



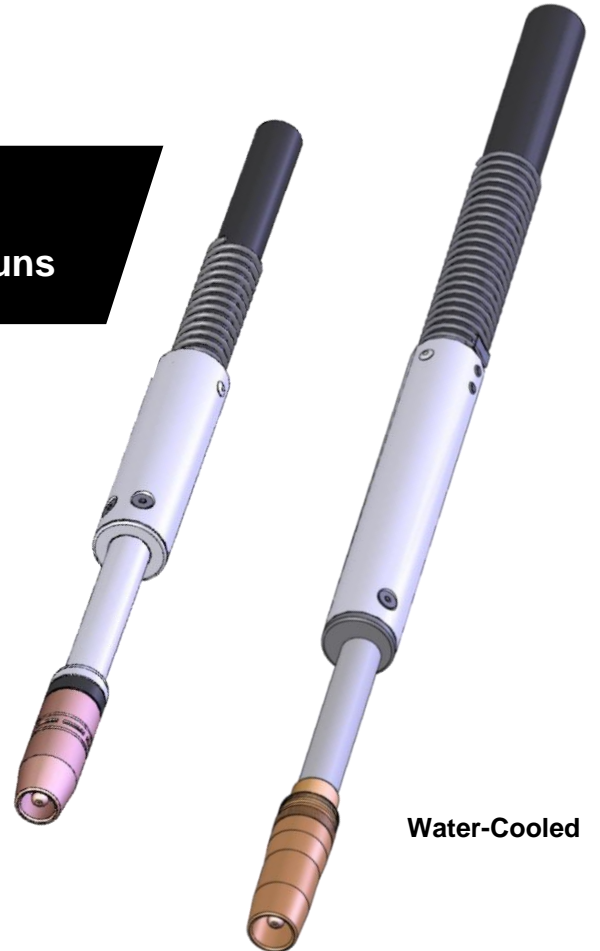
PARTS GUIDE

**For Automatic MIG Guns
500 and 600 amp Air-Cooled
and 600 amp Water-Cooled**

Effective September 2010 –

**QUICK LOAD™ Liners Standard on all
TOUGH GUN™ Robotic Air-Cooled MIG Guns**

Air-Cooled



Water-Cooled

RATINGS AND SPECIFICATIONS

DESCRIPTION	GUN MODEL			
	MA15	MA16	46xx	64xx
Current Rating	350 amp, 100%	385 amp, 100%	450 amp, 60%	600 amp, 60%
Voltage Rating	≤ 141V			
Min. Liquid Flow	N/A		0.5 L/min (0.13 G/min)	
Min. Liquid Pressure	N/A		280 kPa (40 psi)	
Max. Liquid Pressure	N/A		480 kPa (70 psi)	
Min. Cooling Power	N/A		1000 W (3400 BTU/hr)	2600 W (8800 BTU/hr)

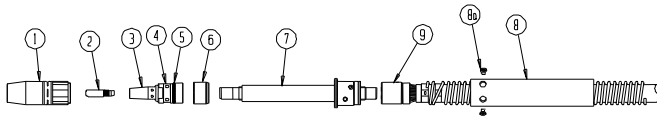
NOTE: Based on tests that comply with IEC 60974-7:2013, GB 15579.7:2013

STANDARD PARTS

GUN MODEL	NECK	NOZZLE	RETAINING HEAD	DIFFUSER	NECK INSULATOR	CONTACT TIP
500 amp Air-Cooled	405-180	401-6-62	404-32	--	402-11	403-20-xx
600 amp Air-Cooled	405-180	401-7-87	404-35	--	402-11	403-20-xx
600 amp Water-Cooled	595-180	601-5-75	--	404-38	--	403-20-xx

EXPLODED VIEW AND PARTS LIST

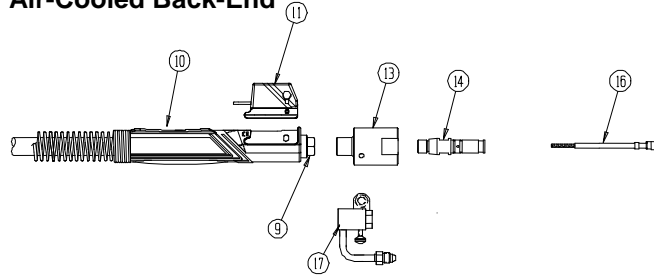
Air-Cooled Front-End



Numbers in this column correspond to the exploded view images above.

