

# Precision TIG™ 275

## The Power To Perform!

With patented Micro-Start™ Technology and AC Auto-Balance™ on board, the Precision TIG 275 delivers unrivaled starting and welding at low amperages and optimized cleaning vs. penetration on critical AC aluminum welding. Simple controls, innovative accessory storage, attractive and consistent welds – it all adds up. Whatever the TIG welding application – fabrication, aerospace, production, motorsports, or vocational education – choose the Precision TIG 275 for outstanding features and precise arc performance.



### Processes

Stick TIG

### Advantage Lincoln

#### Outstanding Weld Performance:

- Patented Micro-Start™ technology for premium low amperage starting: 2 amps DC, 5 amps AC.
- Auto-Balance™ mode helps you get optimal performance for aluminum welding.
- Optional TIG pulser allows you to control heat input for any weld.
- Smooth, focused arc for precise TIG and stick welding performance.

#### Simple Controls & Ease of Use:

- Neat/organized cable management with integrated torch holster.
- Water-cooled torch connections with no adapters required — side mounted, out of the way, and well-protected.
- Digital meter and simple, well-spaced controls.

#### More Convenience and Value Features:

- Built-in storage compartment for torch consumables.
- Ready-Pak™ adds under-cooler cart water cooler, filler metal rack, and storage drawer for helmet, gloves, foot pedal, and work cable and clamp.

#### Superb Quality:

- Fan-As-Needed™ (F.A.N.) reduces thermal cycling.
- CSA NRTL/C certified.
- Three-year warranty on parts and labor.

### Description

Output   Input   

### Recommended General Options

Advanced Control Panel, Under-Cooler Cart Water Cooler, Undercarriage, Harris Argon Flowmeter/Regulator, Work Clamp & Cable Assembly, Power Factor Correction Kit

### Recommended Stick Options

Stick Accessory Kits, Remote Output Control

### Recommended TIG Options

Pro-Torch TIG Torches, Pro-Torch Cable Adapters, Foot Amptrol, Hand Amptrol, Arc Start Switch, Water Solenoid Kit

### Order

K1826-1	Precision TIG™ 275	208/230/460/1/60
K1826-2	Precision TIG™ 275	460/575/1/60
K1827-1	Precision TIG™ 275	220-230/380-400/415/1/50/60
K1825-1	Precision TIG™ 275 (Water-Cooled Ready-Pak™ with Cart Package)	208/230/460/1/60

### TECHNICAL SPECIFICATIONS

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D inches (mm)	Net Weight lbs (kg)
Precision TIG™ 275	K1826-1	208/230/460/1/60	275A/31V/40%	80/72/36A with PFC 104/94/47A w/o PFC	DC: 2-340A AC: 5-340A Max. OCV: 75V	31 x 22 x 26 (787 x 559 x 660)	397 (180)
	K1826-2	460/575/1/60	275A/31V/40%	35/28A with PFC 47/38A w/o PFC			
	K1827-1	220-230/380-400/ 415/1/50/60	275A/31V/40%	80/46/43A with PFC 95/55/50A w/o PFC			
Precision TIG™ 275 Ready-Pak™ Package	K1825-1	208/230/460/1/60	275A/31V/40%	80/72/36A with PFC 104/94/47A w/o PFC		49.7 x 28 x 41 (1262 x 711 x 1041)	641 (291)

**PERFORMANCE**

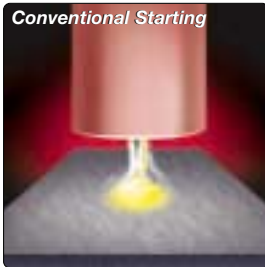
**Micro-Start™ Technology** 

**What Is It?**

Micro-Start™ Technology is a patented circuit that produces an extremely smooth, stable arc at low amperage.



