

TECHNICAL GUIDE

TOUGH GUN ThruArm™
Series Robotic MIG Guns
for
ABB IRB1600ID

- **INSTALLATION**
- **TECHNICAL DATA**
- **MAINTENANCE**
- **EXPLODED VIEW & PARTS LIST**
- **ORDERING INFORMATION**

Effective September 2010 –
QUICK LOAD™ Liners Standard
on all TOUGH GUN™ Robotic MIG Guns

Certified ISO 9001 : 2008
Please read instructions prior to use.
Save this manual for future reference

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THANK YOU...

...for selecting a Tregaskiss TOUGH GUN ThruArm™ Series Robotic MIG Gun. Manufacturing operations demand extremely dependable robotic equipment. With this in mind, the TOUGH GUN MIG Gun was designed and engineered to be a reliable tool to support high production within a robotic cell. Your TOUGH GUN MIG Gun is completely assembled and ready to weld, and has undergone numerous quality checks to ensure high performance.

The instructions and illustrations in this technical guide make it easy for you to maintain your TOUGH GUN MIG Gun. **Please read, understand, and follow all safety procedures.** Keep this Technical Guide booklet as a handy reference when ordering complete guns, parts and special options. **For technical support and special applications, please call the Tregaskiss Technical Service Department at 1-877-737-3111 or fax 1-877-737-2111.** Our trained technicians are available between 8:30 AM and 4:30 PM EST, and will answer your application or repair questions.

Tregaskiss employees build TOUGH GUN MIG Guns for the world's welding professionals. We are always striving to improve our products and services, and would appreciate receiving your suggestions or comments. Please contact us immediately if you experience any safety or operating problems.

GENERAL SAFETY INFORMATION

Before installation or operation of TOUGH GUN MIG Guns, please read the safety precautions listed below.

1. Do not touch live electrical parts. The following should be checked to prevent electrical shock:
 - Faulty or damaged equipment is repaired or replaced.
 - Equipment is off when not in use.
2. Ensure that all safety devices, guards, shields or barriers are properly in place and connected correctly before allowing operation of the equipment.
3. CSA Standard W117.2 CODE FOR SAFETY IN WELDING AND CUTTING obtainable from the Canadian Standards Association, Standards Sales, 178 Rexdale Boulevard, Rexdale, Ontario, Canada M9W 1R3. ANSI Standard Z49.1 CODE FOR SAFETY IN WELDING AND CUTTING obtainable from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

CALIFORNIA PROPOSITION 65 WARNING

This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer.

This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after use.*

(California Health & Safety Code Section 25249.5 at seq.)



WARRANTY

Product is warranted to be free from defects in material and workmanship for the period specified below after the sale by an authorized Buyer. Should there be a defect please refer to our Return Merchandise Policy.

