riding barely above the puddle. If you have to stop at a tack, walk up onto the center of the tack, turn wire off, then the power.

Reverse direction of torch while power down-slopes. This will keep you from consuming the feather edge. If you stick or dip your tungsten tip, you will need to stop and change out the tungsten. You will need to feather end of weld before resuming weld.

TORCH SET-UP AND WELDING OF HOT PASS BEAD

First you will need to determine if a #10 or #12 cup is needed. Position the cup horizontally from the side of the pipe. Tilt the back end of the torch down approximately 10 to 20 degrees. You need to have a minimum gap of $\frac{1}{4}$ " from the bottom of the cup to the center of the root weld. If there is less distance than that, you will need to change to a #12 cup.

Tungsten stick-out will be determined by positioning torch horizontal to the side of the root weld. Tilt the back end of the torch approximately 10 to 20 degrees and the tungsten will need to touch the weld. Run wire out past the tungsten, and set a $\frac{1}{8}$ " gap between the end of the tungsten, and the wire.

Set machine to parameters located on the parameter limit sheets.

Start welding at the bottom, proceeding upward, while holding at the sides, and moving rapidly across the center.

Remember the tungsten needs to ride just above the puddle.

TORCH SET-UP AND WELDING OF FILLER PASSES

It will be the same as for hot passes except that when a #12 cup gets close to bottoming out at the center of the previous weld, and the bottom of the cup, you will need to change back to a #10 cup. This will be after the hot pass, or first filler pass. Cup size of the remainder of weld passes will be determined by welder preference, and or geometry of the previous weld bead placement. Set machine to parameters located on the parameter limit sheets.

Note: Cup sizes will differ with welder preference, but for this training, we will start with these sizes.

Techniques To Use With 5G Pipe Coupon (6" Sch. 80)

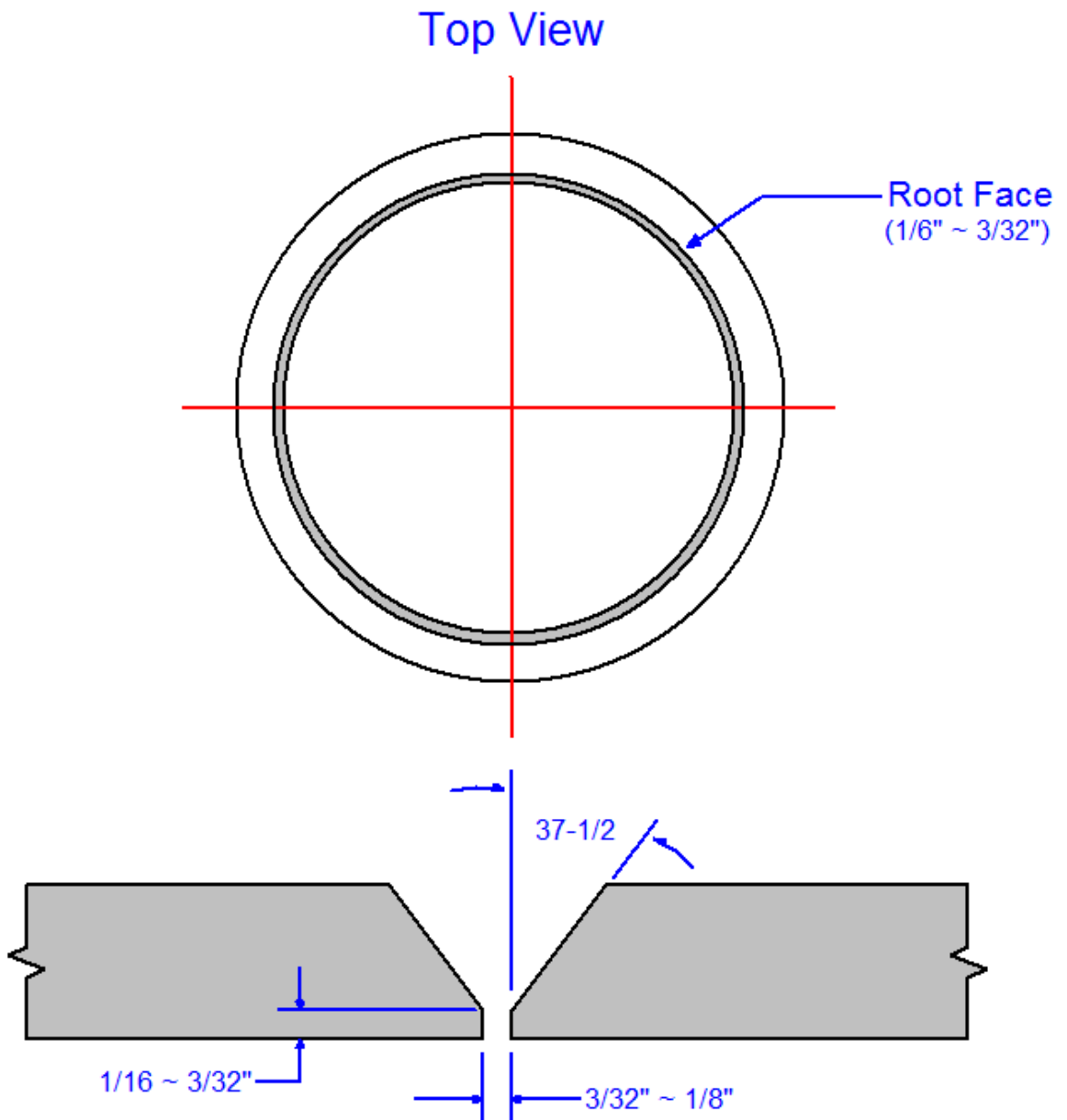
This will be the same as welding 6"-XXS except you will start with a #6 cup for the root. Then progress to a # 8 cup for the hot pass, a # 10 cup for the filler, and a # 12 cup for the cap. For the cap you might want to increase the wire to tungsten distance from 3/32" to 7/64".

