ABICOR OMEGA

Instruction Manual

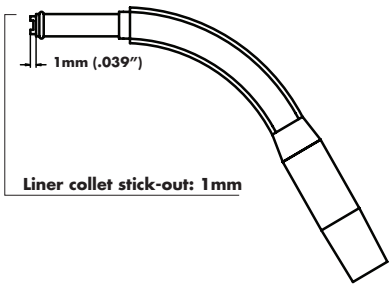
ABICOR BINZEL®

CONTENTS

Installation of Neckliners for Slip-on and Threaded Nozzle Swannecks

If replacing an existing neckliner:

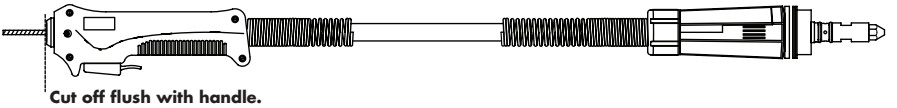
1. Remove the swanneck.
2. Remove the old neckliner and measure its length.
3. Carefully cut the new neckliner to the same length as the old liner with a pair of sharp cutters.
4. Check to ensure that there are no burrs or obstructions to the inner diameter of the Liner.
5. Insert the cut liner into the swanneck. When cut and installed correctly, the neck liner should stick out approximately 1mm (.039″) without being held in. When pushed in, the neckliner should be flush with the end of the neck.
6. Replace the swanneck on the torch body in the preferred position and tighten the swanneck locking screw, which is located under a plastic plug on the right handle halve.



If installing a neckliner into a new swanneck or swanneck without old neckliner for measuring length:

1. Fit the consumables (diffuser/insulator, tip-holder, contact tip, nozzle) onto the swanneck.
2. Insert the neckliner into the swanneck as far as it will go.
3. Measure the length of liner sticking out from the back of the swanneck and subtract 1mm (.039″). (When cut and installed correctly, the neckliner should stick out approximately 1mm (.039″) without tension).
4. Remove the liner and measure the length from step 3 back from the inserted end and mark carefully. With a pair of sharp cutters cut off excess liner.
5. Check to ensure that there are no burrs or obstructions to the inner diameter of the liner.
6. Insert the liner into the swanneck, fit the swanneck on the torch body in the desired position and tighten the swanneck locking screw.

Installation of Insulated Steel Liners in Euro or Direct Mount Torches

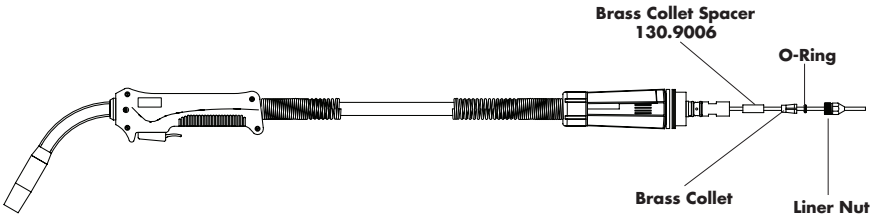


Note: When using sizes 1.98mm - 2.38mm (.078" to .094"), run the cable liner to the contact tip.

1. Lay the torch out straight and remove the swanneck.
2. Remove the liner retaining nut at the wire feed end of the torch and remove the old liner if fitted.
3. Check that the new liner has no kinks in it.
4. Gently feed the liner through the cable assembly from the machine end of the torch, taking care not to kink it in the process.
5. With the liner collect fully seated in the rear connection, replace the liner retaining nut, but hand tighten only.
6. At the front end of the torch, the liner will now protrude from the handle.
7. Cut the liner flush with the handle (see diagram above).
8. Remove the liner retaining nut and pull the liner back out of the torch.
9. At the front end of the liner, cut off an additional 38mm (1.5")
10. Check to ensure there are no burrs or obstructions in the inner diameter of the liner. Reinsert the liner into the rear of the torch and tighten the liner retaining nut with a wrench.
11. Reseat the swanneck into the torch body, adjust to the preferred position and tighten the locking screw in the side of the handle.
12. The torch is now ready to be fitted to the wire feeder.

* Note: If using a pass through style liner you will need to trim the rear liner as close to the drive rolls as possible.

