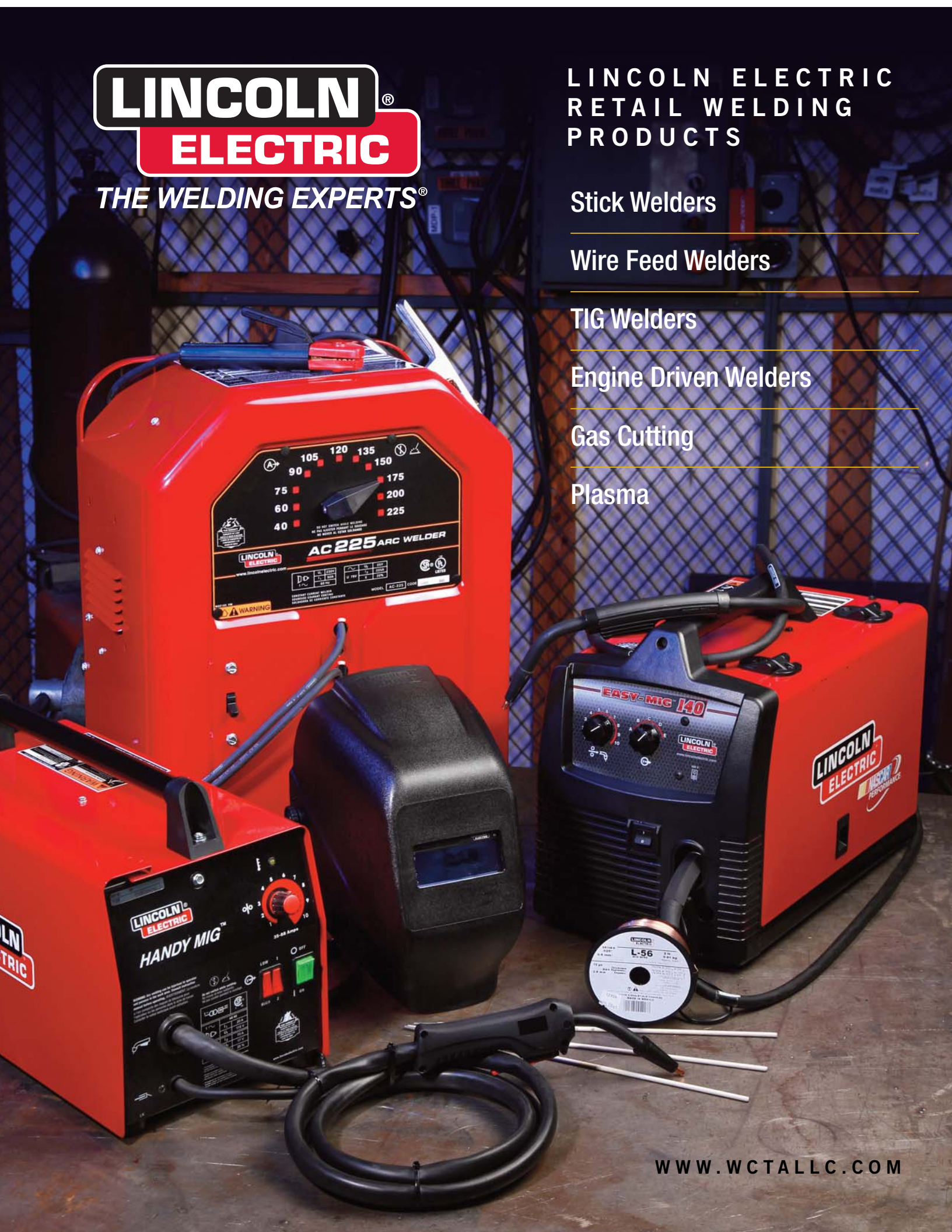
LINCOLN ELECTRIC

THE WELDING EXPERTS®

LINCOLN ELECTRIC RETAIL WELDING PRODUCTS

- Stick Welders
- Wire Feed Welders
- TIG Welders
- Engine Driven Welders
- Gas Cutting
- Plasma



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LINCOLN ELECTRIC
THE WELDING EXPERTS®

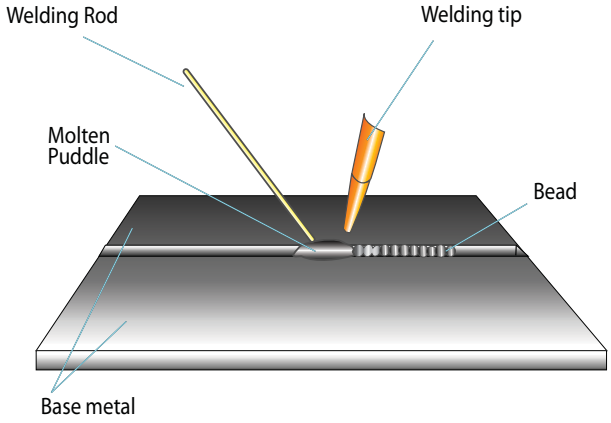
LINCOLN ELECTRIC is the complete source for all of your welding and cutting needs. Innovative products and a 115 year tradition of quality ensure your satisfaction with every LINCOLN ELECTRIC product.

LINCOLN PROFESSIONAL WELDERS

LINCOLN ELECTRIC
THE WELDING EXPERTS®

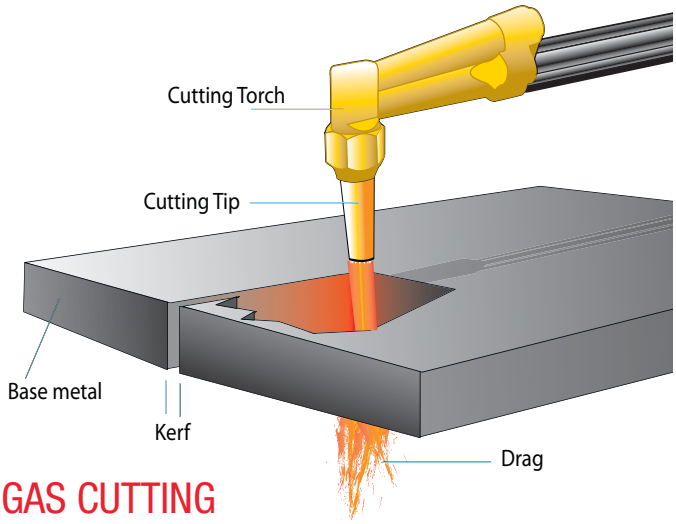
WHAT IS WELDING ?

Welding is a method of joining two pieces of metal into one solid piece. To do this, the heat of an electric arc or the flame of oxy-acetylene is concentrated on the area of the two pieces of metal to be joined. The metal melts and, while the edges are still molten, additional melted metal is added. This molten mass then cools and solidifies into one solid piece.