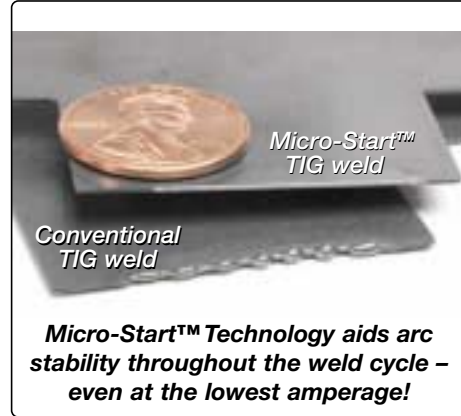
*Micro-Start™ Technology delivers a focused and stable arc at low amperage.*



*Conventional starting relies heavily on intense high frequency and hot starting.*

**Results:**

- Minimizes excessive hot starts normally required to establish the arc.
- Reduces intense high frequency wandering and tungsten frosting during starting.
- Allows you to weld with greater stability at low amperage.



**Micro-Start™ Technology aids arc stability throughout the weld cycle – even at the lowest amperage!**

**Great For:**

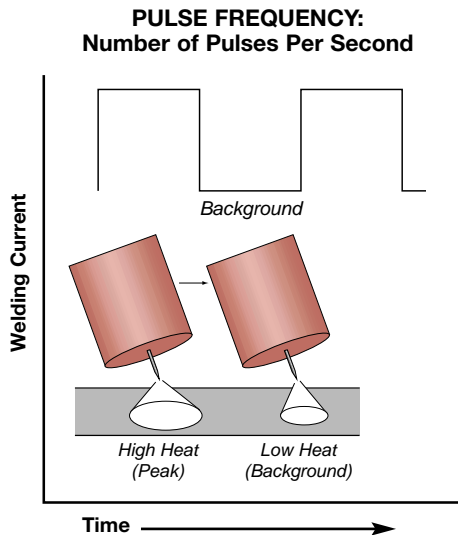
- Welding consistently and smoothly on thin materials, the Precision TIG 275 welds down to 2 amps DC!
- Reducing the risk of melting away material on critical welds.

**More welding control makes welding easier!**

**Optional TIG Pulsing**

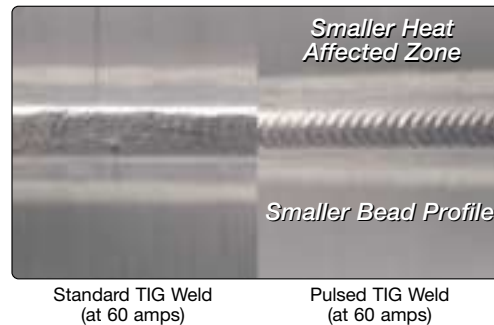
**What Is It?**

Pulse welding systems vary weld current between peak (high heat) and background current (low heat) levels. Pulse welding reduces the heat input, or total thermal energy, applied to the weld without sacrificing the proper level of penetration. Adjusting the pulse frequency controls the level of heat input applied to the weld relative to the weld travel speed.



**Results**

- Better control of heat input in the weld, resulting in:
- Reduced warping and burnthrough on thin materials.
  - Smaller heat-affected zone.
  - Smaller bead profile without compromising proper penetration.



**Great For**

- Thin materials — Faster pulse settings help to narrow the bead profile and minimize the heat-affected zone and resulting warping or burnthrough.
- Consistent appearance — Slower pulse settings aid in timing the application of filler metal to produce the consistent stacked bead appearance associated with high quality TIG welding.
- Helps train novice welders to maintain a steady welding rhythm.

**Make attractive and consistent welds!**

FEATURES



Torch Parts Storage Compartment.



Optional TIG pulsing helps you make great welds.



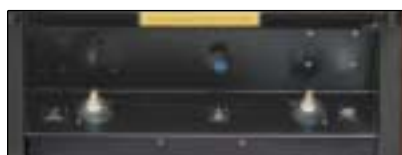
Easily accessible voltage reconnect panel.



Shown: K1825-1 Ready-Pak™ Package



Water-cooled torch connections with no adapters — side mounted to keep out of the way and protected.



Separate output studs for stick and TIG keep both stick electrode holder and TIG torch connected at the same time — eliminates set-up changeover when switching processes.



Neat/organized cable management with integrated torch holster.

Optional Features:

(standard with K1825-1 Water-Cooled Ready-Pak™ With Cart Package)



Lockable Undercarriage Storage and Water-Cooler Drawers. Reliable Pro-Con® pump.



Low-Lift Shielding Gas Bottle Platform.