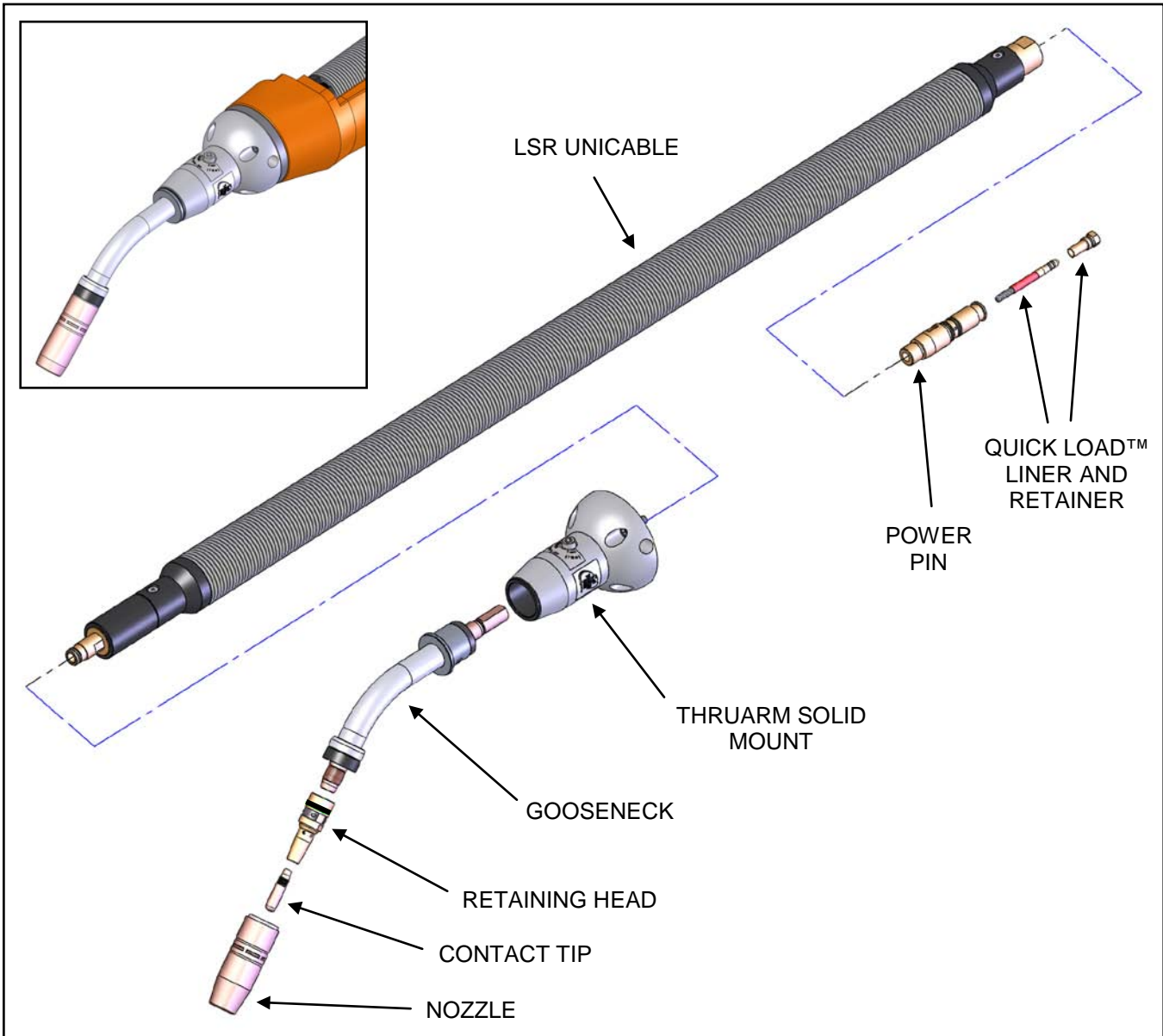
PRODUCT	WARRANTY PERIOD
TOUGH GUN™ MIG Guns and Components	180 days
TGX™ Chassis and TGX™ Ready To Weld MIG Guns	90 days
TOUGH GUN™ Reamer	1 year
TOUGH GARD™ Spatter Cleaner	1 year
TOUGH GUN™ Robotic Peripherals (Clutch, Sprayer, Wire Cutter, Clutch Disc, Mounting Arms)	1 year
Low-Stress Robotic Unicables (LSR Unicables)	2 years

Tregaskiss reserves the right to repair, replace or refund the purchase price of non-conforming product. Product found not defective will be returned to the Buyer after notification by Customer Service.

Tregaskiss makes no other warranty of any kind, expressed or implied, including, but not limited to the warranties of merchantability or fitness for any purpose. Tregaskiss shall not be liable under any circumstances to Buyer, or to any person who shall purchase from Buyer, for damages of any kind, including, but not limited to any, direct, indirect incidental or consequential damages or loss of production or loss of profits resulting from any cause whatsoever, including, but not limited to, any delay, act, error or omission of Tregaskiss.

Genuine Tregaskiss parts must be used for safety and performance reasons or the warranty becomes invalid. Warranty shall not apply if accident, abuse, or misuse damages a product, or if a product is modified in any way except by authorized Tregaskiss personnel.

1.0 - COMPLETE ASSEMBLY OVERVIEW

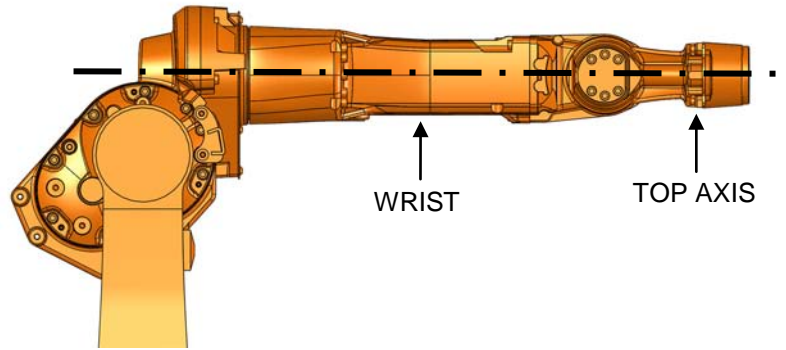


For part numbers, see **Section 5.0 EXPLODED VIEW AND PARTS LIST**.