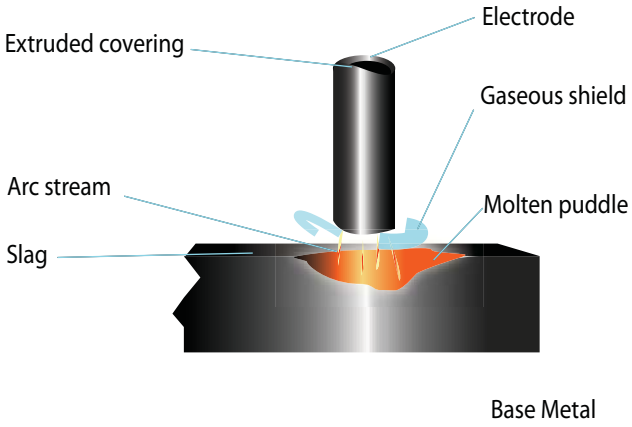
GAS WELDING

Oxyfuel gas welding involves the joining of two metals by melting or fusing their adjoining surfaces. Joining the two metals involves combustion with oxygen as a heating medium and acetylene as a fuel source.



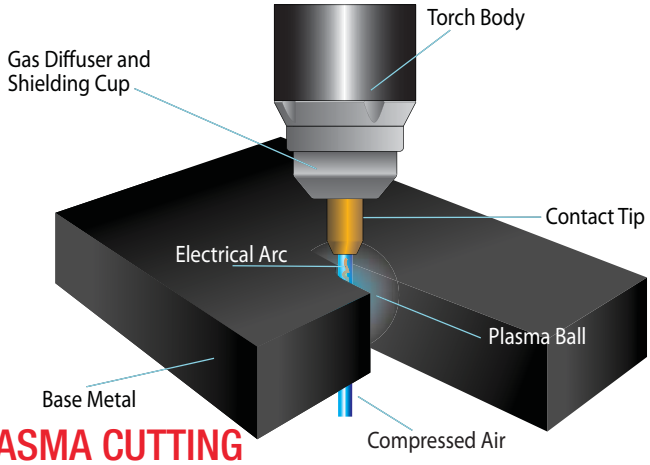
GAS CUTTING

Oxyfuel gas cutting process involves preheating the base metal to a bright cherry red, then introducing a stream of cutting oxygen which will ignite and burn the metal. Possible fuel sources include propane and acetylene.



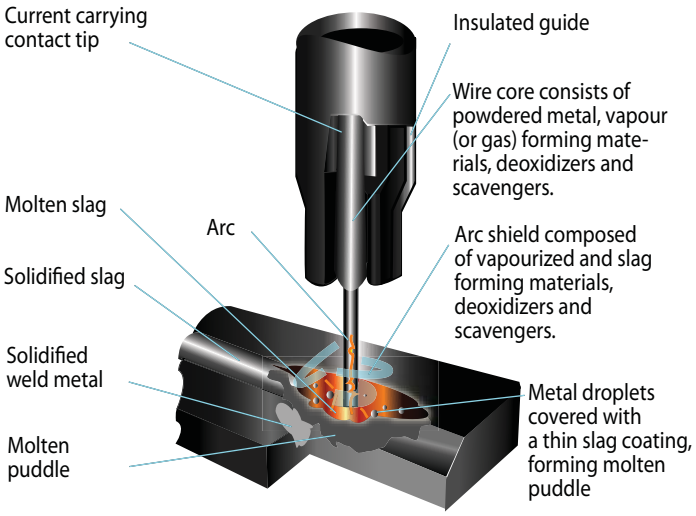
STICK WELDING

Stick electrodes are used for welding mild steel, alloy steels, stainless steels, aluminum and cast iron. Electrodes are also available for the rebuilding of worn parts on construction and farm equipment, and for hardfacing.



PLASMA CUTTING

Plasma cutting is a process where compressed air is blown at high speed out of a nozzle; at the same time an electrical arc is formed through gas from the nozzle to the surface being cut, turning the gas to plasma. The plasma gets hot enough to cut through molten metal and remaining compressed air will blow the molten metal from the cut.



MIG (SUPERARC®) WIRE WELDING

MIG stands for Metal Inert Gas. This welding process uses a solid wire with an externally supplied shielding gas to protect the weld puddle. There are many types of gas available. The most common gas mixtures that a non-industrial or retail customer would need are:

METAL	SHIELDING GAS
Steel	75% Argon/25% CO^2 - No slag, least amount of spatter and minimal cleanup after welding. Best gas for thin materials such as auto body panels.
Aluminum	100 % Argon
Stainless Steel	90% Helium/8% Argon/2% CO^2

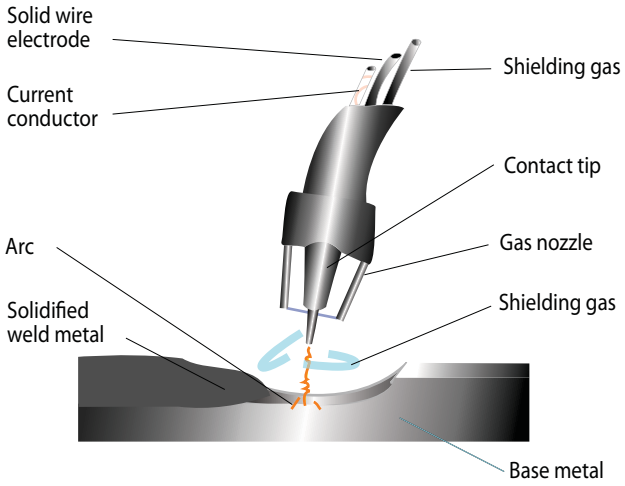
NOTE: Shielding gases are available in high pressure cylinders from industrial gas suppliers in your local area.

FLUX-CORED (INNERSHIELD®) WIRE WELDING

Innershield® electrodes are available for welding mild steel. In effect, an Innershield® electrode is a stick electrode turned inside out and made into a continuous wire. All shielding, slagging and deoxidizing materials are in the core of the tubular wire. No external shielding gas or flux is required.

ADVANTAGES OF FLUX-CORED (INNERSHIELD®) WIRE WELDING

- Can weld outside without tenting in winds up to 30 mph
- Deeper penetration vs. MIG - thicker materials may be welded
- No shielding gases needed
- May weld in all positions
- Very user friendly
- Portability (no cylinder to cart)



ADVANTAGES OF MIG WIRE WELDING

- Less smoke produced - better process to use indoors
- Better for thin gauge material vs. Innershield® -less penetration
- Less spatter produced, cleaner welds
- No slag to remove
- Better weld appearance

AC-225

The AC-225 is Lincoln's best selling arc welder of all time. It has a broad welding amperage range of 40-225 amps. The AC-225 produces an extremely smooth AC arc for welding a wide variety of materials including carbon, low alloy, and stainless steels as well as cast iron. Metals 16 gauge and heavier can be easily arc welded with the AC-225.