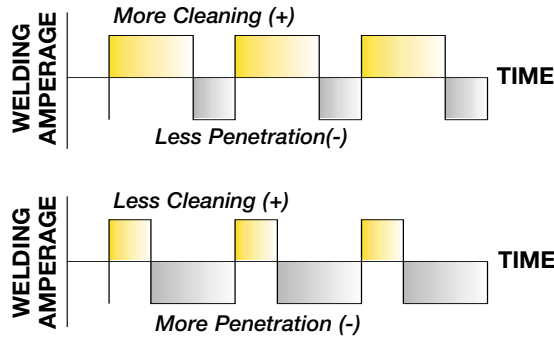
**PERFORMANCE, CON'T.**

**AC Auto-Balance™ Controls**

**What Is It?**

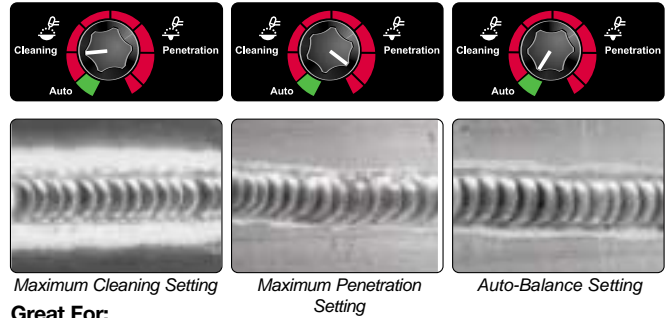
When aluminum welding, the positive (+) portion of the AC welding amperage cleans the oxides from the aluminum surface. The negative (-) portion delivers more heat input, increasing penetration level.

Patented AC Auto-Balance automatically sets the ratio of cleaning action (+) versus penetration (-) based on amperage.



**Results:**

The AC Auto-Balance setting automatically adjusts the optimal ratio of cleaning action versus current for most AC welding applications.



**Great For:**

- Novice and expert welders — set it and forget it for most AC welding applications.

**Achieve great-looking aluminum welds with minimal fuss!**

**Compare These Top Performance Specifications!**

- Excellent stick welding performance.
  - Weld steel, stainless and low alloy metals with ease.
  - Weld sheet metal, pipe and heavy plate.
  - Weld with Lincoln Blue Max Stainless, Excalibur Low Hydrogen and Fleetweld 5P welding electrodes.
- Wider output range — for maximum flexibility:
  - 2-340A DC, 5-340 AC.
- More amperage than nearest competitor at 40% duty cycle — 25 amps more!
- Lower input current draw compared to nearest competitor — up to 10% less current with 40% more duty cycle.
- Recommended for welding with E6010 and E7018 electrodes.



*AC Auto-Balance is especially useful on critical aluminum applications.*

**FEATURES, CON'T.**

- Minimum output control allows user to preset minimum amperage. Aids starting when using large tungstens. Also allows operator to control foot pedal resolution between minimum and maximum amperage.
- Optional Advanced Control Panel integrates TIG pulsing, downslope, arc force and trigger controls into the machine.
- Optional power factor correction capacitors save on electricity cost when welding at higher currents.
- Separate output studs for work cable/clamp and electrode cable/holder allows you to quickly change between stick and TIG welding processes with no high frequency on stick studs.
- Reliable polarity switch with positive-locating detents.
- Automatically switched 115V auxiliary power receptacle runs water cooler only as needed. 50/60 Hz model also includes 230V auxiliary power receptacle.

**Key Controls**

- |   |                                     |
|---|-------------------------------------|
| 1) Polarity Switch                                | 12) Optional Advanced Control Panel |
| 2) Power Switch                                   | A) Trigger Switch (2-step/4-step)   |
| 3) AC Balance Control                             | B) Pulse Mode Switch                |
| 4) Mode Switch                                    | C) Pulse Frequency Control          |
| 5) Minimum Output Preset Control & Display Switch | D) Pulse % On Time Control          |
| (Also displays output voltage)                    | E) Pulse Background Current Control |
| 6) Digital Meter                                  | F) Downslope Time                   |
| 7) Local/Remote Current Control Switch            |                                     |
| 8) Maximum Output Preset Control                  |                                     |
| 9) Post Flow Time                                 |                                     |
| 10) Thermal Shutdown Light                        |                                     |
| 11) Remote Receptacle (not shown)                 |                                     |