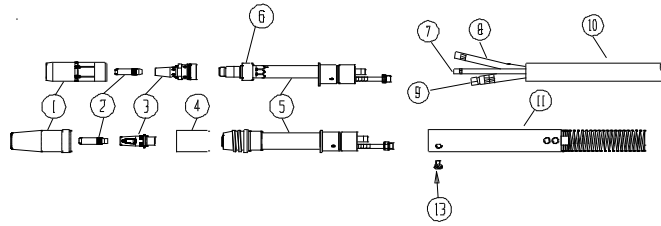
PART #	DESCRIPTION
1	STANDARD NOZZLES (SELF-INSULATED)
401-40-38	SUPER TAPERED NOZZLE - 3/8" BORE (BRASS)
404-4-38	3/8" (10 mm) BORE - 1/8" (3 mm) TIP RECESS
401-4-50	1/2" (13 mm) BORE - 1/8" (3 mm) TIP RECESS
401-4-62	5/8" (16 mm) BORE - 1/8" (3 mm) TIP RECESS
401-4-75	3/4" (19 mm) BORE - 1/8" (3 mm) TIP RECESS
	SHORT ARC NOZZLE
401-8-62	1/8" (3 mm) TIP STICK OUT
	HEAVY DUTY NOZZLES
401-5-62	5/8" (16 mm) BORE - 1/4" (6 mm) TIP RECESS
401-5-75	3/4" (19 mm) BORE - 1/4" (6 mm) TIP RECESS
401-6-60	1/2" (13 mm) BORE - 1/8" (3 mm) TIP RECESS
401-6-62	5/8" (16 mm) BORE - 1/8" (3 mm) TIP RECESS
401-6-75	3/4" (19 mm) BORE - 1/8" (3 mm) TIP RECESS
401-7-62	5/8" (16 mm) BORE - 1/4" (6 mm) TIP RECESS
2	TOUGH LOCK™ HEAVY DUTY CONTACT TIPS
403-20-30	FOR 0.030" (0.6 mm) WIRE
403-20-35	FOR 0.035" (0.9 mm) WIRE
403-20-1.0	FOR 1.0 mm (0.040") WIRE
403-20-45	FOR 0.045" (1.2 mm) WIRE
403-20-364	FOR 0.052" (1.3 mm) WIRE
403-20-52	FOR 1/16" (1.6 mm) WIRE
403-20-1.4	FOR 1/4" (1.4 mm) WIRE
403-20-116	FOR 1/16" (1.6 mm) WIRE
403-20-78	FOR 0.078" (1.8 mm) WIRE
403-20-564	FOR 5/64" (2.0 mm) WIRE
	TOUGH LOCK TAPERED CONTACT TIPS
403-21-30	FOR 0.030" (0.6 mm) WIRE
403-21-35	FOR 0.035" (0.9 mm) WIRE
403-21-1.0	FOR 1.0 mm (0.040") WIRE
403-21-45	FOR 0.045" (1.2 mm) WIRE
3	404-32 TOUGH LOCK HEAVY DUTY RETAINING HEAD
4	454-1-2 RETAINING RING ONLY
5	402-16 O-RING ONLY
6	402-11 NECK INSULATOR
7	405-180 NECK - STRAIGHT
591-180-0.938	NECK - STRAIGHT (I.C.E.)
591-180-1.062	NECK - STRAIGHT (I.C.E.)
591-180-1.106	NECK - STRAIGHT (I.C.E.)
8	410-10 HOUSING - FRONT - 400 & 500 AMP
610-10	HOUSING - FRONT - 600 AMP
8A	410-12M HOUSING SCREW - LOW PROFILE

