

TIG DC RANGE

1600 HPF / 1800 FORCE
2200 FORCE / 315 DC / 415 DC



PRECISION AND RELIABILITY

www.oerlikon-welding.com

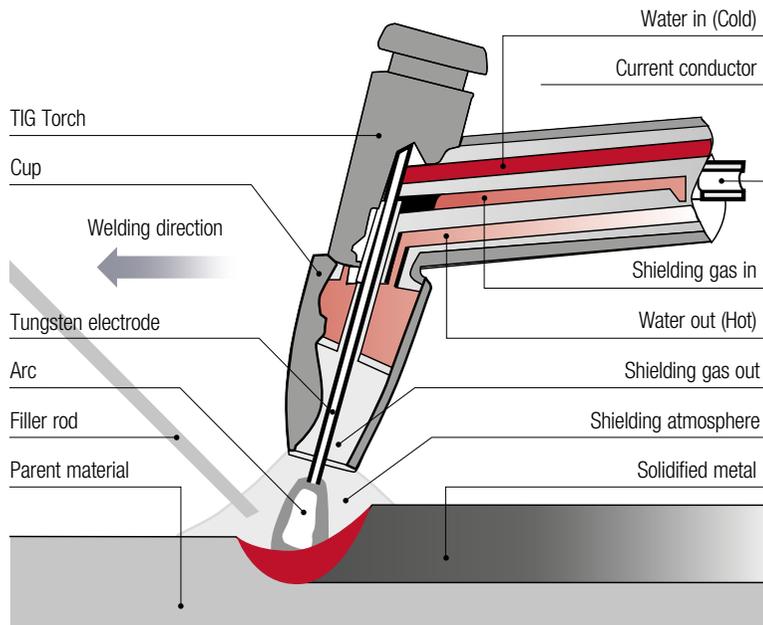

OERLIKON

GTAW PROCESS

TIG welding produces an precise weld and is a commonly used as high quality welding process. TIG welding has become a popular choice of welding processes when high quality, precision welding is required. DC polarity is used in most welding applications. It produces a smoother welding output compared to AC. It creates a more stable arc, easier welding and less spatter.

ADVANTAGES

- Produces very high-quality, superior welds
- Leaves no slag or splatter
- Particularly high visual quality of weld seams
- Uses a number of shielding gases including Helium (He) and Argon (Ar)
- Is easily applied to thin materials and Welding yields low distortion
- Welds can be made with or without filler metal
- All welding positions are possible



APPLICATIONS WITH TIG DC

TIG MILD STEEL / STEEL WELDING

It is extremely common in fabrication because it is inexpensive compared with other steel alloys and is easy to weld, it is the most material in metal construction ahead of aluminum and stainless steel. Can be welded using tungsten inert gas (TIG) welding techniques, and the result is a clean and precise weld.

The biggest challenge is keeping the material distortion as low as possible. Selecting the correct welding process plays an important part in this.



TIG STAINLESS STEEL WELDING

The welding of stainless steel requires good material knowledge, because the many different alloys and steel types also have varied weld properties. The regular TIG stainless steel welding process has provided the lowest manual weld deposition rates and slowest weld speeds, making welding stainless steel much harder than normal steel.