Installation of Combi Liners for Aluminum/Stainless Steel in Direct Mount Torches:



1. Lay the torch out straight and remove the liner retaining nut at the wire feed end of the torch cable. Remove the existing torch and swanneckliner if fitted.
2. With the neck installed, gently feed the Combi liner through the cable assembly until the liner bottoms out at the contact tip.
3. At the machine end of the torch, slide the brass collet spacer P/N 130.9006, brass collet and O-ring, over the liner until they are seated in the rear connection.
4. Install the proper liner nut which is supplied in the connector kit. This is the nut with the large hole for the liner to exit through. Do not over tighten the nut as this can result in wire feed problems.

DO NOT CUT EXCESS LINER YET!

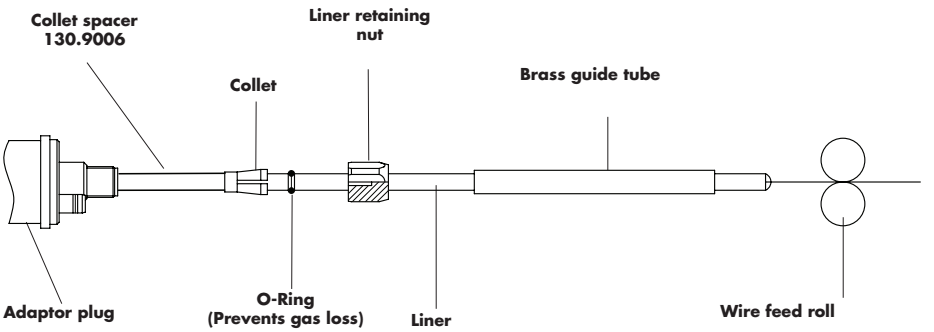
5. With the PTFE liner still protruding from the rear of the torch; feed the torch into the feeder mounting block. Using a sharp tool,cut the liner so that it butts up to the drive rolls. This will provide the needed wire support to the wire immediately after it exits the drive rolls. If the liner is trimmed correctly, and the wire hub tension is set properly, "bird-nesting" in the event of a wire jam will be prevented.
6. Secure torch rear end into the feeder's mounting block by the method used by the feeder manufacturer (normally a set screw).
7. After confirming that the feed rolls are the correct size and type for the wire being used, and that the wire is fed into the liner correctly, back off the wire feed roll pressure until the feed rolls no longer feed the wire, then retighten slightly. Be cautious as too much pressure will deform soft wire such as aluminum and cause the wire to jam in the contact tip. To help prevent wire deformation, a U-groove feed roll is better than a V-groove feed roll for soft wires.
8. Aluminum wire requires a contact tip with greater clearance than that used for steel. Binzel tips designed for aluminum wire start with P/N 141.xxxx.

Installation of Combi Liners for Aluminum/ Stainless Steel in Euro Quick-Connect Torches:

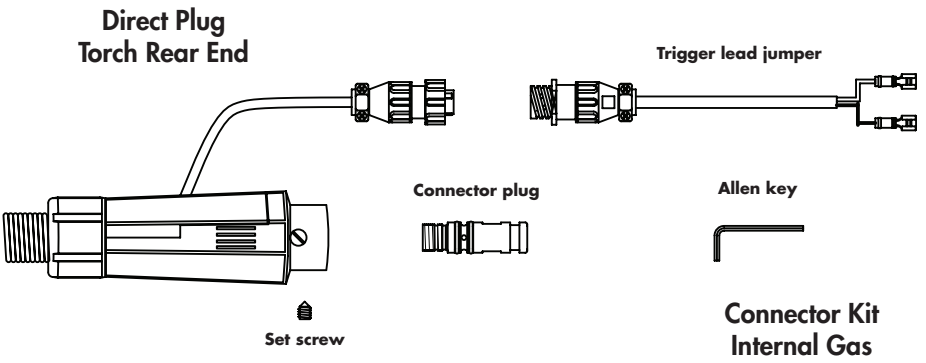
1. Lay the torch out straight and remove the liner retaining nut at the wire feed end of the torch cable. Remove the existing torch and neckliner if fitted.
2. With the neck installed gently feed the PTFE liner through the cable assembly until the liner bottoms out at the contact tip.
3. Refer to the diagram above: At the adapter block end of the torch cable, slide the brass collet spacer 130.9006, brass collet and O-Ring, over the liner until they are located in the recess in the adapter block; replace the liner retaining nut.

DO NOT CUT THE LINER YET!