Air-Cooled Back-End

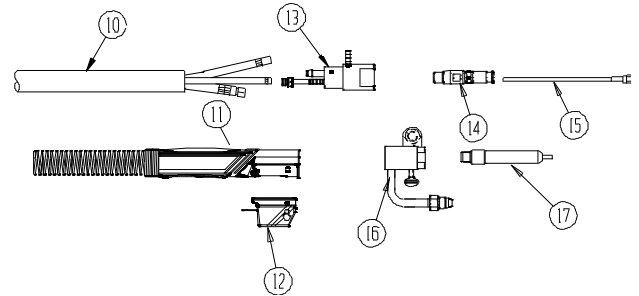


PART #	DESCRIPTION
9	UNICABLE ASSEMBLY
513-104	4' (1.2 m) SERVICE - 500 AMP
513-106	6' (1.8 m) SERVICE - 500 AMP
513-108	8' (2.4 m) SERVICE - 500 AMP
513-110	10' (3.06 m) SERVICE - 500 AMP
613-104	4' (1.2 m) SERVICE - 600 AMP
613-106	6' (1.8 m) SERVICE - 600 AMP
613-108	8' (2.4 m) SERVICE - 600 AMP
613-110	10' (3.06 m) SERVICE - 600 AMP
10	666-10 HANDLE ASSEMBLY
11	416-15 HOUSING
13	414-400 POWER PIN BLOCK
14	214 TWECO® #4
214-6-116	MILLER®
214-6-332	MILLER
214-2	LINCOLN®
214-4	L-TEC MT SERIES®
214-12	TWECO #5
214-13	PANASONIC®
214-14	PANASONIC SHORT
214-17	FRONIUS®
16	QUICK LOAD™ LINERS (LINER RETAINER NOT INCLUDED)
415-24	QUICK LOAD LINER RETAINER (3/32" ONLY)
415-26	QUICK LOAD LINER RETAINER
415-23-15Q	FOR 0.023" (0.6 mm) WIRE - 15' (5 m)
415-30-15Q	FOR 0.030" (0.7 mm) WIRE - 15' (5 m)
415-35-6Q	FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 6' (1.8m)
415-35-10Q	FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 10' (3 m)
415-35-15Q	FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 15' (5 m)
415-35-25Q	FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 25' (8 m)
415-116-6Q	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 6' (1.8 m)
415-116-10Q	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 10' (3 m)
415-116-15Q	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 15' (5 m)
415-116-25Q	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 25' (8 m)
415-564-15Q	FOR 1/16" - 5/64" (1.5 mm - 1.9 mm) WIRE - 15' (5 m)
	CONVENTIONAL LINERS
415-35-2	FOR 0.035" (0.9 mm) ALUMINUM WIRE - 15' (5 m)
415-116-21	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 6' (1.8 m)
415-116-22	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 10' (3 m)
415-116-23	FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 15' (3 m)
415-116-2	FOR 3/64" - 1/16" (1.2 mm - 2.4 mm) ALUMINUM WIRE - 15' (5 m)
415-116-2	FOR 3/64" - 1/16" (1.2 mm - 2.4 mm) ALUMINUM WIRE - 15' (5 m)
415-1	LINER O-RING (NOT SHOWN)
17	FEEDER ADAPTOR REQUIREMENTS (SOLD SEPARATELY)
417	QUICK CONNECT BLOCK ASSEMBLY (TWECO #4)
NA	590-4 WATER HOSE ASSEMBLY - 15'
590-5	WATER HOSE ASSEMBLY - 20'
590-3-4	LEATHER JACKET - 4'
590-3-4.5	LEATHER JACKET - 4.5'
590-3-5	LEATHER JACKET - 5'
590-3-6	LEATHER JACKET - 6'
590-3-8	LEATHER JACKET - 8'
590-3-10	LEATHER JACKET - 10'
590-3-12	LEATHER JACKET - 12'
590-3-15	LEATHER JACKET - 15'
590-8	MALE COUPLER (2)