Processes
Stick

Advantage Lincoln
- Easy to install. Comes with attached input cable and plug.
- Easy to operate. Full range 40-225 amp selector switch quickly sets the welding current and ensures a uniform arc each and every time you weld.
- Smooth arc makes it easy to weld with different electrodes, including mild steel, low hydrogen, stainless steel and hardfacing electrodes.
- 225 amp AC output is enough for 3/16" diameter general purpose mild steel electrodes and 5/32" sizes of other electrodes.
- Optional carbon arc torch for brazing and soldering applications, for heating rusty nuts for easier removal, and for bending or straightening metal.
- Fan-cooled for extra thermal protection.
- Manufactured under an ISO 9001 certified quality system and ISO 14001 certified environmental standard.
- Three-year warranty on parts and labor.

Base Unit Includes
- Insulated electrode holder and cable
- Heavy duty work clamp and cable
- Input cable with attached plug

Recommended General Options
Wheel Kit K761

Output CC AC Input 1 PHASE 60 Hz 50 Hz 230V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/ Duty Cycle(1)	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
AC-225	K1170	230/1/60	225A/25V/20%(1)	50A	40-225 Amps Max. OCV: 79V	24 x 17.25 x 12 (610 x 438 x 305 mm)	109 (49.5)

AC/DC 225/125

The AC/DC 225/125 is the deluxe version of the world renowned AC-225 arc welder. The AC/DC 225/125 is an arc welding power source with an AC welding output range of 40-225 amps and a DC welding output range of 30-125 amps. It is an extremely useful stick welding power source for maintenance repair, fabrication, construction, erecting and hardfacing applications. Can also be used for cutting and piercing holes in steel.

Processes
Stick

Advantage Lincoln
- Easy to install. Comes with attached input power cable and plug.
- Easy to operate with front-mounted AC/DC polarity switch and fullrange amperage selector switch for accurate and dependable procedure setting.
- Traditional design provides long life and low cost operation.
- AC or DC welding output for complete stick welding versatility.
- Smooth arc makes it easy to weld with different electrodes, including mild steel, low hydrogen, stainless steel and hardfacing electrodes.
- Use the electrode polarity switch on the front of the machine to select a DC welding arc where a stable arc is essential.
- Select an AC welding arc for welding heavier plate where higher deposition rates and travel speeds are desired.
- Electrode selection chart on the machine case provides quick and easy reference guide for amperage selection.
- 225 amp AC output is enough for 3/16" (4.8mm) diameter general purpose mild steel electrodes and 5/32" (4.0mm) sizes of other electrodes.
- Manufactured under an ISO 9001 certified quality system and ISO 14001 certified environmental standard.
- Three-year warranty on parts and labor.

Base Unit Includes
- Insulated electrode holder and cable
- Heavy duty work clamp and cable
- Input cable with attached plug

Recommended General Options
Wheel Kit K761

Output: CC, AC/DC
Input: 1 PHASE, 60 Hz, 50 Hz, 230V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
AC/DC 225/125	K1297	230/1/60	AC: 225A/25V/20% DC: 125A/25V/20%	AC: 50 DC: 36	40-225 Amps AC Max. OCV: 79V 30-125 Amps DC Max. OCV: 73V	24 x 17.25 x 12 (610 x 438 x 305)	124 (56.3)

LINCOLN ELECTRIC
THE WELDING EXPERTS®

208/230 Volt AC Input Compact Wire Feeder

The Idealarc® 250 is the classic workhorse of the Lincoln Electric stick welding power source line. It produces up to 300 amps of brute AC welding strength or down to 40 amps of smooth DC welding performance.

Add the optional TIG Module to create a versatile AC/DC TIG welder for welding aluminum or other alloy metals.

The Idealarc® 250 is well suited for industrial production welding applications, for maintenance and repair shops where welding versatility is needed, and for the shop or farm where ruggedness and durability is required.

Processes
Stick, TIG, Gouging

Advantage Lincoln

- Outstanding arc stability and built-in stabilizer provide popoutresistant welding with all AC electrodes.
- Versatile welding range with up to 300 amps AC and 250 amps DC.
- Suitable for use with every type of electrode including low hydrogen, stainless steel, hardfacing, aluminum and bronze.
- Easy set-up and operation. Full range continuous current control dial with current indicator for exact heat required for each job.
- Change polarity with a twist of the wrist — AC, DC+ or DC-.
- Stackable case design allows machines to be stacked 3 high to save valuable floor space.
- Fan-cooled for extra thermal protection.
- CSA NRTL/C certified.
- PC boards for extreme environmental protection.
- Fan-cooled for extra thermal protection.
- Manufactured under an ISO 9001 certified quality system and ISO 14001 certified environmental standard.
- Three-year warranty on parts and labor.

Recommended General Options

Under carriage	K866
Power Factor Capacitor Kit	K1894-1

Stick Welder Options

Stick Accessory Kit, 400 Amp	K704
Stick Accessory Kit, 150 Amp	K875

TIG Welder Options

TIG Module	KK930-2
Contactor Kit	K938-1
Control Module	KK936-4

Output CC AC DC Input 1 PHASE 60 Hz

Product Name	Product Number	Input Power	Rated Output Current/Voltage/ Duty Cycle(1)	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Idealarc® 250	K1053-9 with Power Factor Capacitors	208/230/460/1/60	AC: 250A/30V/30% DC: 250A/30V/30%	95/86/43A	AC: 35-300 Amps Max. OCV: 72V DC: 40-250A Max. OCV: 70V	27 x 19 x 21.5 (686 x 483 x 546)	350 (159)

HANDY CORE™

The Handy Core wire feeder welder from Lincoln Electric is a tremendous asset when home repair or hobby projects are in your game plan. It's a great pick for welding 18 gauge to 1/8" mild steel and comes with everything you need to get started fast. This package sports a gun and cable assembly, work lead, work clamp and input power cable – all attached at the factory to save you time. A spool of self-shielded, flux-cored wire electrode, welding handshield, and chipping hammer/brush round out the line up. So, don't delay – add the Handy Core to your tool shed or garage today!

Processes
Flux-Cored

Advantage Lincoln
- 35-88 amps output.
- Welds up to 1/8 in. mild steel.
- Plugs into household 115V, 20 amp outlet.
- Cold contactor safety feature keeps welding wire electrically "cold" until gun trigger is pressed.
- Compact, portable, lightweight and easy to use.
- Great for home repair and hobby projects on light gauge mild steel found around most households.
- With four output ranges, the Handy Core is versatile and yet easy to set proper welding procedures for even the novice user.
- Fan-cooled for long life expectancy.
- One year warranty on parts and labor. (90 days warranty on gun and cable).