Note: Cup sizes will differ with welder preference, but for this training, we will start with these sizes.

TIPTIG Manual Semi-Automatic GTAW Process
Open Root Technique

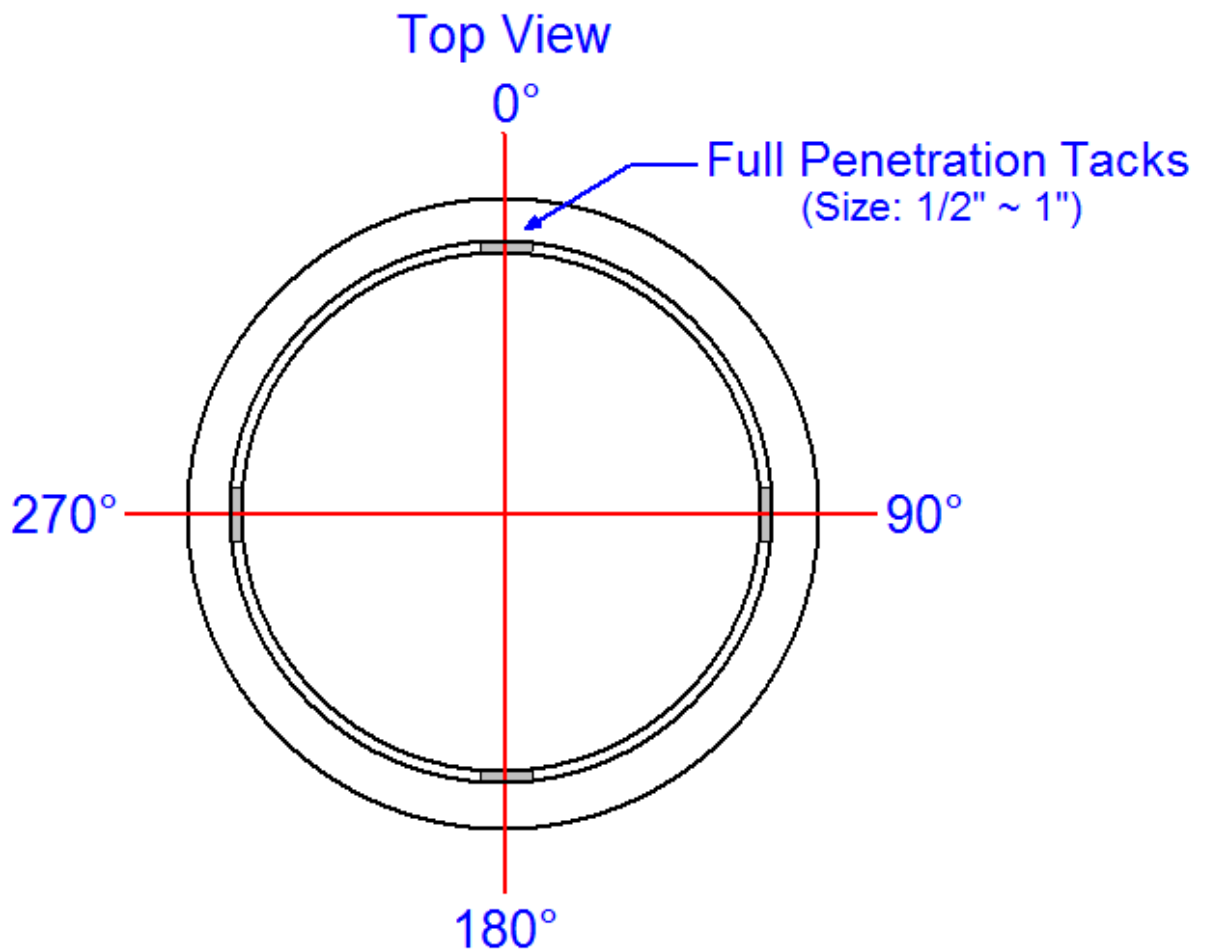
WELD COUPON PREPARATION

When grinding the coupon root face, use a 4" grinder with a 1/4" thick blade, while pressing down flat to achieve a near perfect land. Finish with a file.
Root face size should be close to 3/32" and Pipe Bevel 37.5.



WELD COUPON TACKS

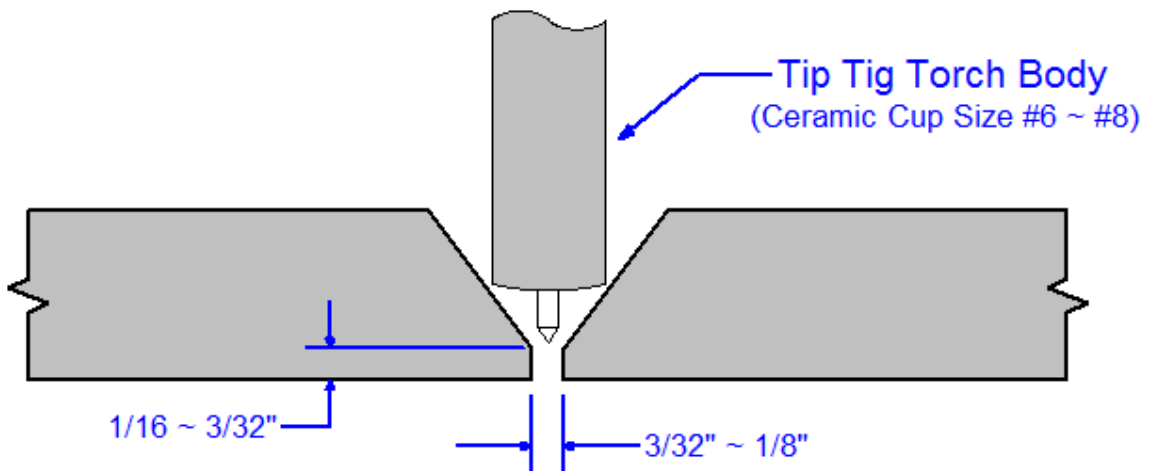
Fit coupons using a $3/32$ " tig weld wire for the gap. Tack coupon with 4 tacks, the bottom tack will be approximately 1" long with the other 3, a $1/2$ " long. Feather all of the tacks, with the $1/2$ " tacks ground considerably more, to be able to consume them, if the welder is able to run past them when coming up the wall. Only feather the 1" tack on the ends, you will need the extra metal in the center to start on.



TORCH SET-UP

Start with #6 or #8 cup.

Tungsten stick-out will be determined by positioning torch vertical to the top of the pipe, and loosen tungsten until it reaches the top of the root face, then secure the tungsten.