Water-Cooled Front-End



Water-Cooled Back-End



PART #	DESCRIPTION
1	STANDARD NOZZLES 601 NOZZLES ARE THREAD ON 601-5-62 5/8" (16 mm) BORE - 1/4" (6 mm) TIP RECESS 601-5-75 3/4" (19 mm) BORE - 1/4" (6 mm) TIP RECESS 601-6-62 5/8" (16 mm) BORE - 1/8" (3 mm) TIP RECESS 601-6-75 3/4" (19 mm) BORE - 1/8" (3 mm) TIP RECESS 5/8" (16 mm) BORE - 1/8" (3 mm) TIP STICKOUT
2	TOUGH LOCK™ HEAVY DUTY CONTACT TIPS - 5/16" (7.9 mm) O.D. 403-20-30 FOR 0.030" (0.6 mm) WIRE 403-20-35 FOR 0.035" (0.9 mm) WIRE 403-20-1.0 FOR 1 mm WIRE 403-20-45 FOR 0.045" (1.2 mm) WIRE 403-20-364 FOR 0.052" (1.3 mm) WIRE 403-20-52 FOR 1/16" (1.6 mm) WIRE 403-20-1.4 FOR 1.4" (1.4 mm) WIRE 403-20-116 FOR 1/16" (1.6 mm) WIRE 403-20-78 FOR 0.078" (1.8 mm) WIRE 403-20-564 FOR 5/64" (2.0 mm) WIRE
3	O-RING ONLY TOUGH LOCK RETAINING HEAD - FOR HD TIPS HEAVY DUTY RETAINING HEAD 404-38 TOUGH LOCK DIFFUSER N/A O-RING
4	601-5-75-3 CERAMIC INSULATOR
5	NECKS (INCL. (1) 656-1 AND (1) 657-1 CLAMP) 595-45 NECK - 45° 595-60 NECK - 60° 595-180 NECK - STRAIGHT
6	NECK INSULATOR - USE WITH 454-1 HEAD NECK INSULATOR - USE WITH 404-20 HEAD
7	INTERNAL WATER LINE (C/W (2) 656-1 CLAMPS) 656-15 15' SERVICE
8	657-15 CONDUIT 15' 658 RED WATER LINE - OUT (C/W (1) 656-1 CLAMP) 658-1 BLUE WATER LINE - IN (C/W (1) 656-1 CLAMP) (LOCATED AT QUICK CONNECT POWER BLOCK ASSEMBLY).
9	POWER CABLE ASSEMBLY 659-10 10' SERVICE (ACTUAL LENGTH - 9.5') 659-12 12' SERVICE (ACTUAL LENGTH - 11.5') 659-15 15' SERVICE (ACTUAL LENGTH - 14.5')
10	CABLE BUNDLE (COMPLETE WITH CLAMPS) 661-10 10' SERVICE (OUTER JACKET ONLY 663-1-10) 661-12 12' SERVICE (OUTER JACKET ONLY 663-1-12) 661-15 15' SERVICE (OUTER JACKET ONLY 663-1-15)
11	660-10 HOUSING FRONT
12	416-15 HOUSING
13	664-400 POWER PIN BLOCK

