

SAE-400

Diesel Engine Driven Welder — Manual Processes

For demanding jobs that call for high amperage capabilities, the SAE-400 offers 400 amps for DC stick welding and 3,000 watts of AC power. Designed especially for pipeliners and field welders, the SAE-400 is powered by a heavy duty Perkins® industrial diesel engine, which offers low maintenance and long life for hassle-free operation. Add CV wire welding with the optional CV Adapter.

Processes
Stick, TIG, Flux-Cored⁽¹⁾, Gouging



K1278-7
Model Shown

 Perkins

Output



Input



Advantage Lincoln

- Rugged Construction**
 - Withstands rough field handling, protecting internal parts.
 - Dual Continuous Output Control**
 - Select either a soft “buttery” arc or snappy “digging” arc for fast, high-quality welding.
 - High Duty Cycle Welding Output**
 - 100% duty cycle at 400 amps for demanding applications. Also rated at 500 amps.
 - Arc Gouging**
 - Arc gouging with up to 3/8" (10 mm) carbons.
 - Heavy Duty Industrial Diesel Engine**
 - Perkins® 4-cylinder, water-cooled industrial diesel engine offers low maintenance and long life.
 - Multiple Arcs**
 - Large-capacity DC weld output makes the SAE-400 the #1 choice for multiple arcs with the Multi-Weld™ 350 system. (See recommended options section.)
 - ISO 9001**
 - Manufactured under a quality system certified to ISO 9001 requirements and ISO 14001 environmental standards.
 - Three-year Lincoln Warranty**
 - Three-year Lincoln warranty (parts and labor) on welder. (Engine is warranted separately by the manufacturer.)
- ⁽¹⁾ With CV Adapter.

TECHNICAL SPECIFICATIONS

Product Name	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)
SAE-400	400A DC/40V/100% 500A DC/40V/35%	80-575A DC 3000 watts	Perkins® 1104C-44 Diesel EPA Tier 2	4	68.4 @ 1725	50 x 28 x 83 (1270 x 711 x 2109)	2157 (978)
			Perkins® 1104A-44 Diesel Non-EPA (Export only)		64.4 @ 1710		

PERFORMANCE

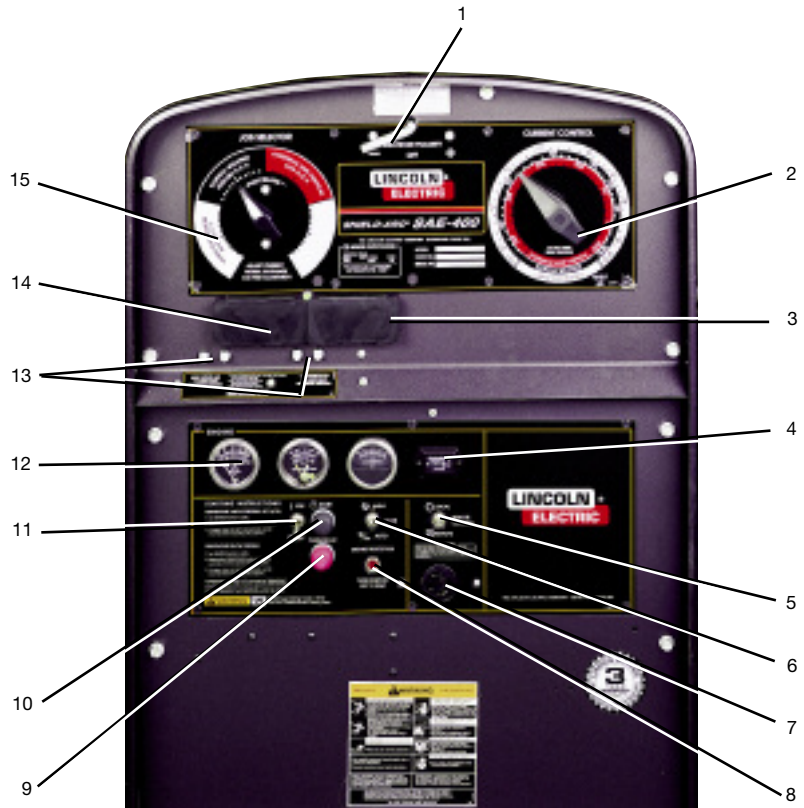
- 400 amp rated output DC arc welding power source with outstanding characteristics for pipe, construction and maintenance stick welding. 575 amp maximum output.
- Dual continuous output control. Select either a soft “buttery” arc or a snappy “digging” arc for fast, high-quality welding.
- Arc gouging with up to a 3/8" carbon.
- Scratch start DC TIG welding. (See TIG module in recommended options section for high frequency starting.)
- Delivers 3,000 watts of 115V/230V AC power for a grinder, lights or other power tools.
- Add CV wire welding capability with optional CV Adapter. Use with LN-25, LN-25 PRO, LN-15 Across-The-Arc, LN-23P wire feeders.
- Large capacity DC welding output make the SAE-400 the #1 choice for multiple arcs with the Multi-Weld™ 350 system.