4. If the wire feeder was previously set up for steel wire, it may be necessary to take a pair of long-nosed pliers and remove the steel inlet guide from the central adapter installed in the front face of the wire feed unit.
5. With plastic liner still protruding from the Euro adapter, feed the liner through the inlet of the central adapter kit until the adapter block on the torch is butted against the central adapter kit. Fasten into position with the plastic adapter nut. Cut the liner, using a sharp knife, so that it butts up to the drive rolls, thereby supplying support to the soft wire immediately after it exits the drive rolls. If this is done correctly, "bird-nesting" in the event of a wire jam will be prevented.
6. Remove the welding torch from the machine and ensure that the brass guide tube is 3mm (.118") shorter then the protruding plastic liner (if not, cut accordingly). Slide the guide tube over the liner and feed the liner (with the guide tube fitted) into the inlet in the central adapter, continue to feed through until the adapter plug is butted against the central adapter, then tighten the plastic adapter nut.
   Note: PTFE liners with a diameter of 4.7mm (.185") or larger do not require a guide tube. (See diagram below for correct location of parts).
7. After confirming that the feed rolls are the correct size and type for the wire being used, and that the wire is fed into the liner correctly, back off the wire feed roll pressure until the feed rolls no longer feed the wire, then retighten slightly. Be cautious as too much pressure will deform soft wire such as aluminum and cause the wire to jam in the contact tip.

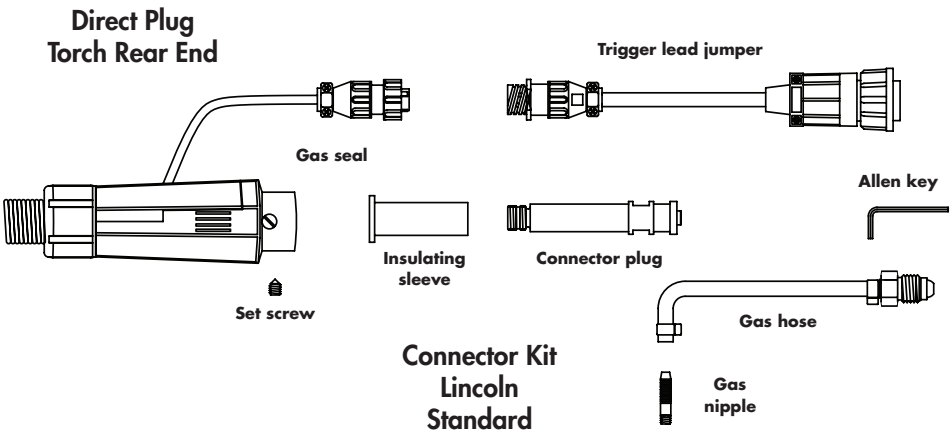


Assembly Instructions for Direct Plug Connector Kits: Internal Gas



1. Thread the connector plug into the rear of the torch (the connector plug may differ from the one shown).
2. Tighten down the set screw with the Allen key provided.
3. Connect the appropriate end of the trigger lead jumper supplied in the kit to the connector exiting the torch (the trigger lead may also differ from the one shown).
4. Install the torch liner supplied with the torch as per the liner installation instructions on pages 4-5.
5. The torch is now ready to install into the feeder. Finally, hook up the trigger connector on the feeder side.

Assembly Instructions for Direct Plug Connector Kits: External Gas (Lincoln std. shown)



1. Slide the insulating sleeve over the connector plug (wide end facing the torch) and screw the plug into the torch rear end.
2. Tighten down the set screw with the Allen key provided.
3. Remove the gas seal and save for possible future use (e.g. for converting the torch to internal gas). Install the gas nipple in place of the gas seal (removable sealant can be applied to the threads if so desired, but use care to avoid sealant getting inside the block).
4. Slide the gas hose over the gas nipple and clamp with the clamps supplied.
5. Connect the appropriate end of the trigger lead jumper supplied in the kit to the connector from the torch rear end.
6. Install the liner supplied with the torch as per installation instructions on pages 4-5.
7. The torch is now ready to install into the feeder. Finally, hook up the gas and trigger connectors on the feeder side.