2.0 – INSTALLATION

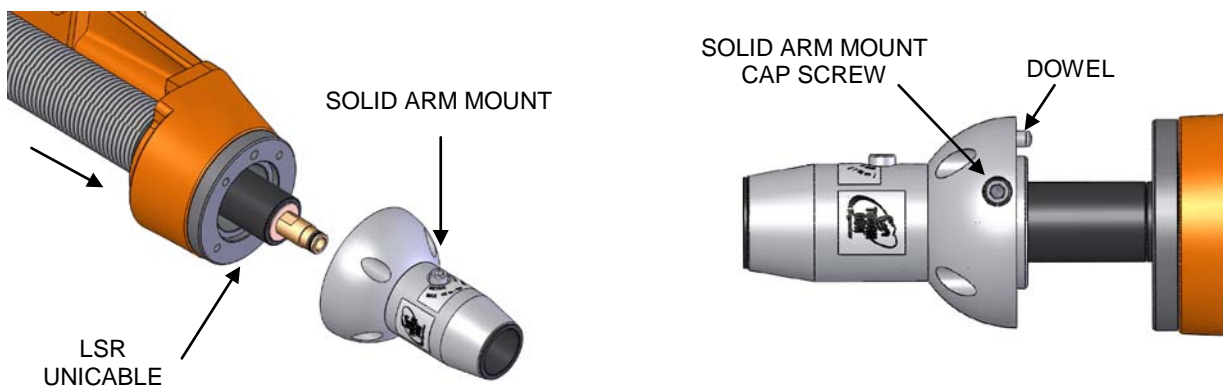
STEP #1: POSITIONING THE ROBOT

- Position the robot with the wrist and top axis as shown to properly complete the gun installation.



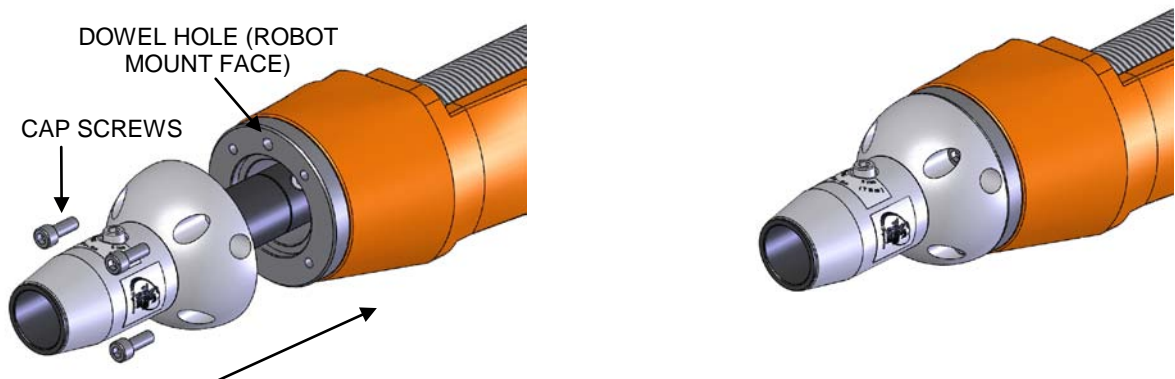
STEP #2: FEEDING UNICABLE AND SECURING SOLID ARM MOUNT

- Feed LSR Unicable assembly through the robot's mounting face.
- Connect solid arm mount to LSR Unicable by pushing the two parts together. Push firmly to seat uncable end fully in solid arm mount.
- Fasten assembly together by tightening front housing cap screw M6x1x12. Torque to 80 in.-lbs./9 Nm.