Base Unit Includes
- Welding gun and cable assembly
- Work cable with work clamp
- 1 lb. spool of .035" (0.9mm) Innershield® NR®-211-MP flux-cored wire
- .035" contact tips – quantity 2
- Welding handshield with #10 filter plate and glass cover plate
- Chipping hammer/brush

Recommended General Options
K2275-1 Utility Cart

Output CV DC Input 1 PHASE 60 Hz 115V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Handy-Core™	K2278-1	115/1/60	70A/17V/20%	20A 0-300 ipm WFS	35-88 Amps (325 x 224 x 457) (1.3-12.7 m/min) Max. OCV: 29V	12.8 x 8.8 x 18 (20.9)	46

HANDY MIG™

Interested in welding? Ready to try your hand at wire welding? Have we got the welder for you – the Handy MIG from Lincoln Electric! This compact, portable and lightweight wire feed welder plugs into a 115V, 20 amp outlet and is user friendly. Four voltage settings and continuous wire feed speed adjustment allow you to weld mild steel from 24 gauge to 1/8" thick. And, it's easy to get started since practically everything you'll need to MIG weld is in the box – gun and cable assembly, work cable and clamp, gas nozzle, gas regulator and hose, spool of solid wire, contact tips and handshield with filter plate and lens. Just add a cylinder of shielding gas. But that's not all – there's also a spool of self-shielded, flux-cored wire, contact tips, and chipping hammer/brush so you can use your Handy MIG to weld with gasless, flux-cored wire too.

Processes
MIG, Flux-Cored

Base Unit Includes
- Welding gun and cable assembly
- Work cable with work clamp
- Shielding gas regulator and hose
- 1 lb. spool of .030" (0.9mm) L-56 MIG wire flux-cored wire
- 1 lb. spool of .035" (0.9mm) Innershield® NR®-211-MP flux-cored wire
- .035" contact tips – quantity 2
- Welding handshield with #10 filter plate and glass cover plate
- Chipping hammer/brush

Recommended General Options
K2275-1 Utility Cart

Advantage Lincoln
- 35-88 amps output.
- Welds up to 1/8 in. mild steel.
- Welds both MIG (shielding gas sold separately) and flux-cored. • Plugs into household 115V, 20 amp outlet.
- Cold contactor safety feature keeps welding wire electrically "cold" until gun trigger is pressed.
- Compact, portable, lightweight and easy to use.
- Great for home repair and hobby projects on light gauge mild steel found around most households.
- Continuous wire feed speed adjustment and selectable voltage ranges for precise control.
- Fan-cooled for long life expectancy.
- One year warranty on parts and labor. (90 days warranty on gun and cable).

Output CV DC **Input** 1 PHASE 60 Hz 120V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Handy-MIG™	K2185-1	115/1/60	70A/17V/20%	20A	35-88 Amps 0-300 ipm WFS (1.3-12.7 m/min) Max. OCV: 29V	12.8 x 8.8 x 18 (325 x 224 x 457)	46 (20.9)

EASY-CORE™ 125

120 Volt AC Input Compact Wire Welder

Basic wire welding for projects and repairs around the shop, farm or home...that's where the Easy-Core™ 125 comes in handy! Plug in the Easy-Core™ 125 anywhere common 120 volt input power is available. Set the simple two-knob tapped control for your material application and get it done. Right out of the box, the Easy-Core™ 125 is set up for gas-less flux-cored welding so it's just right for common steel welding, indoors or out. Compare the precise drive, rugged construction and full list of standard accessories...the Lincoln® Easy-Core™ 125 is a top quality tool for anyone with occasional welding needs.

Processes
Flux-Cored

Advantage Lincoln
Superior Arc Performance:
- Forgiving arc makes dialing in your application easy.
- Smooth arc starts with minimal spatter.
- 30-125 amp welding output range is enough for many tasks.
- Weld up to 1/4" steel using self-shielded Lincoln Innershield® wires (FCAW-S). With K2526-1 MIG Conversion Kit, MIG weld 24 gauge up to 12 gauge (.105") sheet metal in a single pass.

Professional Features:
- Precise Wire Drive features:
  – Precision full adjustment drive system reduces chance of wire tangling and crushing.
  – Brass-to-Brass gun connections for enhanced connectivity.
- No Hassle Tool-less Design – for wire spool mounting, wire drive service and polarity changes.

Superb Quality:
- Power Chassis™ channels airflow to cool power systems.
- Toughest PC Board Protection in the industry – 'Potted' to seal sensitive components from the environment, 'trayed' in a tough plastic tray to add rigidity and shock resistance.
- Three Year Lincoln Warranty/90 Days on gun and cable assembly.

Base Unit Includes
- Magnum® 100L gun and 10 ft. (3.0 m) cable assembly
- .035" (0.9 mm) Contact Tips (Qty. 3)
- Gasless flux-cored nozzle for Innershield® welding
- Spindle Adapter for 8" (203 mm) Diameter Spools
- 1 lb. Spool of .035" (0.9 mm) NR®-211-MP flux-cored wire
- Work Clamp and 10 ft. (3.0 m) Cable
- Welding Handshield
- Instruction Manual
- Instructional DVD

Recommended General Options
Welding Cart K2257-1

Output CV DC Input 1 PHASE 60 Hz 120V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Easy-Core™ 125	K2696-1	120/1/60	90A/19V/20%	20A	30-125 Amps DC 50-500 ipm WFS (1.3-12.7 m/min) Max. OCV: 33V	13.7 x 10.15 x 17.9 (357 x 258 x 472)	48 (21.7)

EASY-MIG™ 140

120 Volt AC Input Compact Wire Welder

Whether you have a home project, farm repairs or basic autobody welding to complete, the Easy-MIG™ 140 should be at the top of your shopping list! Requiring common 120 volt input power, the Easy-MIG™ 140 can be used almost anywhere. With simple two knob tapped control, the machine is easy to set up for gas-less flux-cored welding for deep penetration on thicker steel or gas-shielded MIG welding on thin gauge steel, stainless or aluminum. Compare the precise drive, rugged construction and full list of standard accessories. . . Lincoln® Easy-MIG™ 140 is an excellent choice!

Processes
MIG, Flux-Cored

Advantage Lincoln
Superior Arc Performance:
- Forgiving arc makes dialing in your application easy.
- Smooth arc starts with minimal spatter.
- Wide 30-140 amp welding output range.
- MIG weld 24 gauge up to 10 gauge (.135") sheet metal in a single pass. Weld up to 5/16" steel using self-shielded Lincoln® Innershield® wire (FCAW-S).

Professional Features:
- Precise Wire Drive features:

– Precision full adjustment drive system reduces chance of wire tangling and crushing.
– Brass-to-Brass gun connections for enhanced connectivity.
– Large industrial closed-design drive motor for improved torque and trouble-free performance.