OMEGA 3 THREADED NOZZLE: CONSUMABLE COMBINATIONS

OMEGA 3 Threaded	Wire Size Type	Contact Tip Part #	Tip Holder Part #	Diffusor Part #	Nozzle Part #	Neckliner Part #	Cable Liner Part #
	.035 Steel	140.0214	H3T-8-C	N/A	N3T-R-62	NLS-3545	SI4-3545-17PT
	.040 Steel	140.0313	H3T-8-C	N/A	N3T-R-62	NLS-3545	SI4-3545-17PT
Factory Set-up for 034-045	.045 Steel	140.0442	H3T-8-C	N/A	N3T-R-62	NLS-3545	SI4-3545-17PT
	.052 Steel	140.0533	H3T-8-C	N/A	N3T-R-62	NLS-5262	SI4-5262-17PT
Factory Set-up for 1/16"	.062 Steel	140.0587	H3T-8-C	N/A	N3T-R-62	NLS-5262	SI4-5262-17PT
	.035 Aluminum	141.0043	H3T-8-C	N/A	N3T-R-62	N/A	128.9047
	.040 Aluminum	141.0008	H3T-8-C	N/A	N3T-R-62	N/A	128.9047
	.045 Aluminum	141.0015	H3T-8-C	N/A	N3T-R-62	N/A	128.9047
	.052 Aluminum	141.0055	H3T-8-C	N/A	N3T-R-62	N/A	128.9050

OMEGA 3 SLIP-ON NOZZLE: CONSUMABLE COMBINATIONS

OMEGA 3 Slip-on	Wire Size Type	Contact Tip Part #	Tip Holder Part #	Diffusor Part #	Nozzle Part #	Neckliner Part #	Cable Liner Part #
	.035 Steel	140.0214	142.0020	014.0021	145.0078	NLS-3545	SI4-3545-17PT
	.040 Steel	140.0313	142.0020	014.0021	145.0078	NLS-3545	SI4-3545-17PT
Factory Set-up for .035"-.045"	.045 Steel	140.0442	142.0020	014.0021	145.0078	NLS-3545	SI4-3545-17PT
	.052 Steel	140.0533	142.0020	014.0021	145.0078	NLS-5262	SI4-5262-17PT
Factory Set-up for .052"-.062"	.062 Steel	140.0587	142.0020	014.0021	145.0078	NLS-5262	SI4-5262-17PT
	.035 Aluminum	141.0043	142.0020	014.0021	145.0078	N/A	128.9047
	.040 Aluminum	141.0008	142.0020	014.0021	145.0078	N/A	128.9047
	.045 Aluminum	141.0075	142.0020	014.0021	145.0078	N/A	128.9047
	.052 Aluminum 127.9003	141.0055	142.0020	014.0021	145.0078	N/A	128.9047

** When using .078" - .094" wire, do not use a neckliner. Instead run the cable liner up to the contact tip.*

OMEGA 4 THREADED STANDARD: CONSUMABLE COMBINATIONS

OMEGA 4 Standard	Wire Size Type	Contact Tip Part #	Tip Holder Part #	Diffusor Part #	Nozzle Part #	Neckliner Part #	Cable Liner Part #
	.035 Steel	140.0214	H4T-8-C	N/A	N4T-62	NLS-3545	SI4-3545-17PT
	.040 Steel	140.0313	H4T-8-C	N/A	N4T-62	NLS-3545	SI4-3545-17PT
Factory Set-up for .035"-.045"	.045 Steel	140.0442	H4T-8-C	N/A	N4T-62	NLS-3545	SI4-3545-17PT
	.052 Steel	140.0533	H4T-8-C	N/A	N4T-62	NLS-5262	SI4-5262-17PT
Factory Set-up for .052"-.062"	.062 Steel	140.0587	H4T-8-C	N/A	N4T-62	NLS-5262	SI4-5262-17PT
	.078 Steel	140.0653	H4T-8-C	N/A	N4T-62	N/A	SI4-7894-17PT
Factory Set-up for .078"-.094"	.094 Steel	140.0677	H4T-8-C	N/A	N4T-62	N/A	SI4-7894-17PT

** When using .078" - .094" wire, do not use a neckliner. Instead run the cable liner up to the contact tip.*

OMEGA 4 SLIP-ON: CONSUMABLE COMBINATIONS

OMEGA 4 Standard	Wire Size Type	Contact Tip Part #	Tip Holder Part #	Diffusor Part #	Nozzle Part #	Neckliner Part #	Cable Liner Part #
	.035 Steel	140.0214	142.0028	013.0030	145.0129	NLS-3545	SI4-3545-17PT
	.040 Steel	140.0313	142.0028	013.0030	145.0129	NLS-3545	SI4-3545-17PT
Factory Set-up for .035"-.045"	.045 Steel	140.0442	142.0028	013.0030	145.0129	NLS-3545	SI4-3545-17PT
	.052 Steel	140.0533	142.0028	013.0030	145.0129	NLS-5262	SI4-5262-17PT
Factory Set-up for .052"-.062"	.062 Steel	140.0587	142.0028	013.0030	145.0129	NLS-5262	SI4-5262-17PT
	.078 Steel	140.0653	142.0028	013.0030	145.0129	N/A	SI4-7894-17PT
Factory Set-up for .078"-.094"	.094 Steel	140.0677	142.0028	013.0030	145.0129	N/A	SI4-7894-17PT