STEP #3: MOUNTING SOLID ARM MOUNT

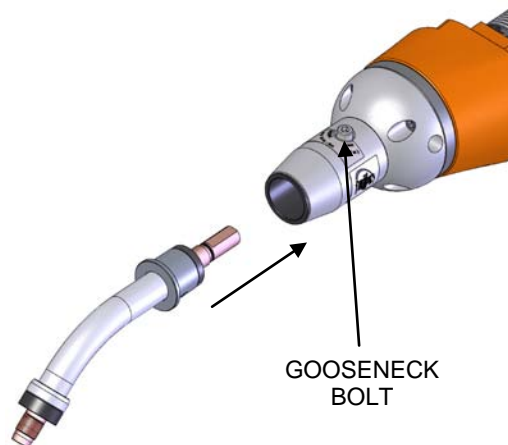
- Mount solid arm mount by aligning dowel pin to dowel pin hole on robot face.
- Install provided M6x1x16 cap screws (X4). Torque to 50 in.-lbs./5.6 Nm.



STEP #4: INSTALLING GOOSENECK

- Insert gooseneck into solid arm mount until neck is fully seated.
- Tighten gooseneck bolt clockwise with 5 mm Allen key to torque specifications (60 in.-lbs. or 7 Nm).

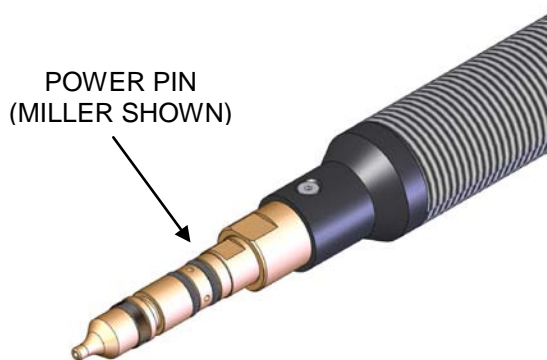
IMPORTANT: Do not over torque or damage may occur.



STEP #5: INSTALLING POWER PIN TO THE LSR UNICABLE

Option #1 of 2: Power Pins

- Install power pin onto the LSR Unicable.
NOTE: Power pins incorporate a taper to seat and lock the pin to the rear handle block. Make sure the power pin is tightened in the block with a wrench to insure the pin is secure and will not come loose.
 - Thread power pin into the adapter of the LSR Unicable.
 - Tighten the power pin into the rear block using a 1" (25 mm) wrench on the rear block and a 5/8" (16 mm) or 3/4" (19 mm) wrench on the power pin.
 - Torque to 18 ft.-lbs. / 24.4 Nm

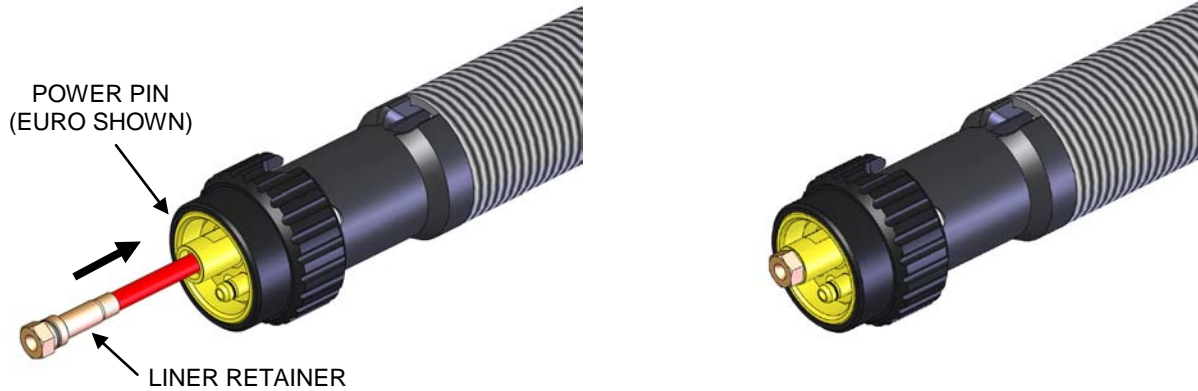


Option #2 of 2: Euro Connection

- The Euro connection comes factory installed. No installation required.