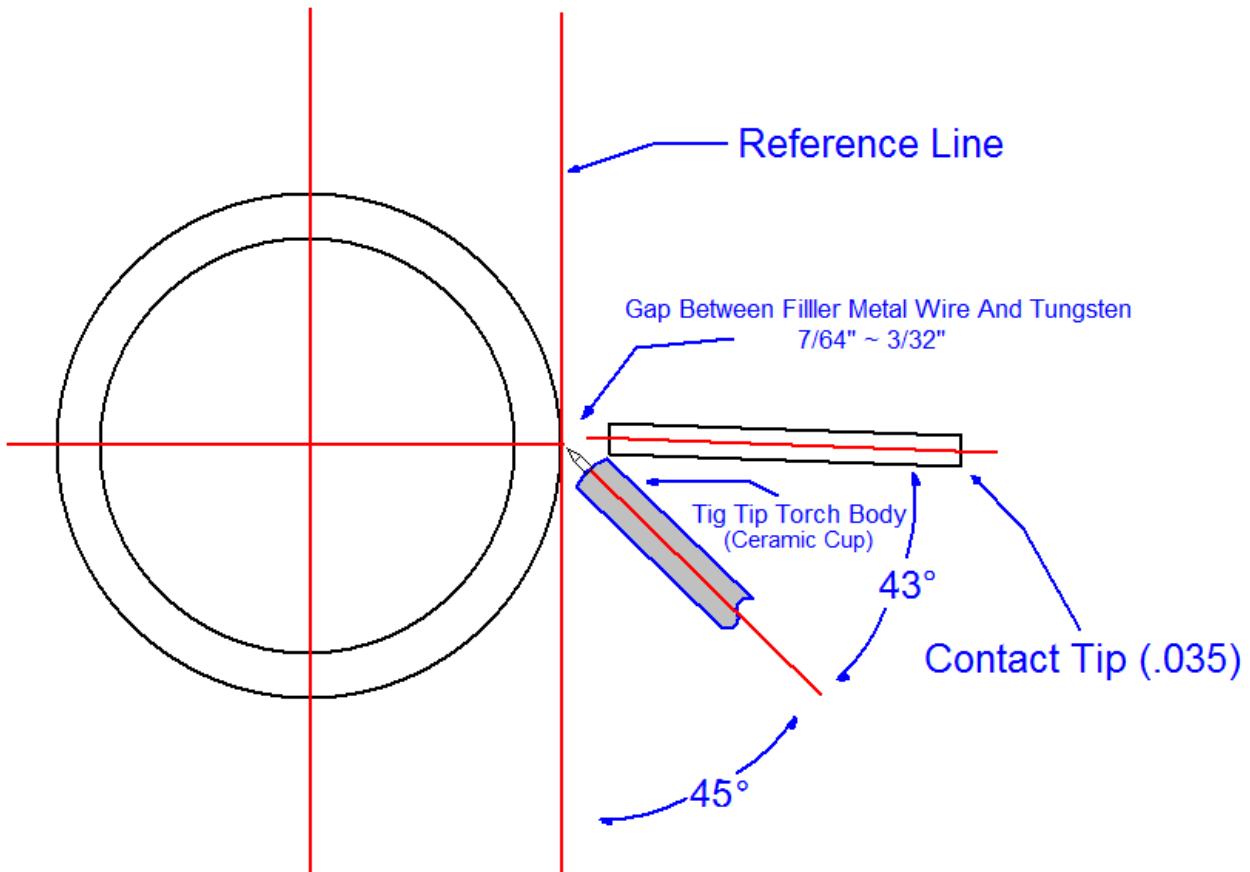
Welding Technique – Open Root Groove

Position the wire feed guide (contact tip) even with the cup. Run wire out past the tungsten, and set a $7/64''$ to $3/32''$ gap between the wire and the tungsten by loosening the 2 thumb screws located at the rear of the wire feeder block.

While holding torch vertical, twist feeder block until wire is in a vertical line with the tungsten.

Position the tungsten at the center of the bottom tack. Press the power on switch and weave tungsten across tack until achieving full power. Continue weaving while holding the torch in the same place until tack becomes a molted puddle. Press wire on switch, and start welding while rocking the cup in a Z type weave. Hold on the sides, and move across center rapidly. Your progression will be slower on the bottom, and faster on the sides and top.

Torch angle will be determined by the tungsten tip riding barely above the puddle. If you have to stop at a tack, walk up onto the center of the tack, turn wire off, then the power. Reverse direction of torch while power down-slopes. This will keep you from consuming the feather edge. If you stick or dip your tungsten tip, you will need to stop and change out the tungsten. You will need to feather end of weld before resuming weld.





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