** When using .078" - .094" wire, do not use a neckliner. Instead run the cable liner up to the contact tip.*

OMEGA 4 SLIP-ON HEAVY DUTY: CONSUMABLE COMBINATIONS

OMEGA 4 Heavy-Duty	Wire Size Type	Contact Tip Part #	Tip Holder Part #	Diffusor Part #	Nozzle Part #	Neckliner Part #	Cable Liner Part #
	.035 Steel	140.1248	142.0032	013.0030	145.0081	NLS-3545	SI4-3545-17PT
	.040 Steel	140.0348	142.0032	013.0030	145.0081	NLS-3545	SI4-3545-17PT
	.045 Steel	140.0481	142.0032	013.0030	145.0081	NLS-3545	SI4-3545-17PT
	.052 Steel	140.0547	142.0032	013.0030	145.0081	NLS-5262	SI4-5262-17PT
	.062 Steel	140.0616	142.0032	013.0030	145.0081	NLS-5262	SI4-5262-17PT
	.078 Steel	140.0665	142.0032	013.0030	145.0081	N/A	SI4-7894-17PT
	.094 Steel	140.0698	142.0032	013.0030	145.0081	N/A	SI4-7894-17PT

** When using .078" - .094" wire, do not use a neckliner. Instead run the cable liner up to the contact tip.*

OMEGA 4 MIG Torch: CONSUMABLE COMBINATIONS
THREADED HEAVY-DUTY VERSION

OMEGA 4 Heavy-Duty	Wire Size Type	Contact Tip Part #	Tip Holder Part #	Diffusor Part #	Nozzle Part #	Neckliner Part #	Cable Liner Part #
	.035 Steel	140.1248	H4T-10-C	N/A	N4T-62	NLS-3545	SI4-3545-17PT
	.040 Steel	140.0348	H4T-10-C	N/A	N4T-62	NLS-3545	SI4-3545-17PT
	.045 Steel	140.0481	H4T-10-C	N/A	N4T-62	NLS-3545	SI4-3545-17PT
	.052 Steel	140.0547	H4T-10-C	N/A	N4T-62	NLS-5262	SI4-5262-17PT
	.062 Steel	140.0616	H4T-10-C	N/A	N4T-62	NLS-5262	SI4-5262-17PT
	.078 Steel	140.0665	H4T-10-C	N/A	N4T-62	N/A	SI4-7894-17PT
	.094 Steel	140.0698	H4T-10-C	N/A	N4T-62	N/A	SI4-7894-17PT

** When using .078" - .094" wire, do not use a neckliner. Instead run the cable liner up to the contact tip.*

TROUBLESHOOTING: POROSITY (SUMMARY)

Causes of Porosity	Possible Solutions
BASE METAL CONTAMINATION	
Impurities on base metal.	a. Remove contamination; clean surfaces b. Use of specific wire/gas mix for specific types of impurities.
FILLER METAL CONTAMINATION	
Impurities on filler metal (wire).	a. Replace wire. b. Install wire-cleaning system. c. Prevent industrial dust/dirt/grit from contaminating wire during storage or use. d. Prevent build-up of aluminum oxide on exposed aluminum wire surface by using quickly, or storing. e. Remove wire from wire drive unit and store in a sealed plastic bag when not in use for long periods.
ATMOSPHERIC CONTAMINATION	
Drafts, wind, fans, etc.	a. Protect weld from drafts (curtains/screens). b. Use tapered or bottleneck gas nozzles when drafts cannot be avoided.
GAS MIXING APPARATUS	
1. Too high gas flow, causing turbulence, and/or sucking air at hose connections; creating venturi effect at end of gas nozzle.	1a. Reduce gas flow. 1b. Tighten all hose connection points.
2. Too low gas flow, causing insufficient gas coverage.	2. Increase gas flow.
3. Damaged or kinked gas lines.	3. Repair or replace
4. Too high oxygen content.	4. Adjust mixer.
5. Leaks in gas distribution system.	5. Repair leaks.
6. Other impurities in gas – moisture, etc.	6. Overhaul system; fit filters and/or dryers.
7. Inconsistent gas flow (cfh) at the torch connection.	7. Regulate pressure into flow meter for consistent cfh delivery of gas.
GAS TURBULENCE	
1. Excessive spatter build-up in gas nozzle and on contact tip.	1. Clean nozzle and tip regularly; spray with anti-spatter fluid.
2. Nozzle damage, causing uneven gas coverage.	2. Replace nozzle.
3. Torch gas ports clogged or deformed.	3. Clean or replace.
4. Super-heated nozzle, causing shielding gas to expand rapidly and create return effect at end of nozzle. Results in contamination of gas by atmosphere.	4. Check duty cycle rating of torch.
5. Gas diffuser/nozzle insulator missing.	5. Replace.
6. Too high gas flow causing venturi effect.	6. Reduce gas flow.
WELDING PARAMETERS, ETC.	
1. Too long wire stick-out; gas nozzle too far from weld puddle.	1. Use longer nozzle or adjust stick-out (3/8″ minimum or 15 times wire diameter).
2. Bad torch position – too sharp torch incline causing venturi effect at the end of the nozzle leading to atmospheric contamination.	2. Correct torch angle.
3. Excessively wide weld pool for nozzle I.D.	3. Width of the weld pool should be 1.3 times nozzle I.D.; use suitable wider gas nozzle.
4. Arc voltage too high.	4. Reduce voltage.
5. Too high travel speed.	5. Reduce speed.