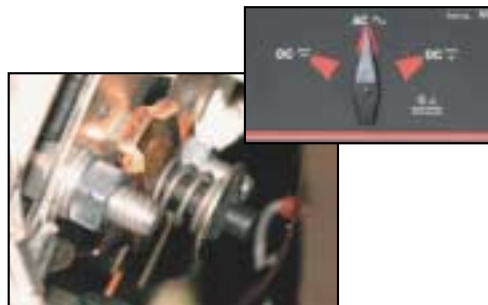


**QUALITY AND RELIABILITY**

- Fan-As-Needed™ (F.A.N.) minimizes repeated heating and cooling of internal components, keeps dust and dirt build-up to a minimum and saves on electricity costs.
- Engineered cooling air routing brings clean air in from the top and exhausts at the bottom to draw and collect less dirt in the machine (see photo at right), unlike competitive systems with a vacuum cleaner-like floor intake.
- Compare these reliability enhancing design features:
  - Crimped and soldered power connections.
  - Electrical coils are wound and varnished without coil spacers to remain secure. Competitive models use wooden coil spacers which can loosen over time.
  - Locking tabs on PC board connectors eliminate loosening that can cause electrical failure.
- Tough testing cycles ensure long service — dropping, jerking, rolling, shipping, vibration, resistance to real world extreme conditions, and extended in-service life testing.
- Line Voltage Compensation holds output setting constant to maintain weld quality even when the input voltage fluctuates  $\pm 10\%$ .
- CSA NRTL/C certified.
- Lincoln three-year warranty on parts and labor.
- Reliable under-cooler cart water cooler featuring industry recognized ProCon® pump tucked neat and tidy underneath machine for compact set-up.
- Easily accessible reconnect panel for convenient installation.
- Removable access door for easy spark gap maintenance.



Clean, cool air route shown.



Snap-action durable switches make positive mechanical contact to reduce chances of intermittent contact failure.

**SYSTEM SELECTION**

**Ready-Pak™ Packages**

Take the hassle out of ordering. Order a Ready-Pak™ pre-assembled welding package.

**Precision TIG 275 Ready-Pak™ Package**

One product number (K1825-1) gets you all this:

- Precision TIG 275 (208/230/460/1/60)
- Under-Cooler Cart Water Cooler
- Foot Amptrol
- Gas Regulator/Flowmeter & Hose Kit
- PTW-20 Pro-Torch™ TIG Torch (250 amp, 25 ft.)
- Zippered Torch Cover
- Parts Kit
- Water Hose (2 included)
- 15 ft., 2/0 Work Cable and Clamp

Order K1825-1



Shown: K1903-1  
Water-Cooled Ready-Pak™ With Cart Package

**GENERAL OPTIONS**



**Advanced Control Panel**  
Provides 2/4-step trigger with adjustable Pulser controls and Downslope timer for TIG welding. Also includes adjustable Hot Start and Arc Force internal panel controls for stick welding, and other user selectable features.  
**Order K1829-1**



**Under-Cooler Cart Water Cooler**  
Includes "cooler-in-a-drawer" with hoses and a lockable storage drawer on a dual bottle undercarriage. Two gallon (7.5 ltrs.) capacity.  
**Order K1828-1**



**Undercarriage**  
Includes a dual bottle rack with chain and front casters, rear wheels and a handle.  
**Order K1869-1**



**Harris Argon Flowmeter/Regulator**  
Deluxe flowmeter/regulator. Includes 10 ft. (3.0m) hose.  
**Order 3100211**



**Work Clamp & Cable Assembly**  
15 ft. 2/0 cable with 1/2" stud lug and work clamp.  
**Order K2150-1**



**Power Factor Correction Kit**  
Used to reduce current draw and keep electricity costs to a minimum when machine is routinely operated at high outputs.  
**Order K1831-1**

**STICK OPTIONS**



**Accessory Kit**  
For stick welding. Includes 35 ft. (10.7m) 2/0 electrode cable with lug, 30 ft. (9.1m) 2/0 work cable with lugs, headshield, filter plate, work clamp and electrode holder. 400 amp capacity.  
**Order K704**