STEP #6: INSTALLING QUICK LOAD™ LINER

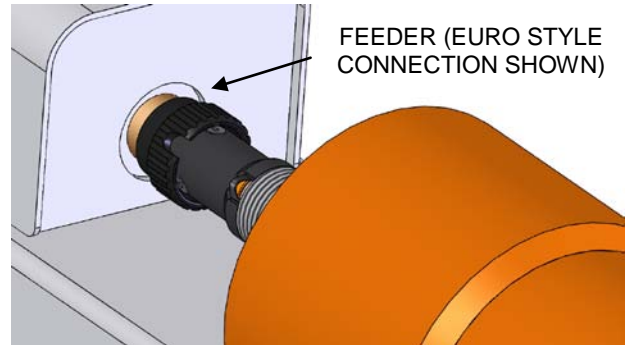
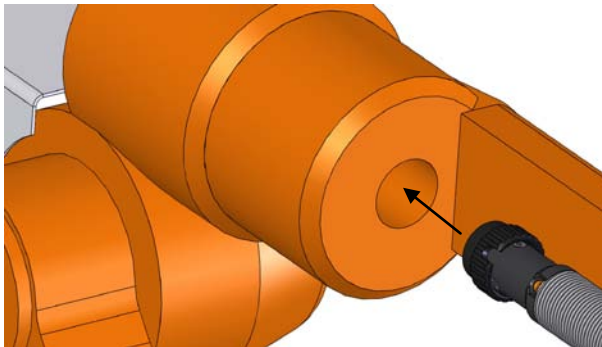


- Insert brass end of the liner into the liner retainer until firmly seated.
- Insert non-brass end of QUICK LOAD Liner into back of the gun and push through until it emerges from the front of the gun and the liner retainer makes contact with the power pin.
- Thread the QUICK LOAD Liner retainer (#415-26) into the power pin. Torque to 30 in.-lbs. (3.5 Nm).
- Push liner back into front of gun and hold in place.
- Trim liner to a 5/8" (16 mm) stick out.
- Remove any burrs that may obstruct wire feed.

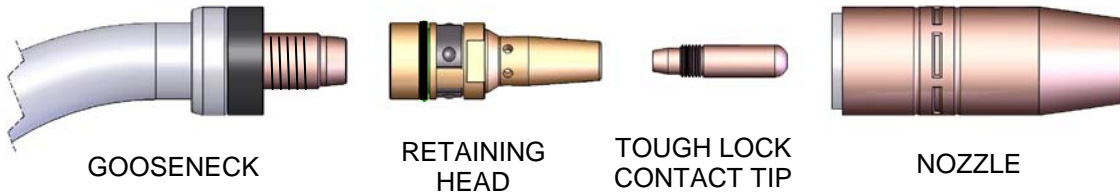


STEP #7: INSTALLING GUN TO WIRE FEEDER

- Feed the LSR Unicable through the rear hole in the body of the robot.
- Guide the wire into power pin.
- Install into wire feeder as per the manufacturer's instructions.



STEP #8: INSTALLING CONSUMABLES



Retaining Head

- Thread the retaining head onto the gooseneck.
- Use a 5/8" wrench and tighten to 80 in.-lbs. (9 Nm).

Contact Tip

- Thread the contact tip into the retaining head.
- Torque to 30 in.-lbs. (3.5 Nm).