Note: Most porosity is caused by gas problems, followed by base metal contamination

TROUBLESHOOTING: GENERAL GUIDE

Problems/Causes	Possible Solutions
ERRATIC WIRE FEED	
Slipping feed rolls.	Check that the feed roll size is correct for the wire size being used. Increase the drive roll pressure until the wire feed is even. Do not apply excessive pressure as this can damage the wire surface, causing copper coating to loosen from steel wires or metal shavings to be formed from soft wires like aluminum. These metal fragments or shavings can be drawn into the wire feed conduit and will rapidly clog the torch liner. When welding with flux-cored wires, excessive drive roll pressure may open the wire seam and allow flux or metal powders to escape.
Clogged or worn torch liner.	a. Dust, particles of copper, drawing lubricants, metal or flux and other forms of contamination can all clog the torch liner so that the wire feed is slowed or impeded. A liner that has been in use for an extended period of time becomes worn and filled with dirt and must be replaced. b. When changing the welding wire, remove the swanneck from the front end of the torch and blow out the torch liner with clean, dry compressed air from the back of the torch. Repeat with the neck liner. *Note: Wear safety goggles when using compressed air to clean the liners. Make sure proper safety procedures are followed in order to avoid possible serious eye injury.*
Liners too long or too short.	Check the lengths of the neck and torch liners and trim or replace if too long or too short. The efficient feeding of the welding wire is dependent on the liners fitting correctly. Consult the liner installation instructions on pages 4-7 or contact your local Authorized ABICOR Binzel Distributor for additional help.
Spatter on wire.	An unprotected coil of wire quickly collects dust and other airborne contamination. If grinding is being performed in the vicinity, particles can become attached to the wire, severely interfering with the wire feed. Replace with clean wire and keep it protected with a cover. Make sure spare wire rolls are stored in a clean, dry place.
Coil brake incorrectly adjusted.	Set the brake so that the coil immediately stops rotating as soon as welding is interrupted. If the brake is applied too hard it will cause the feed rolls to slip, resulting in uneven wire feed. If it is too loose, overrun of the wire will occur, causing wire tangles, inconsistent tension on the feed mechanism and irregular arc characteristics.
UNSTABLE ARC	
Incorrect setting of voltage and/or current.	Set the wire feed in relation to the arc voltage in such a way that the arc is stable and burns evenly. In spray arc welding, set the wire feed so that there are no short circuits and the filler metal is transferred in a spray across the arc.
Problems in wire feeding.	Find the cause of the interference and correct it. (See above)
Worn contact tip.	When the internal diameter of the contact tip becomes worn from the passage of wire through it, the wire may no longer stay in continuous electrical contact with the tip. This results in an unstable arc and an increase in spatter.
Impurities on the base metal.	Paint, mill scale, silicon scale, rust or flux deposits from previous weld runs may form an insulating layer causing an unstable arc. Clean the surfaces to be welded.
Poor contact between ground cable and work-piece.	Securely attach the ground cable as close to the point of welding as possible on the workpiece. Clean the surfaces thoroughly to ensure good contact.
Loose power connection	Check to insure the welding power connection on the power source is tight, the connection on the wire feeder is tight, the connection to the adaptor block is tight, and the connection of the torch to the adaptor block is tight.
Stick-out too long.	Adjust the contact tip to work distance to a minimum of 9.5mm (3/8″) for short arc welding. A more precise distance is 15 times the wire diameter.