- Spool Gun Ready – add the optional Magnum® 100SG spool gun for reliable operation at the high wire feed speeds aluminum welding demands. No expensive outboard modules required.
- No Hassle Tool-less Design – for wire spool mounting, wire drive service and polarity changes.
- Innovative contact tip, drive roll and nozzle storage – keeps all your consumables close at hand.

Superb Quality:
- Power Chassis™ channels airflow to cool power systems, structurally secures key components and traps wires and cables to avoid unnecessary abrasion.
- Toughest PC Board Protection in the industry – 'Potted' to seal sensitive components from the environment, 'trayed' in a tough plastic tray to add rigidity and shock resistance.
- Three Year Lincoln® Warranty/90 Days on gun and cable assembly.

Output: CV, DC Input: 1 PHASE, 60 Hz, 120V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Easy-MIG™ 140	K2697-1	120/1/60	90A/19.5V/20%	20A	30-140 Amps DC 50-500 ipm WFS (1.3-12.7 m/min) Max. OCV: 33V	14 x 10.15 x 18.6 (357 x 258 x 472)	58 (26.3)

EASY-MIG™ 180

208/230 Volt AC Input Compact Wire Feeder

Get it done with the Easy-MIG™ 180 for farm, light fabrication, auto or home projects! If you have access to industrial 208/230 volt input power, you can weld on thicker material – up to 3/16" with MIG welding and 1/2" with gas-less flux-cored welding.

Simple two knob tapped control makes it easy to tackle thin steel, stainless or aluminum sheet metal with MIG or thicker steel with flux-cored welding. Compare the precise drive, rugged construction and full list of standard accessories...the Lincoln® Easy-MIG™ 180 is an excellent choice!

Processes
MIG, Flux-Cored

Advantage Lincoln
Superior Arc Performance:
- Forgiving arc makes dialing in your application easy.
- Smooth arc starts with minimal spatter.
- Wide 30-180 amp welding output range - use .025" wire on the thinnest sheet metal up to .045" flux-cored wire on thick plate.
- MIG weld 24 gauge up to 3/16" sheet metal in a single pass. Weld up to 1/2" steel using self-shielded Lincoln® Innershield® wire (FCAW-S).

Professional Features:
- Precise Wire Drive features:
  – Precision full adjustment drive system reduces chance of wire tangling and crushing.
  – Brass-to-Brass gun connections for enhanced connectivity.
- Spool Gun Ready – add the optional Magnum® 100SG spool gun for reliable operation at the high wire feed speeds aluminum welding demands. No expensive outboard modules required.
- No Hassle Tool-less Design – for wire spool mounting, wire drive service and polarity changes.

Superb Quality:
- Power Chassis™ channels airflow to cool power systems,
- Toughest PC Board Protection in the industry – 'Potted' to seal sensitive components from the environment, 'trayed' in a tough plastic tray to add rigidity and shock resistance.
- Three Year Lincoln Warranty/90 Days on gun and cable assembly.

Output CV DC Input 1 PHASE 60 Hz 230V

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Easy-MIG™ 180	K2698-1	208/230/1/60	208: 130A/17V/30% 230: 130A/20V/30%	20A	30-180 Amps DC 50-500 ipm WFS (1.3-12.7 m/min) Max. OCV: 33V	14 x 10.15 x 18.6 (357 x 258 x 472)	66 (30)

LINCOLN ELECTRIC
THE WELDING EXPERTS®

PRECISION TIG 225

The Precision TIG® 225 gives you the 'Power to Perform, for general fabrication, automotive/motorsports, vocational schools or serious hobby work. Micro-Start™ II Technology delivers precision arc performance to improve arc starting, welding and weld cratering. Features like patented Auto-Balance™ and a built-in simple pulse control make the Precision TIG® 225 easy to use. Professional features like the most auxiliary power, the widest output range in its class and more storage space make the Precision TIG® 225 the best value.

Base Unit Includes

- Precision TIG 225, Torch Parts Storage Compartment, Torch Hanger, 10 ft. (3.0 m) Work Cable & Clamp, Removable Lift Eye, 9 ft. (2.7 m) Input Power Cord with NEMA 6-50P Plug(1), NEMA 6-50R Receptacle(1), TIG Procedure Guide,GTAW (TIG) Handbook**,** PTA-17 One-piece TIG torch, 12 ft. (3.6 m) Ultra Flex Cable, Twist-Mate® Adapter, 3/32" 2% Thoriated Tungsten, Collet and Collet body, 7/16" Alumina nozzle, Long back cap, Gas regulator with hose, Foot Amptrol® (K870)

Recommended General Options

K2348-1 Understorage Cart

Advantage Lincoln

Precision Arc Performance:

- 5-230 amps is the widest welding range in its class.
- Patented Micro-Start™ II Technology delivers extremely stable low amperage starting, welding and cratering for AC and DC welding.
- Excellent Stick Welder — Even with Fleetweld® 5P (E6010).
- 115 volt auxiliary power receptacles with 20 amp service reliably powers water coolers or other tools. (208/230 volt models only. Other models feature a 6 amp service.)
- Fan-As-Needed™ (F.A.N.) prevents overheating. F.A.N. reduces power consumption noise, motor wear and dust in the machine.

Simple Controls – Easy to Use:

- AC Auto-Balance™ automatically sets the optimal cleaning vs. penetration levels for great looking aluminum welds.
- FREE! Built-in TIG pulser helps control heat input in the weld.
- Digital Meter, and simple, well-spaced controls.

Superb Quality:

- CSA C/US certified.
- Three-Year Lincoln Warranty on parts and labor.

Output: CC, AC/DC Input: 1 PHASE, 60 Hz, 50 Hz

Product Name	Product Number	Input Power	Rated Output Current/Voltage/Duty Cycle	Input Current @ Rated Output	Output Range	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Precision TIG® 225	K2535-1	208/230/1/60	90A/23.4V/100%	42/39A	5-230 Amps AC 5-230 Amps DC Max. OCV: 75V	20.7 x 14.5 x 25.6 (526 x 368 x 650)	212 (96)

BULLDOG® 140

Robust Generator / AC Welder is Two Tools in One!

The BULLDOG® 140 is a great idea for home, farm, contractors, maintenance, or business power outage emergencies. You get two great tools in one for double the value. First, maximum AC generator power at the lowest possible weight - that makes it easy to get auxiliary power where you need it - Fast! You also get 140 amps of AC welding power for many common maintenance, repair and construction projects. Add reliable engine choices and a rugged standard roll cage and you get one versatile tool you can use all year long!