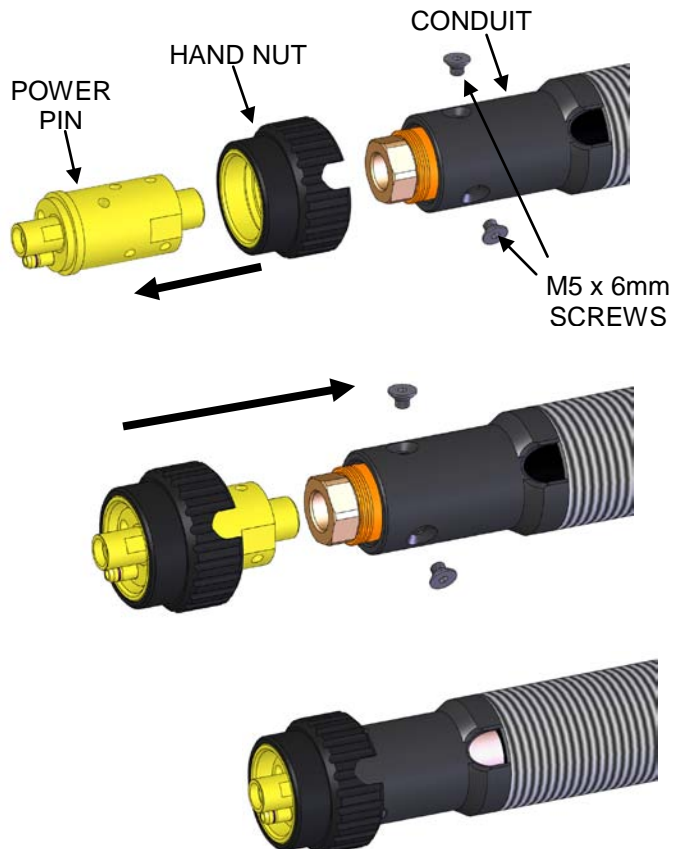
Nozzle

- Push the slip-on TOUGH GUN Nozzle over the retaining head/contact tip combo until the nozzle is fully seated.
- **IMPORTANT:** Be sure all consumables are tightened properly and fully seated before welding to prevent overheating.

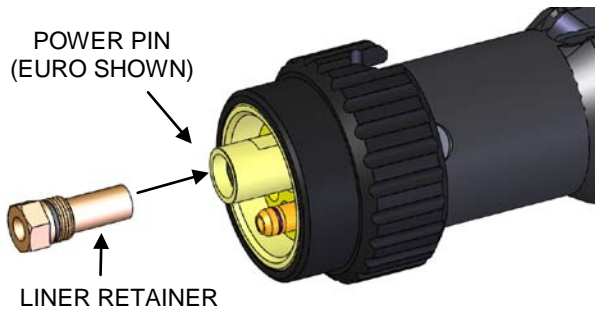
3.0 – MAINTENANCE

3.1 REPLACEMENT OF EURO CONNECTION

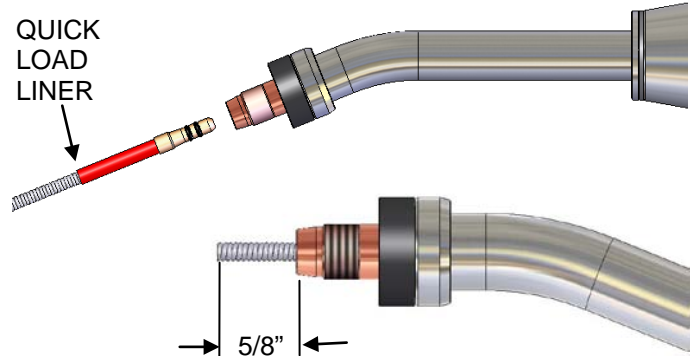
- Remove M5 x 6 mm countersunk fasteners.
- Slide the hand nut over the Euro power pin body.
- Torque the power pin body to the threaded end of the unicable at 18 ft.-lbs. (24 Nm) using 7/8" & 13/16" wrenches. You may have to pull back on the outer conduit to achieve this.
- Once the power pin body is in place, pull the conduit down over it. Rotate the conduit so that the holes on the power pin line up with the holes on the plastic end of the conduit.
- Insert the two M5 x 6mm countersunk screws and torque to 12 in.-lbs. (1.35 Nm). You may have to rotate the hand nut to access the holes.



3.2 REPLACEMENT OF QUICK LOAD™ LINER

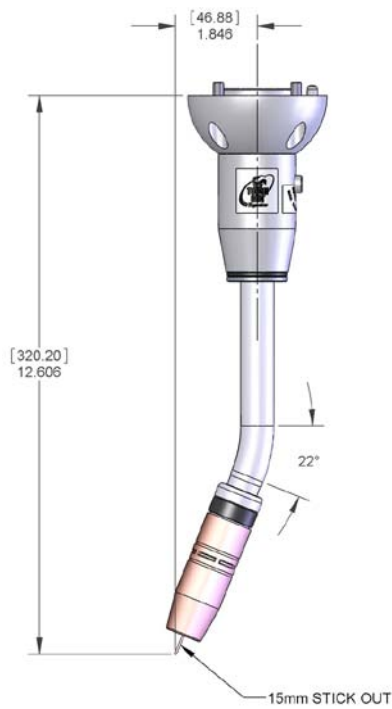


- **NOTE: One liner retainer can last for multiple liner replacements. Therefore this step is not required for every liner change.** Remove the QUICK LOAD Liner retainer (#415-26) from the power pin and thread in new one. Torque to 30 in.-lbs. (3.5 Nm).
- Remove consumables (nozzle, contact tip, retaining head).
- Remove existing QUICK LOAD Liner.
- Insert new QUICK LOAD Liner through gooseneck using the wire as a guide. Short strokes will prevent the wire from kinking.
- Once the liner stops feeding, give it an extra push to ensure it is inserted completely.
- Trim liner to a 5/8" (16 mm) stick out.
- Remove any burrs that may obstruct wire feed.
- Reinstall consumables.