PART #	DESCRIPTION
14	214 TWECO® #4 214-2 LINCOLN® 214-4 L-TEC® MT SERIES 214-6-116 MILLER® 1/16 214-6-332 MILLER 3/32 214-7 LINCOLN SHORT 214-12 TWECO #5 214-13 PANASONIC® 214-14 PANASONIC SHORT 214-17 FRONIUS® 414-1 O-RING 414-2 LINER SET SCREW 414-11-2 O-RING FOR MILLER POWER PIN
15	QUICK LOAD™ LINERS (LINER RETAINER NOT INCLUDED) QUICK LOAD LINER RETAINER (3/32" ONLY) 415-24 QUICK LOAD LINER RETAINER 415-26 QUICK LOAD LINER RETAINER 415-23-15Q FOR 0.023" (0.6 mm) WIRE - 15' (5 m) 415-30-15Q FOR 0.030" (0.7 mm) WIRE - 15' (5 m) 415-35-6Q FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 6' (1.8 m) 415-35-10Q FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 10' (3 m) 415-35-15Q FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 15' (5 m) 415-35-25Q FOR 0.035" - 0.045" (0.9 mm - 1.2 mm) WIRE - 25' (8 m) 415-116-6Q FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 6' (1.8 m) 415-116-10Q FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 10' (3 m) 415-116-15Q FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 15' (5 m) 415-116-25Q FOR 0.045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 25' (8 m) 415-564-15Q FOR 1/16" - 5/64" (1.5 mm - 1.9 mm) WIRE - 15' (5 m)
	CONVENTIONAL LINERS 415-35-2 FOR .035" (0.9 mm) ALUMINUM WIRE - 15' (5 m) 415-116-21 FOR .045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 6' (1.8 m) 415-116-22 FOR .045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 10' (3 m) 415-116-23 FOR .045" - 1/16" (1.2 mm - 1.6 mm) WIRE - 15' (3 m) 415-116-2 FOR 3/64" - 1/16" (1.2 mm - 2.4 mm) ALUMINUM WIRE - 15' (5 m)
16	FEEDER ADAPTOR REQUIREMENTS (SOLD SEPARATELY) 417 QUICK CONNECT BLOCK ASSEMBLY - TWECO #4 417-50 QUICK CONNECT BLOCK ASSEMBLY - EURO 417-60 QUICK CONNECT BLOCK ASSEMBLY - TWECO #5
17	FEEDER ADAPTORS (TO BE USED WITH QUICK CONNECT BLOCK)
18	666-10 HANDLE ASSEMBLY

INSTALLING MIG GUN INTO A WIRE FEEDER

For most power pins

1. Insert power pin to shoulder and secure.
2. Feed welding wire into power pin by hand and tighten drive rolls.
3. If using a water-cooled gun, securely clamp blue hose on rear housing to water-out on water cooler and red hose on rear housing to water-in on water cooler.



NOTE: On Lincoln® feeders it is necessary to connect the gas hose to the barbed fitting on the power pin.

GENERAL SAFETY

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

1. Always wear a properly fitted welding helmet with the proper grade of filter plate and suitable welding gloves.
2. All exposed skin should be covered with flame resistant, protective clothing. **DO NOT WEAR CLOTHING MADE FROM FLAMMABLE SYNTHETIC FIBERS.**
3. Protective screens or barriers should be used to protect others from spatter, flash and glare while welding.
4. Prevent fires by ensuring that hot slag or sparks do not contact combustible solids, liquids or gases.
5. Ensure that operator's head is not too close to the arc and that adequate ventilation is available.
6. Constant repetitive motion may lead to cumulative trauma disorders.
7. Do not touch live electrical parts. The following should be checked to prevent electrical shock.
 - a. Equipment is adequate for the job, properly grounded and installed according to code.
 - b. Faulty or damaged equipment is repaired or replaced.
 - c. Proper operator maintenance is performed to prevent excess spatter accumulation in the nozzle, or the contact tip or other areas of the gun.
 - d. Electrical insulating components are in place and not damaged. Repair or replace if necessary.
 - e. Operator and his surroundings are not wet.
 - f. Cables are not wrapped around operator's body.
 - g. Equipment is off when not in use.
8. 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.
9. 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.)