Processes
Stick

Advantage Lincoln

- Sizable 5500 watts surge (4000 watts continuous) AC generator power keeps your lights, tools, heaters, sump pumps and appliances running during emergencies or for any project - anytime, anywhere.
- 140 amps AC welding output is ideal for 3/32" (2.5mm) and 1/8" (3.2mm) diameter electrodes.
- 1-1/4" (32 mm) Rugged tube frame roll cage adds protection and many lift points.
- 2- 120 Volt AC Receptacles (NEMA 5-20R)
  1- 240 Volt Receptacle (NEMA 6-50R)
- Single-range output control makes it easy to dial in the right welding setting for your application.
- 6.8 Gallon (25.7 liter) fuel tank.
- Hour meter on control panel to monitor runtime for scheduled engine maintenance.
- Powered by 10 HP Subaru® engine with cast iron sleeves for long life.
- Circuit breakers provide secure overload protection for the generator and your tools.
- Three-year Lincoln warranty on welder (engine is warranted separately by the manufacturer).

Recommended General Options

K875 Accessory Kit
K2722-1 Undercarriage
K2804-1 Canvas Cover
K2819-1 Lift Bail Kit

Output CC AC 5.5s kW Input G

Product Name	Part Number	Rated Output Current/Voltage/ Duty Cycle	Output Range	Type of Engine	No. of Cyl.	HP & Speed (rpm)	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Bulldog® 140	K2708-1	125A/20V/30% 100A/25V/60%	70-140A AC 5500 Watts Surge 4000 Watts Cont.	Subaru EX 30 Gasoline	1	10 @ 3600	25.5 x 21.1 x 31.5 (647 x 536 x 800)	205 (93)

LINCOLN ELECTRIC
THE WELDING EXPERTS®

OUTBACK® 145

DC Welder and AC Power Generator in one unit. Built For The Outdoors!

It's great for service trucks, fence contractors maintenance crews, farmers, ranchers and anyone who needs portable DC stick welding and AC generator power! First, maximum AC generator power at the lowest possible weight - that makes it easy to get auxiliary power where you need it - Fast! You also get 145 amps of DC welding power for many common maintenance, repair and construction projects. Add reliable engine choices and a rugged standard roll cage and you get one versatile tool you can use all year long!

Processes
Stick

Output CC AC 4.7P kW Input G

Advantage Lincoln

- Sizable 4750 watts surge (4250 watts continuous) AC generator power keeps your lights, tools, heaters, sump pumps and appliances running during emergencies or for any project - anytime, anywhere.
- 145 amps DC welding output is ideal for 1/8" (3.2mm) diameter electrodes.
- 1-1/4" (32 mm) Rugged tube frame roll cage adds protection and many lift points.
- 4- 120 Volt AC Receptacles (NEMA 5-20R)
  1- 240 Volt Receptacle (NEMA 6-50R)
- Single-range output control makes it easy to dial in the right welding setting for your application.
- 6.8 Gallon (25.7 liter) fuel tank.
- Hour meter on control panel to monitor runtime for scheduled engine maintenance.
- Powered by 10 HP Subaru® engine with cast iron sleeves for long life.
- Circuit breakers provide secure overload protection for the generator and your tools.
- Three-year Lincoln warranty on welder (engine is warranted separately by the manufacturer).

Product Name	Product Number	Rated Output Current/Voltage/ Duty Cycle	Output Range	Type of Engine	No. of Cyl.	HP & Speed (rpm)	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Outback® 145	K2707-1	125A DC/25V/30% 100A DC/25V/60% 80A DC/25V/100%	50-145A DC Welding 4750 Watts Peak Gen. 4250 Watts Continuous	Subaru EX 30 Gasoline	1	10 @ 3600	25 x 21.1 x 31.5 (647 x 536 x 800)	238 (108)

EAGLE 10,000 PLUS

Make Work Fly with an Eagle® 10,000

The Eagle™ 10,000 Plus is the right choice for a contractor, maintenance team, ranch or home owner. Now with 10,500 watts of peak AC generator power. Use peak power for starting and running motors. The 9,000 watts of continuous power also makes this a versatile product for a Lincoln plasma cutter, Lincoln inverter, lights, tools or emergency power.

In addition, the Eagle™ 10,000 Plus extends your welding capability with basic TIG, MIG and flux-cored welding. The 23 HP Kohler® engine delivers dependable starts, great fuel efficiency and years of rugged use.

Processes
Stick, TIG, MIG, Flux-Cored, Gouging

Advantage Lincoln
- 10,500 Watts Peak Single-Phase AC Generator Power
  - Most peak power in its class.
  - Use peak power for motor starting. 500 watts more!
  - 9,000 watts continuous power for high capacity needs such as a back-up generator, powering a Pro-Cut® plasma cutter, or an Invertec® inverter welder. Also for lights, a grinder or other power tools.
- 23 HP Kohler® Gasoline Engine
  - 2-cylinder, 4-cycle OHV (overhead valve) air-cooled.
- Smooth DC Welding
  - Suitable for a broad range of stick electrodes sold at a retailer near you, including Lincoln Fleetweld® 37 (AWS E6013), Fleetweld 47 (AWS E7014), Fleetweld 180 (AWS E6011), Lincoln 7018 AC (AWS E7018 H8) and Lincoln Excalibur® 7018 (AWS E7018 H4R).
- Weld with up to 5/32" (4.0 mm) electrodes.
- Rugged Reliability
  - To ensure reliable operation in a wide variety of environmental conditions.
- Three-Year Lincoln warranty (parts and labor) on welder. (Engine is warranted separately by the manufacturer.)

Base Unit Includes
- 20 ft. (6.0 m) of #2 electrode cable, electrode holder
- 15 ft. (4.5 m) of #2 work cable and work clamp

Output CC DC 10.5s kW Input G

Product Name	Product Number	Rated Output Current/Voltage/ Duty Cycle	Output Range	Type of Engine	No. of Cyl.	HP & Speed (rpm)	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
Eagle 10,000 Plus	K2343-3	225A DC CC/25V/70% 210A DC CC/25V/100%	50-225A DC 10,500 Watts peak 9000 Watts Continuous	Kohler® OHV Command® CH23S Gasoline	2	23 @ 3600	36.3 x 21.5 x 42.3 (759 x 546 x 1074)	514 (233)

CUTWELDER®

Contains all the quality equipment needed for cutting, welding and brazing in a rugged ballistic nylon bag. The outfit is designed to work with one CGA 510 acetylene cylinder and one CGA 540 oxygen cylinder. As supplied the outfit is capable of cutting 1" and welding to 1/16". Can cut to 4" and weld to ½" with larger tips and acetylene cylinder

Features

- Ballistic Nylon Bag
- Fire Resistant, Water Resistant, Washable Bag
- Heavy Gauge wire in top of bag with hinge enclosure
- Non-skid Feet
- Nylon Shoulder Straps
- Outer Storage Pocket and Elastic Pockets on the inside (convenient for tips, tools, pens, markers, etc.)
- Brass torch handle includes built-in reverse flow check valves
- Cutting attachment includes solid forged brass head, tail and stainless steel tubes.
- Regulators feature a rugged brass body
- Easy-to-read dual scale gauges

Product Name	Product Number	Torch Handle	Cutt. Attach.	Mixer	Cutting Tip	Welding Tip	Net Fuel Gas Regulator	Oxygen Regulator	Accessories	Weight lbs. (kg)
CUTWELDER®	KH777	85	72-3	D-85	6290-1AC	23A90-5	601-15-510	601-80-540	Goggles, Striker & 3/16" x 12' Hose	9 (4)

PORT-A-TORCH®

"When Portability Is Essential"

Contains all the quality equipment needed for cutting, welding and brazing in a rugged ballistic nylon bag and high impact ABS frame. The outfit is designed to carry one MC acetylene cylinder and one 20 cu. ft. oxygen cylinder. As supplied the outfit is capable of cutting 1" and welding to 1/16". Can cut to 4" and weld to ½" with larger tips and acetylene cylinder.