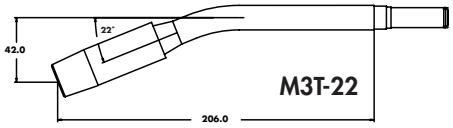
TROUBLESHOOTING: GENERAL GUIDE

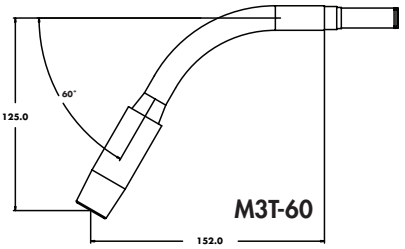
Problems/Causes	Possible Solutions
SPATTER	
Too fast or too slow wire feed for the arc voltage.	Set the wire feed rate and voltage in accordance with good welding practices as recommended by a qualified welding engineer.
Arc too long.	Adjust the wire feed and voltage so that the arc is in accordance with good welding practice for the joint to be welded. The distance from the contact tip to the workpiece should be 15 times the welding wire diameter. If the arc is too long there will be spatter, usually in the direction of the weld.
Damaged contact tip.	If the contact tip becomes worn, the welding wire will not be in constant contact with the tip and the arc will become unstable. A contact tip contaminated with spatter will cause uneven wire feed resulting in further spatter.
Inclination of welding torch too great.	The angle of the gas nozzle relative to the workpiece should be between 45 to 90 degrees. If the angle is too small, the wire runs parallel to the weld pool, resulting in spatter in the direction of welding.
Faulty power source.	Have the power source checked for faulty conditions such as broken wires and faulty contacts.
Incorrect start.	A great deal of spatter occurs if the stick-out is too great and if the welding torch is held too far from the workpiece when striking the arc. Try to start with as short a stick-out as possible and with the welding torch as close to the starting point as possible. If a large ball end is formed on the end of the welding wire, remove it by cutting the wire with sharp wire cutters. It is helpful if the wire is cut to a point. Always remove the ball end before striking an aluminum arc. Check the welding ground connection.
Incorrect pulse parameters.	Check the user manual for your power supply or consult a qualified welding engineer.
Uneven wire feed.	Uneven wire feed gives rise to heavy spatter. Find the cause of the disturbance and correct the condition before proceeding.
Impurities on the base metal.	Paint, mill scale, rust and other contamination on the base metal form an insulating layer causing an unstable arc that results in heavy spatter. Clean the surfaces to be welded.
Poor ground contact.	Inspect ground cable for loose connections, fraying and cuts. Correct any problem areas found and attach the ground cable directly to the workpiece after having cleaned the contact surface first. POOR GROUND CONTACT IS THE MOST COMMON CAUSE OF UNSTABLE MIG WELDING CONDITIONS.
Stick-Out too long (short-arc welding).	The stick-out should be 15 times the diameter of the wire electrode being used. With increasing stick-out, the current is reduced and the arc voltage rises, giving a longer unstable arc and increased spatter.
Incorrect polarity.	Check for correct polarity. Follow the electrode manufacturer's recommendations.