TIG DC RANGE

	DC Inverter	Reference	Voltage (V)	Input voltage tolerance	Frequency (Hz)	Output range (A)	Fuse Size (A) (slow)	Stick	Lift TIG	TIG HF	TIG PULSE	Up /down	Torch connector	PFC	Motor-generator compatibility	Cooling (Air / Water)	Memory	Meter (A / V)	Dimensions HxWxD (mm)	Weight (Kg)	Protection/ Insulation Class	Warranty (Years)
1-phase	CITOTIG 1600 HPF	W000273517	230	+/- 20%	50/60	10-160	16	•	•	•			C5B	•	•	Air			205x345x460	9,5	IP23S / H	2
	CITOTIG 1800 FORCE	W000382579	230	+/- 20%	50/60	5-160	16	•	•	•	•		C5B	•	•	Air / Water	•	•	205x345x460	9,5	IP23S / H	2
	CITOTIG 2200 FORCE	W000382580	230	+/- 20%	50/60	5-220	16	•	•	•	•		C5B	•	•	Air / Water	•	•	205x345x460	9,5	IP23S / H	2
3-phase	CITOTIG 315 DC	W000403581	400	+/- 15%	50/60	5-300	20	•	•	•	•	•	C5B		•	Air / Water	•	•	349 x 247 x 502	22	IP23S / H	3
	CITOTIG 415 DC	W000403583	400	+/- 15%	50/60	5-400	30	•	•	•	•	•	C5B		•	Air / Water	•	•	455 x 301 x 632	37	IP23S / H	3



CITOTIG 1600 HPF

Leading technology in TIG DC welding.
User friendly interface.

- Robust design – varnished PC boards
- Improved generator compatibility:
+/- 20% Input voltage variation, PFC controller
- Usable with great length of primary cable
(up to 70 m in 2,5 mm² section)
- Good welding in TIG HF and TIG Lift mode
- Hot start function and anti-sticking device
- Portable – light weight: only 9,5 kg
- Reduced noise – "intelligent" cooling fan
- Save energy – low current consumption
- Simple control panel – full control, easy set up
- 2 year warranty for labor and parts
- Remote control optionals

WARRANTY
2
YEARS

Input



Output



Processes

Stick, Lift TIG, TIG HF

Applications

- Boiler making
- Industrial plants, pipeline
- Metal and gantry construction
- Maintenance and repair



Unit Includes

Input cable (4 m)
Ground cable (3 m)
Gas hose (2 m)

CITOTIG 1800 FORCE

Smart switching, full flexibility.
Generator compatible, ideal for site use.

- Smart switching 230/400V single phase
- HF and Lift TIG ignition
- HIGH speed PULSE to adjust the arc focus,
reduce distortion and increase travel speed
- Excellent arc characteristics for rutile,
basic and cellulosic electrodes up to 4,0 mm
- Fan as needed (F.A.N.™) built-in reduces
power and the intake of dust and fumes
- Remote control optionals
- Water Coolers and Carts available

WARRANTY
2
YEARS

Input



Output



Processes

Stick, Lift TIG, TIG HF,
TIG Pulse

Applications

- Light industrial/ Industrial plants
- Maintenance and repair
- Process and food industry/ Metal construction



Unit Includes

Input cable (4 m)
Ground cable (3 m)
Gas hose (2 m)

CITOTIG 2200 FORCE

Advanced inverter technology for superior TIG performance. Very good HF arc ignition, stable, focused and fast arc.

- Excellent arc performance – perfect HF ignition, stable, focused and fast arc (for pulse and no pulsed arc)
- Simple control panel – full control, easy set up
- Energy efficient – PFC circuit, high efficiency, green mode
- Portable – Small, light weight
- PFC, protection 16A, 70 m input cable 2,5 mm², generator ready
- 2 year warranty – for labor and parts
- Remote control options
- Up/down function
- Water Coolers and Carts available



Input



Output



Processes

Stick, Lift TIG, TIG HF, TIG Pulse

Applications

- Light industrial, Motorsports
- Maintenance and repair
- Process and food industry



Unit Includes

Input cable (4 m)
Ground cable (3 m)
Gas hose (2 m)



CITOTIG 315 DC & 415 DC

Advanced inverter technology for superior DC TIG performance.
Industrial TIG welder for tough conditions.