**Accessory Kit**  
For stick welding. Includes 20 ft. (6.1m) #6 electrode cable with lug, 15 ft. (4.6m) #6 work cable with lugs, headshield, filter plate, work clamp, electrode holder and sample pack of mild steel electrode. 200 amp capacity.  
**Order K875**

**STICK OPTIONS, CONT.**



**Remote Output Control**  
Consists of a control box with choice of two cable lengths. Permits remote adjustment of output. 6 pin connection.  
**Order K857** for 25 ft. (7.6m)  
**Order K857-1** for 100 ft. (30.5m)

**TIG OPTIONS**



**Magnum™ Pro-Torch™ TIG Torches**  
A full line of air-cooled and water-cooled torches available.  
**Request publication E12.150**



**PTA-26 One-Cable Adapter**  
Adapts the 7/8" PTA-26 fitting to the 5/8" gas and power connection on machine.  
**Order K2166-1**



**PTA-9, -17 One-Cable Adapter**  
Adapts the 3/8" PTA-9 or -17 fitting to the 5/8" gas and power connection on machine.  
**Order K2166-3**



**PTA-9, PTA-17, PTA-26 Two-Cable Adapter**  
Converts the 7/8" water and power connection on the machine to a 1/2" output stud for use with a two-cable air-cooled TIG torch.  
**Order K2166-2**



**Foot Amptrol™**  
Varies current for making critical TIG welds. Depress pedal to increase current. Depressing pedal fully achieves maximum set current. Fully raising the pedal finishes the weld and starts the afterflow cycle. Includes 25 ft. (7.6m) control cable.  
**Order K870**



**Hand Amptrol**  
Provides 25 ft. (7.6m) of remote current control for TIG welding. (6 pin plug connection). Velcro straps secure torch.  
**Order K963-3** (One size fits all Pro-Torch TIG Torches.)



**Arc Start Switch**  
Needed if an Amptrol is not used when TIG welding. Comes with a 25 ft. (7.6m) cable. Attaches to the TIG torch for convenient finger control.  
**Order K814**

**RECOMMENDED OPTIONS**

**TIG OPTIONS, CONT.**



**Water Solenoid Kit**

Enables use of tap or shop water for an economical water-cooled system. Not recommended for use in conjunction with a water cooler.

**Order K1830-1**



**Cut Length Consumables**

TIG welding filler metals are available for welding stainless steel, mild steel, aluminum and copper alloys.

**See publication C9.10**

**PRECISION TIG™ 275 ORDER FORM**

PRODUCT DESCRIPTION	ORDER NUMBER	QUANTITY	PRICE
Precision TIG™ 275 (208/230/460/1/60)	K1826-1		
Precision TIG™ 275 (460/575/1/60)	K1826-2		
Precision TIG™ 275 (220-230/380-400/415/1/50/60)	K1827-1		
<b>Ready-Pak™ Package</b>			
Precision TIG™ 275 (208/230/460/1/60)	K1825-1		
<b>Recommended General Options</b>			
Advanced Control Panel	K1829-1		
Under-Cooler Cart Water Cooler	K1828-1		
Undercarriage	K1869-1		
Harris® Argon Flowmeter/Regulator	3100211		
Work Clamp and Cable Assembly	K2150-1		
Power Factor Correction Kit	K1831-1		
<b>Recommended Stick Options</b>			
Stick Accessory Kit, 400 amps	K704		
200 amps	K875		
Remote Output Control, 25 ft. (7.6m)	K857		
100 ft. (30.5m)	K857-1		
<b>Recommended TIG Options</b>			
Pro-Torch Water-Cooled TIG Torches (No adapter required.)	See publication E12.150		
Pro-Torch Air-Cooled TIG Torches (Specific adapter required.)	See publication E12.150		
PTA-26 One-Cable Adapter	K2166-1		
PTA-9, -17 One-Cable Adapter.	K2166-3		
PTA-9, -17, -26 Two-Cable Adapter	K2166-2		
Foot Amptrol	K870		
Hand Amptrol, (for -9, -17, -20 series torches)	K963-1		
(for -26, -18, series torches)	K963-2		
Arc Start Switch	K814		
Water Solenoid Kit	K1830-1		
Cut Length Consumables	See publication C9.10		
<b>TOTAL:</b>			

**CUSTOMER ASSISTANCE POLICY**

The business of The Lincoln Electric Company 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 advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

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