ADDITIONAL TECHNICAL DATA

For additional Technical Data, including installation, maintenance, neck dimensions, options, accessories and troubleshooting, please visit the Technical Support section of the Tregaskiss website at www.tregaskiss.com.

ORDERING INFORMATION

TOUGH GUN AUTOMATIC AIR-COOLED MIG GUN ORDERING INFORMATION

Automatic Series			Amperage	Neck	Option 1	Retaining Head	Cable Length	Nozzle	Option 2	Wire Size	Power Pin
M	A	1	5	K	0	2	R	C	0	E	T
			5 500 amp 6* 600 amp	Air-Cooled Short Length A 22 degrees 405-22 B 45 degrees 405-45 C 60 degrees 405-60 D 180 degrees 405-180 Medium Length E 22 degrees 505-22 F 45 degrees 505-45 G 60 degrees 505-60 H 180 degrees 505-180 Long Length J 45 degrees 405-45LL K 60 degrees 405-60LL TOUGH GUN I.C.E.* M 22 degrees 591-22 N 45 degrees 591-45 P 60 degrees 591-60 Q 180 degrees 591-180	0 No options	1 TOUGH LOCK™ Heavy Duty 2 HD Retaining Head 3 HD Diffuser 4 SD Diffuser	A 3.0' B 3.5' C 4.0' D 4.5' E 5.0' F 5.5' G 6.0' H 6.5' J 7.0' K 7.5' L 8.0' M 8.5' N 9.0' P 9.5' R 10' S 12' T 15'	A 401-6-62 B 401-5-62 C 401-6-50 D 401-42-50 E 401-7-62 F 401-7-75 G 401-4-38 H 401-4-50 J 401-7-87	0 No Options	B 0.030" C 0.035" D 1.0 mm E 0.045" F 3/64" G 0.052" H 1.4 mm J 1/16" K 1.8 mm L 5/64" M 3/32" Aluminum R 0.035" S 3/64" T 1/16" U 0.045" V 1.4 mm W 0.052"	B Bernard™ E Euro F Fronius® L Lincoln® M Miller® C L-Tec® P Panasonic® T Tweco #4 W Tweco #5 AutoLength™ Pin** 1 Tweco #4 2 Lincoln 3 Tweco #5 4 Miller 6 Panasonic 7 Fronius

*TOUGH GUN I.C.E. Technology is not available with 600 amp model
**AutoLength™ Pins not compatible with wire sizes for aluminum wire

TOUGH GUN AUTOMATIC WATER-COOLED MIG GUN ORDERING INFORMATION

Power Pin	Gun Model	Cable Length	Wire Size	Nozzle	Optional Neck	Liner Options	Additional Options
M	46	6	-45	-5	-460	-9	-A
M Miller® LN Lincoln® TW Tweco® #5 E Euro PA Panasonic®	46 450 amp 64 600 amp	04 4.0' 4.5* 4.5' 05 5.0' 06 6.0' 08 8.0' 10 10.0' 12 12.0' 15 15.0' *600 amp only	-35 0.035" -1.0 1.0 mm -45 0.045" -364 3/64" -52 0.052" -116 1/16" -564 5/64" -332 3/32"	450 amp -5 451-5-62 -5H 401-5-62 (includes 403-20-xx TOUGH LOCK™ Contact Tip and 452-3 Neck Insulator 600 amp -5 601-5-62 -6 601-6-62	450 amp -460 60 degrees -445 45 degrees -422 22 degrees 600 amp -660 60 degrees -645 45 degrees -622 22 degrees	-9 for Aluminum wire	-A Air blast



For Technical Support:

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Email: techservices@tregaskiss.com

www.tregaskiss.com

TREGASKISS is an industry leader in the development and manufacture of robotic MIG welding guns, welding consumables and peripherals.

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