- Full function user-friendly control panel layout with graph and a numeric display make it easy to set all welding parameters.
- Rugged construction : electrical safety (IP23S), potted PC boards and optimum airflow reduce contamination to extend the equipments life in the harshest environmental conditions.
- HF and Lift TIG ignition meeting all requirements.
- Perfect TIG HF starting with pre-settable starting mode.
- Complete TIG parameters setting: Pulse TIG with variable frequency that allows the welder to adjust the arc focus to suit the applications, 10 memory locations for personalized welding settings, TIG Spot welding.
- Water Coolers and Carts available.
- 3 year warranty – for labor and parts
- Remote control optionals
- Up/down function

Unit Includes

- Input cable (2m)
- Gas connection kit



Input



Output



Processes

Stick, Lift TIG, TIG HF, TIG pulse

Applications

- Light industrial/ Industrial plants
- Maintenance and repair
- Process and food industry/ Metal construction

ALL MACHINES

BUILT FOR THE HEAVIEST INDUSTRIAL CONDITIONS

Developed and tested under the hardest conditions (TRUE HD) to grant the reliability you need.

- PCB board made in Lincoln Electric Company
- Fully encapsulated and vertically mounted
- Capable of surviving the harshest testing conditions
- Varnished and potted electronic boards



WATER COOLING SETUP



Freeztig
W000382728



Coolertig 4
W000403941

SUGGESTED SETUP

TIG MILD STEEL / STEEL WELDING

Welding thickness (mm)	Electrode diameter (mm)	Weld material (mm)	Current "DC" (A)	Argon (l/min)
0,5	1,0	–	30-60	5
1,0	1,6	–	70-90	5
1,5	1,6	1,6	90-110	8
2,0	1,6	1,6	100-130	8
3,0	2,4	2,0	120-140	10
4,0	2,4	2,4	150-190	12
6,0	3,2	3,0	200-300	15
> 6,0	4,0	3,0	300-400	>15

TIG STAINLESS STEEL WELDING

Welding thickness (mm)	Electrode diameter (mm)	Weld material (mm)	Current "DC" (A)	Argon (l/min)
0,5	1,0	–	15-30	5
1,0	1,6	–	50-70	5
1,5	1,6	1,2	60-90	8
2,0	1,6	1,6	80-100	8
3,0	2,4	2,0	100-130	10
4,0	2,4	2,4	130-170	12
6,0	3,2	3,2	200-300	15
> 6,0	4,0	3,2	300-400	>15

TIG TORCHES

Series	Size	Rate	Application	Extra Flex Cable	HD expendables	Up /Down	Ergonomic handle	Adjustable neck	Valve version available	Flex Neck version available	Round Handle	110A	125A	135A	150A	180A	200A	220A	250A	350A	450A			
WTT2	9	35%	Professional				•		•	•		air cooled												
	17								•		•	•		air cooled										
	26								•		•	•		air cooled										
	20	100%						•			•		water cooled											
	18							•			•		water cooled											
PROTIG IIS	10	60%	Industrial	•	•						•	air cooled												
	20			•	•							•	air cooled											
	30			•	•							•	air cooled											
	40			•	•							•	air cooled											
	10W	100%			•	•						•	water cooled											
	35W				•	•						•	water cooled											
	40W				•	•						•	water cooled											
PROTIG NGS	10	60%	Industrial	•	•	•	•	•				air cooled												
	20			•	•	•	•	•	•				air cooled											
	30			•	•	•	•	•	•				air cooled											
	40			•	•	•	•	•	•				air cooled											
	10W	100%			•	•	•	•	•	•			water cooled											
	35W				•	•	•	•	•	•				water cooled										
	40W				•	•	•	•	•	•				water cooled										

Choose your module & your plug kit for Protig NG S

Button modules		 or 	
Reference	WP10529-2	WP10529-4 (10 kΩ)	WP10529-3 (10 kΩ)
Plug kit	<ul style="list-style-type: none"> No plug kit needed Torch is connected to the machine through the C5B plug (5 pins) 	 WP10529-9	
Work with	<ul style="list-style-type: none"> Citotig 315/415 DC Citotig 315 AC/DC 	<ul style="list-style-type: none"> Citotig 315/415 DC Citotig 315 AC/DC 	

Adapters

For old torches with central gas to be connected to power sources with separate gas, use W000306140.