Base Unit Includes

- Black Lexan 141 Polycarbonate Frame
- Tip Proof Frame has nylon tank straps and cylinder holders that are molded into the frame
- Ballistic Nylon Bag with Non-skid Feet
- Nylon Shoulder Straps
- Outer Storage Pocket (convenient for tips, tools, pens, markers, etc.)
- Brass torch handle includes built-in reverse flow check valves
- Cutting attachment includes solid forged brass head, tail and stainless steel tubes
- Regulators feature a rugged brass body
- Easy-to-read dual scale gauges

*Patent-Pending Design for tote and bag.

Product Name	Product Number	Torch Handle	Cutt. Attach.	Mixer	Cutting Tip	Welding Tip	Net Fuel Gas Regulator	Oxygen Regulator	Accessories	Weight lbs. (kg)
PORT-A-TORCH®	KH776	85	72-3	D-85	6290-1AC	23A90-3	601-15-200	601-80-540	Goggles, Striker & 3/16" x 12' Hose	39 (18)

PLASMA 20

- The Lincoln Electric 20 is recommended for cutting sheet metal to 1/8" material with a maximum capacity of ¼"
- Inverter design makes the 21 pound unit very portable and ideal for HVAC and autobody work
- Perfect for cutting expanded metal, stainless steel & aluminum
- No high-frequency to damage sensitive electronic equipment
- Built-in air pressure regulator, top mounted for easy adjustment
- Fan-cooled unit has 40-50% duty cycle depending on the setting
- Saddle hooks for convenient cable storage
- Includes cutting torch assembly with 9.5 ft. reach, ground clamp with 8 ft cable, power cord and plug
- Uses standard compressed air requires 65 PSI @ 3.5 CFM
- 1 year unit / 90 day torch limited warranty

Replacement Consumables and Accessories

KH652
Electrode and Nozzle (2 ea.)

KH653
Air Diffuser & Shield Cup (1 ea.)

K2275-1
Cart

Product Name	Product Number	Input Power	Rated Output Current/Duty Cycle	Input Current @ Rated Output	Air Pressure Required	Dimensions H x W x D in. (mm)	Net Weight lbs. (kg)
LINCOLN 20	K2820-1	115/1/60	20A/23.4V/100% 15A @ 10-15A Output	20A @ Max. Output	65 PSI @ 3.5 CFM (526 x 368 x 650)	12.5 x 6.5 x 16	21

ASK THE WELDING EXPERTS

What is the difference between an arc (stick) welder and a wire feed welder?

a. A stick welder uses a flux-coated welding rod called an electrode. When an electrode is used during the welding process, the flux coat ing burns away. The flux creates a gas shield for the steel rod inside as it is melted into the weld puddle. The gas shield protects the weld puddle against the elements until it becomes solid.

b. A wire feed welder uses a spool of wire in the welding process. **There are two different types of wire-feed welders.**

- A flux-cored wire feed welder uses a wire that has flux inside of the wire. The flux in the wire creates a gas shield as the wire is melted which protects the puddle against the elements until it becomes solid. This welder also creates a lot of smoke and spatter.
- A MIG wire feed welder uses a solid wire with no flux inside. A cylinder of gas and a special welding gun nozzle are used to create a protective gas shield around the weld puddle. This welder can be used on thinner materials than flux-cored and creates less smoke and little spatter.

What type of welder is easier to use for a beginner? A wire feed welder is easier to use than an arc (stick) welder because the wire is on a spool that is fed through a gun as you press the gun trigger. You then move along the desired path and maintain a close and consistent distance to the piece you are welding. You do not have to continually change welding wire or try to strike an arc as you do with a stick welder. A limitation to wire feed welders is that they are limited to 5/16" metal thickness or less in a single welding pass. Thicker materials can be welded, however, they require multiple passes (1/2" max). For metal thicknesses greater than ½", we recommend that you use a stick welder.

Why is it more difficult to use a stick welder than a wire feed welder? Stick welding requires more coordination and skill than wire feed welding. When stick welding, you strike an arc through a "scratching" or "tapping" method. Once the arc is struck, you pull the electrode back and hold it approximately 1/8" away from the piece you are welding. As the electrode melts, you must constantly be moving the rod closer and also moving the electrode along the weld seam. If you hold the electrode too close to the puddle, it may stick. If you do not move the rod along the weld seam, you will burn through your work or the electrode will lose its arc. Stick welding requires practice before you can create good looking weld beads.

What kind of power do I need to run a welder? Stick welders and wire feed welders are available in either 115 volt (i.e. standard household circuit) or 230 volt (i.e. same power that is used with an electric stove or clothes dryer). In welding, if you have higher voltage you get more heat and, therefore, you can weld thicker materials.

Can I weld aluminum with both stick and wire feed welders?

a. A stick welder can be used to weld aluminum, however, it is very difficult and is not recommended for a beginner. Aluminum electrodes melt very quickly and are difficult to control for a beginner. The likelihood of melting through the piece you are welding is high and creating a good looking welding seam is low.

b. A wire feed welder is the preferred machine when welding aluminum. You MUST use shielding gas (100% Argon) in order to get a good looking weld. You also need to use an Aluminum Feeding Kit (K664-2) in your wire feed welder. This optional kit includes a larger drive roller, a non-metallic gun liner to prevent contamination of the aluminum wire, contact tips, and a one-pound spool of 4043 Aluminum wire.

** Please note that the Aluminum Feeding Kit (K664-2) is not compatible with all Lincoln Electric wire feed welders.

What is "MIG" welding? MIG stands for Metal Inert Gas. This process uses a solid wire with an externally supplied shielding gas to protect the weld puddle. There are many types of gas available. The most common gas mixtures that a non-industrial or retail customer would need are:

. 25% Carbon Dioxide / 75% Argon (Commonly referred to as C25)
. 100% Argon

What is "Duty Cycle"? Duty Cycle is used to describe how long a welding machine will operate continuously within ten minutes at a specific amperage level before overheating. For example: If a customer says, "My AC-225 has a duty cycle of 20%," what does that mean? It means that he or she may set the machine at 225 amps and weld for two continuous minutes out of ten (i.e. 10 minutes x 20%= two minutes). The lower a machine's output amperage, the higher the duty cycle will be. Every machine has a different duty cycle. For stick machines, the duty cycle is reset each time you change the electrode, therefore, you can weld almost continuously.