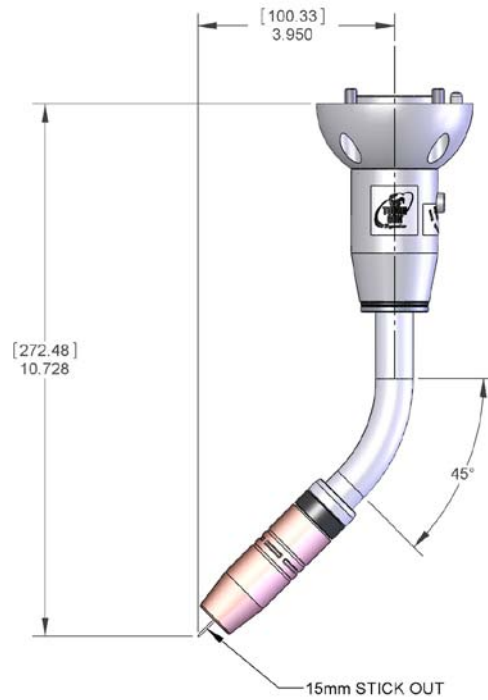


4.0 – TECHNICAL DATA

4.1 GUN CONFIGURATIONS

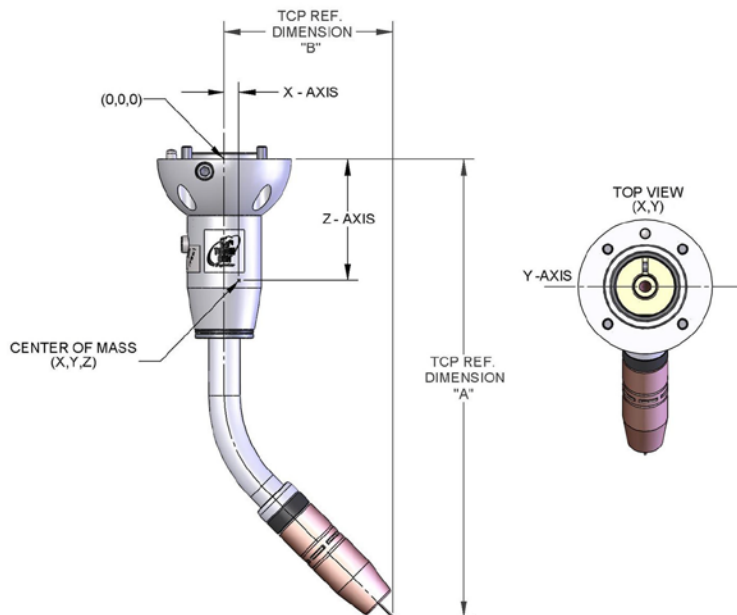


22° Neck – 0.59" (15 mm) CTWD



45° Neck – 0.59" (15 mm) CTWD

4.2 CENTER OF MASS



	22° NECK	45° NECK
X	0.18" (4.57 mm)	0.44" (11.18 mm)
Y	0	0
Z	-3.67" (-93.22 mm)	-3.34" (-84.84 mm)
WEIGHT	2.73 lbs (1.24 kg)	2.68 lbs (1.22 kg)
TCP REF. DIM. "A"***	12.61" (320.29 mm)	10.73" (272.54 mm)
TCP REF. DIM. "B"***	1.85" (46.99 mm)	3.95" (100.33 mm)