Dinse 9 to 13 mm
W000306139



For torches with separate gas to be connected to power sources with central gas, use W000306141.



Dinse 13 to 9 mm
038055011



 air cooled
 water cooled

Connection



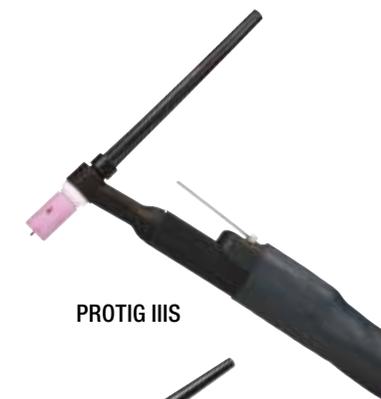
New Connector

Shaped cable output for a better robustness.



TIG TORCHES

			CITOTIG 1600 HPF	CITOTIG 1800 FORCE	CITOTIG 2200 FORCE	CITOTIG 315 DC	CITOTIG 415 DC
			W000273517	W000382579	W000382580	W000403581	W000403583
TIG Premium torches Air	5 m	8 m					
PROTIG IIS 10 RL C5B-S	W000382715-2	W000382716-2	•	•	•		
PROTIG IIS 20 RL C5B-S	W000382717-2	W000382718-2	•	•	•		
PROTIG IIS 30 RL C5B-S	W000382719-2	W000382720-2	•	•	•	•	•
PROTIG IIS 40 RL C5B-S	W000382721-2	W000382722-2			•	•	•
PROTIG NGS 10 EB C5B-S	W000278394-2	W000278395-2	•	•	•		
PROTIG NGS 20 EB C5B-S	W000278396-2	W000278397-2	•	•	•		
PROTIG NGS 30 EB C5B-S	W000278398-2	W000278399-2	•	•	•	•	•
PROTIG NGS 40 EB C5B-S	W000278400-2	W000278401-2			•	•	•
TIG Premium torches Water	5 m	8 m					
PROTIG IIS 10W RL C5B-S	W000382723-2	W000382724-2		•	•	•	
PROTIG IIS 35W RL C5B-S	W000382725-2	W000382726-2				•	•
PROTIG IIS 40W RL C5B-S	W000382727-2	—					•
PROTIG NGS 10W EB C5B-S	W000278402-2	W000278403-2		•	•	•	
PROTIG NGS 35W EB C5B-S	W000278404-2	W000278405-2				•	•
PROTIG NGS 40W EB C5B-S	W000278406-2	W000278407-2					•
TIG torches Air	4 m	8 m					
WTT2 17 RL C5B	W000278884	W000278917	•	•	•		
WTT2 17 EB C5B	W000278882	W000278919	•	•	•		
WTT2 26 RL C5B	W000278890	W000278913	•	•	•	•	•
WTT2 26 EB C5B	W000278887	W000278915	•	•	•	•	•
TIG torches Water	4 m	8 m					
WTT2 18W RL C5B	W000278898	W000278899				•	•
WTT2 18W EB C5B	W000278896	W000278901				•	•
WTT2 20W RL C5B	W000278894	W000278905		•	•	•	•
WTT2 20W EB C5B	W000278892	W000278909		•	•	•	•