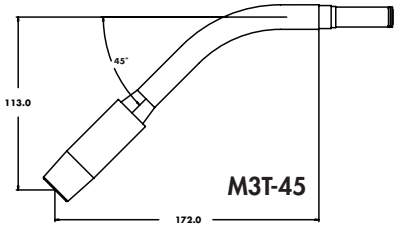
TROUBLESHOOTING: GENERAL GUIDE

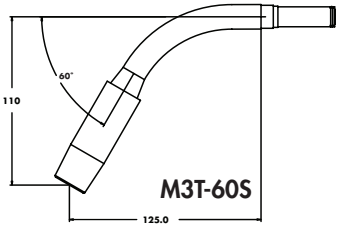
Problems/Causes	Possible Solutions
AIR-COOLED Torch RUNNING TOO HOT	
Poor ground.	Inspect ground cable for loose connections, fraying and cuts. Correct any problem areas found. Clean clamping area to insure good contact. Securely attach the ground cable to the workpiece as close as possible to the point of welding. Make sure there is a good connection to the welding power source.
Loose power connection.	Check to make sure the power connection on the power source is tight, the connection on the wire feeder is tight, the connection to the adaptor block is tight, and the connection of the torch to the adaptor block is tight.
Loose Bikox connection.	Remove handle assembly and adaptor support. Check to insure the Bikox connection to the swanneck is tight and the Bikox connection to the adaptor block is tight.
Damaged Bikox assembly.	Visually inspect the Bikox assembly for cuts and tears. Replace the Bikox assembly if necessary.
Consumable items loose or worn.	Remove nozzle from torch and inspect contact tip and tip holder/gas diffuser for wear and tightness; replace or tighten as necessary.
Capacity of torch being exceeded.	Note complete weld parameters, including welding current (Amps), welding voltage, wire feed speed, type and size of wire, type of gas and flow rate of gas and consult your local Authorized ABICOR Binzel Distributor.
Dirty connection	Remove swanneck and inspect interface for dirt build-up. Periodic cleaning is necessary.

SWANNECK DIMENSIONS: OMEGA 3 THREADED

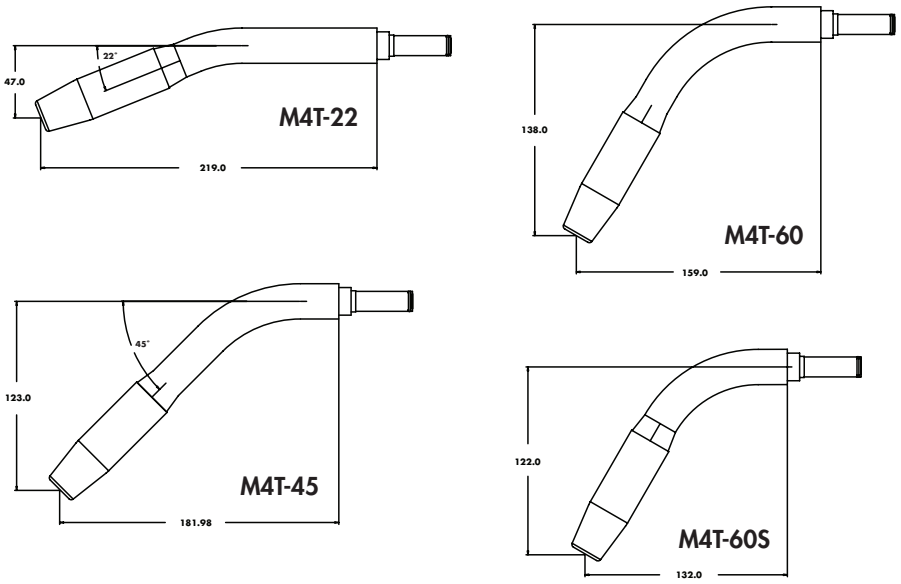








SWANNECK DIMENSIONS: OMEGA 4 THREADED



Approximate x and y measurements are in millimeters and are taken from the end of the contact tip with spray arc set-up.

! WARNING !

Read and follow the manufacturer's instructions, employer's safety practices, and Material Safety Data Sheets (MSDSs).
Only qualified personnel should install, use, or service this material and/or equipment.

WELDING SPARKS can cause fire or explosion
- Do not weld near flammable material
- Do not weld on closed containers.
- Remove combustibles from the work area and/or provide a fire watch.
- Avoid oily or greasy clothing as a spark may ignite them.

ARC RAYS can injure eyes and burn skin
- Always wear correct eye, ear, and body protection
- Always wear a welding helmet with the proper grade filter lens. Protect yourself and others from spatter arc flash rays by using protective screens, barriers and welding curtains.
- Always wear protective gloves and clothing to cover exposed skin. This will aid in the prevention of arc and spatter burns.

ELECTRIC SHOCK can kill.
- Always wear dry installing gloves
- Do not touch live electrical parts.
- Always disconnect power source before hooking up or changing electrodes, nozzles and other parts.

FUMES AND GASES can be hazardous to your health.
- Keep your head out of the fumes
- Use enough ventilation or exhaust at the arc to keep fumes and gases from your breathing zone, and general area.
- Fumes from cutting and welding can deplete air quality, causing injury or death. Always wear an air supplied respirator in confined areas, or if breathing air is not safe.

LOUD NOISE can damage hearing.
- Always wear protective hearing devices to ensure protection when noise levels exceed OSHA standards.

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Read American National Standard Z49.1, "Safety in Welding, and Cutting, and Allied Processes," available from American Welding Society, 8669 Doral Blvd., Doral, FL 33166; OSHA Safety and Health Standards, available from U.S. Government Printing Office, Washington, DC 20402.

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