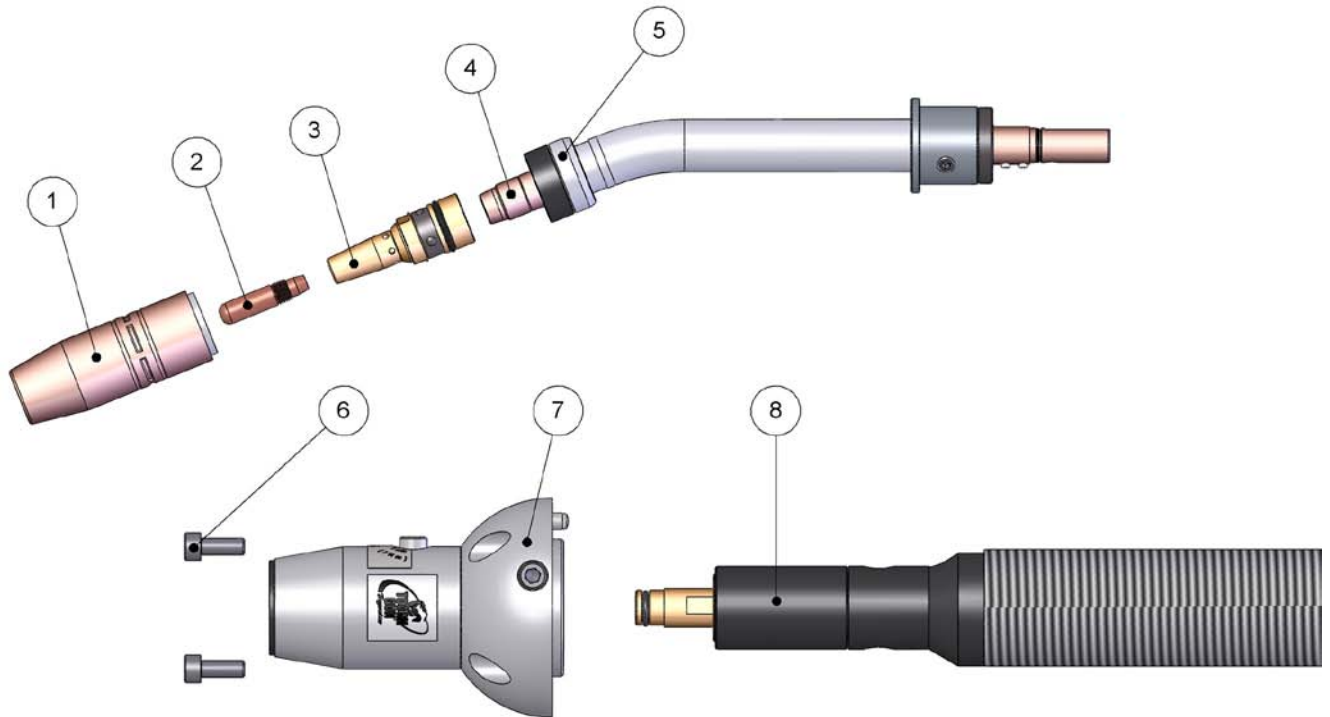
***WITH 0.59" (15 mm) WIRE STICKOUT

4.3 AMPERAGE RATINGS

MODEL	60% DUTY CYCLE - MIXED GASES OR 100% DUTY CYCLE - CO ₂
THRUARM SERIES – AIR-COOLED	500 amp

*Ratings are based on tests that comply with IEC 60974-7 standards.

5.0 – EXPLODED VIEW AND PARTS LIST



PART #	DESCRIPTION
1	401-X-XX NOZZLE
2	403-XX-35 TOUGH LOCK TIP - .035 WIRE
	403-XX-45 TOUGH LOCK TIP - .045 WIRE
3	404-30 RETAINING HEAD
4	405-22QC GOOSENECK 22 DEG
	405-45QC GOOSENECK 45 DEG
	405-60QC GOOSENECK 60 DEG

PART #	DESCRIPTION
5	402-11 GOOSENECK INSULATOR
6	508-200ABB M6X1X16 LG S.H.C.S.
7	(KIT) ABB FRONT HOUSING
8	58SA004 ABB 58 SERIES UNICABLE

6.0 – ORDERING INFORMATION

To order replacement parts for your TOUGH GUN ThruArm Series Robotic MIG Gun, please contact your authorized Tregaskiss distributor.

For help with configuring a part number for a new TOUGH GUN ThruArm Series Robotic MIG Gun, please visit www.tregaskiss.com/thruarm for detailed information. Tregaskiss Customer Service can also assist you via phone at 1-877-737-3111 (from Canada and USA) or +1-519-737-3000 (international).



For Technical Support:

Canada & U.S.A. Phone: 1-877-737-3111

International Phone: +1-519-737-3000

Email: techservices@tregaskiss.com

www.tregaskiss.com

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