PROTIG IIS



PROTIG NGS



WTT2



PROTIG Wear part box

10/10W	W000606441
20	W000306442
30	W000306443
40/35W	W000306444
40W	W000306445

ACCESSORIES & OPTIONS

		CITOTIG 1600 HPF	CITOTIG 1800 FORCE	CITOTIG 2200 FORCE	CITOTIG 315 DC	CITOTIG 415 DC
		W000273517	W000382579	W000382580	W000403581	W000403583
Water cooler						
FREEZCOOL	W000010167	•	•	•		
FREEZCOOL (red) T°-27°C 10 l	W000010167				•	•
FREEZTIG	W000382728			•		
COOLERTIG 3	W000403940				•	
COOLERTIG 4	W000403941					•
Cable Kits						
KIT 25C50 – 200A – 25 mm ² – 3 m	W000260684	•	•			
KIT 35C50 – 300A – 35 mm ² – 4 m	W000011139			•	•	
KIT 50C50 – 400A – 50 mm ² – 4 m	W000260681				•	•
Ground cable assemblies						
Clamp, Fast-mate, cable 300A – 50 mm ² – 5 m	GRD-300A-50-5M				•	
Clamp, Fast-mate, cable 300A – 50 mm ² – 10 m	GRD-300A-50-10M				•	
Clamp, Fast-mate, cable 400A – 70 mm ² – 5 m	GRD-400A-70-5M					•
Clamp, Fast-mate, cable 400A – 70 mm ² – 10 m	GRD-400A-70-10M					•
Remote controls						
Foot amptrol, 6 pins, 7,6 m	K870				•	•
Control box, 15 m	K14147-1				•	•
Remote controls 10 m	W000219557		•	•		
Foot Remote controls 10 m	W000241602		•	•		
Extension 15 remote control	K14148-1				•	•
Cart						
CART 3	W000404145				•	
CART 4	W000404146					•
Universal Trolley	W000375730	•	•	•		



FREEZCOOL
W000010167

CABLE KITS
W000011139



FOOT AMPPTROL
K870



UNIVERSAL TROLLEY
W000375730

TIG RODS

MILD STEEL TIG RODS

LNT 26

AWS A5,18: ER70S-6
ISO 636-A: W 42 5 W3Si1

Shielding gas
I1: Inert gas Ar (100%)

- Solid rod for welding general construction in mild steel.
- Smooth bead appearance.

Product Name	Ø (mm)	Length (mm)	Weight per tube (kg)	Item Number
LNT 26	1,6	1000	5	T16T005R6S00
	2,0			T20T005R6S00
	2,4			T24T005R6S00
	2,4			T32T005R6S00
	3,0			

STAINLESS STEEL TIG RODS

LNT 304LSi

AWS A5,9: ER308LSi
ISO 14343-A: W 19 9 LSi

Shielding gas
I1: Inert gas Ar (100%)

- Solid rod with extra low carbon for welding stainless CrNiMo-steels, with high silicon for improved wettability.

Product Name	Ø (mm)	Length (mm)	Weight per tube (kg)	Item Number
LNT 304LSi	1,2	1000	5	580198
	1,6			582512
	2,0			582796
	2,4			582802
	2,4			583045
	3,2			

LNT 316LSi

AWS A5,9: ER316LSi
ISO 14343-A: W 19 12 3 LSi

Shielding gas
I1: Inert gas Ar (100%)

- Solid rod with extra low carbon for welding stainless CrNiMo-steels, with high silicon for improved wettability.

Product Name	Ø (mm)	Length (mm)	Weight per tube (kg)	Item Number
LNT 316LSi	1,0	1000	5	580259
	1,2			580235
	1,6			583915
	2,0			583922
	2,4			582819
	3,2			583571

TUNGSTEN ELECTRODES

A complete range of tungsten electrodes:

Product advantages:

- Very high life cycle
- Perfect arc ignition
- Very stable arc
- Tip longevity

- Pure tungsten
- Tungsten + cerium
- Tungsten + lanthanum
- Tungsten + rare earths



Type	Metal		Arc stability	Striking	Lasting	Thermal resistance
	Aluminium	Steel & Stainless steel				
WP – pure tungsten	*		**	*	*	*
WC 20 – Cerium 2%		*	**	*	**	**
WL 15 – Lanthanum 1,5%	**	***	**	***	***	***
WL 20 – Lanthanum 2%	*	***	**	***	***	***
WS 20 – Rare earths 2%	*	*	**	***	***	***

*** Excellent ** Good * Average





CUSTOMER ASSISTANCE POLICY

The business of Lincoln Electric is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

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