What is the correct lens shade to use in my welding helmet to properly protect my eyes? Many people mistakenly think that the lens shade number corresponds to the amount of protection that is provided to the eyes and, hence, the higher the number, the better the protection. In reality, all well-constructed quality welding lenses have a screen that filters out 100% of the harmful ultraviolet (UV) and infrared (IR) wavelengths and provides protection to the eyes. The number denotes the amount of darkness provided by that lens and should be used by operators as a guide to select the one that is most comfortable and provides good visibility for the application. Always select a shade that allows you to see the weld puddle clearly and that most aids your welding ability.

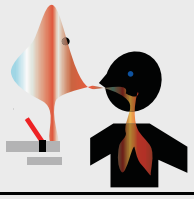
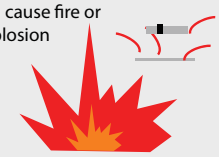
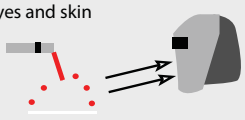
STICK ELECTRODES (Welding Rods)

Lincoln Electric Trade Name	Industry Name	Polarity	Carbon Steel Thickness	Electrode Characteristic
Fleetweld® 180	E6011	AC, DC+, DC-	Light=1/16" - 1/8" Use: 3/32" dia. electrode Medium=1/8" - 3/16" Use: 3/32" or 1/8" Thick= 1/4" + Use: 1/8"	•Great for sheet metal welding applications and AC pipe welding •Use on jobs where steel isn't clean and weld appearance is less important •Often called the farmers best friend because it can weld dirty, rusty, painted materials
Fleetweld® 37	E6013	AC, DC+, DC-	Light=1/16" - 1/8" Use: 3/32" dia. electrode Medium: 1/8" - 3/16" Use: 3/32" or 1/8"	•General-purpose, all-position electrode •Easy operation and outstanding weld appearance •Requires a clean work surface •Great for building trailers and frames
Lincoln 7018AC	E7018	AC, DC+, DC-	Light=1/16" - 1/8" Use: 3/32" dia. electrode Medium=1/8" - 3/16" Use: 3/32" or 1/8" Thick= 1/4" + Use: 1/8"	•This electrode offers superior weld strength and appearance •Easy to restrike •It leaves very little slag and spatter •Requires a clean work surface •Has a low hydrogen content to reduce weld cracks but must be stored in a warm, dry place since it is very susceptible to moisture

WELDING WIRE

Lincoln Electric Trade Name	Industry Name	Recommended Shielding gas	Polarity	Wire Characteristic
Innershield® NR®-211-MP	E71T-11	No Shielding Gas Required	DC-	•Flux-cored (Innershield®) wire •Can be used with •Deep penetrating •Superior weld strength •Little slag and spatter
SuperArc® L-56	ER70S-6	C25 75% Argon, 25% CO2	DC+	•MIG (Metal Inert Gas) wire •Copper coating provides superior arc starting characteristics •Superior weld strength •Can be used with •Excellent spatter control and bead profile
SuperGlaze® 4043	ER4043	100% Argon	DC+	•Aluminum wire •Low melting point and excellent fluidity •Less sensitive to weld cracking

As in most trades, welders are exposed to certain hazards. Hazards exist with all arc welding processes. Welding is safe when safe practices are followed.

HAZARD	FACTORS TO CONSIDER	PRECAUTION SUMMARY
Electric shock can kill 	-Wetness -Welder in or on workpiece -Confined space -Electrode holder and cable insulation	-Insulate welder from workpiece and ground using dry insulation such as a rubber mat or dry wood. -Wear dry, hole-free gloves (change as necessary to keep dry). -Do not touch electrically "hot" parts or electrode with bare skin or wet clothing. -If wet area and welder cannot be insulated from workpiece with dry insulation, use a semiautomatic, constant-voltage welder or stick welder with voltage reducing device. -Keep electrode holder and cable insulation in good condition. Do not use if insulation is damaged or missing.
Fumes and gases can be dangerous 	-Confined area -Positioning of welder's head -Lack of general ventilation -Electrode types, ie., manganese, chromium, etc. See MSDS -Base metal coatings, galvanize, paint	-Use ventilation or exhaust to keep air breathing zone clear, comfortable. -Use helmet and positioning of head to minimize fume in breathing zone. -Read warnings on electrode container and material safety data sheet (MSDS) for electrode. -Provide additional ventilation/exhaust where special ventilation requirements exist. -Use special care when welding in a confined area. -Do not weld unless ventilation is adequate.
Welding sparks can cause fire or explosion 	-Containers which have held combustibles -Flammable materials	-Do not weld on containers which have held combustible materials (unless strict AWS F4.1 procedures are followed). Check before welding. -Remove flammable materials from welding area or shield from sparks, heat. -Keep a fire watch in area during and after welding. -Keep a fire extinguisher in the welding area. -Wear fire retardant clothing and hat. Use earplugs when welding overhead.
Arc rays can burn eyes and skin 	-Process: gas-shielded arc most severe	-Select a filter lens which is comfortable for you while welding. -Always use helmet when welding. -Provide non-flammable shielding to protect others. -Wear clothing which protects skin while welding.
Confined space 	-Metal enclosure -Wetness -Restricted entry -Heavier than air gas -Welder inside or on workpiece	-Carefully evaluate adequacy of ventilation especially where electrode requires special ventilation or where gas may displace breating air. -If basic electric shock precautions cannot be followed to insulate welder from work and electrode, use semi-automatic, constant-voltage equipment with cold electrode or stick welder with voltage reducing device. -Provide welder helper and method of welder retrieval from outside enclosure.
General work area hazards 	-Cluttered area	-Keep cables, materials, tools neatly organized.
	-Indirect work (welding ground) connection	-Connect work cable as close as possible to area where welding is being performed. Do not allow alternate circuits through scaffold cables, hoist chains, ground leads.
	-Electrical equipment	-Use only double insulated or properly grounded equipment. -Always disconnect power to equipment before servicing.
	-Engine-driven equipment	-Use in only open, well ventilated areas. -Keep enclosure complete and guards in place. -See Lincoln service shop if guards are missing. -Refuel with engine off. -If using auxilliary power, OSHA may require GFI protection or assured grounding program (or isolated windings if less than 5KW).
	-Gas cylinders	-Never touch cylinder with the electrode. -Never lift a machine with cylinder attached. -Keep cylinder upright and chained to support.

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