FEATURES

- Polarity switch for selecting DC+, DC- welding output.
- 100 ft. (30.5m) remote control included—not a separate kit.
- Powered by a heavy duty, industrial Perkins® diesel engine.
- Pressure lubrication system with replaceable filter assures lubrication to all critical areas of the engine.
- Engine gauges indicate oil pressure, temperature and battery charging amps.
- All day welding with 22.5 gallon fuel capacity. Lead plated tank resists corrosion. Pre-filter water separator and a filter in the fuel line help keep the fuel clean.
- Pushbutton starting is powered by two 12V batteries.
- Glow Plugs for starting the engine at low ambient temperatures, 32° F (0° C) to -5° F (-21° C).
- Combination muffler/spark arrestor is standard on the machine.
- Single-side engine access for routine maintenance.
- Engine hour meter for scheduling maintenance.
- Oil drain system includes ball valve, hose and clamp to direct oil beyond the base of the machine. Standard on K1278-7 (EPA Tier 2 engine). For K1278-9 (non-EPA engine) order K2144-1 Oil Drain Kit.
- Remote control included for K1278-7 (EPA Tier 2 engine). For K1278-9 (non-EPA engine) order K924-5 Remote Control Assembly.

Key Controls

1. Polarity Switch
2. Current Control
3. 115V Receptacles with Covers
4. Engine Hour Meter
5. Local/Remote Control
6. Engine Idler
7. Remote Control Receptacle
8. Engine Protection Light
9. Glow Plug Button
10. Pushbutton Start
11. On/Off Switch
12. Oil Pressure, Temperature, and Battery Charging Amps Gauges
13. Circuit Breakers
14. 230V Receptacles with Covers
15. Job Selector



QUALITY AND RELIABILITY

- Designed especially for pipeliners and field welders on demanding jobs, Lincoln's SAE-400 offers reliable DC arc welding performance.
- The SAE-400 is built in a heavy gauge steel case and is designed for durability on the job site. Rugged construction withstands rough field handling, protecting internal parts.
- Perkins® 4-cylinder, water-cooled industrial diesel engine offers low maintenance and long life.
- Automatic shutdown protection for low oil pressure or high coolant temperature.
- Two 12 volt batteries paralleled for 1130 cold cranking amps of engine starting.
- Printed circuit board for idler and engine protection is potted to provide a robust environment shield.
- Manufactured under a quality system certified to ISO 9001 requirements and ISO 14001 environmental standards.
- Approved by the Canadian Standards Association (CSA).
- Three-year Lincoln warranty. (Engine is warranted separately by the manufacturer.)

MACHINE SPECIFICATIONS

Product Name	Ordering Information	Description	CC Rated Output (1) Current/Voltage/Duty Cycle	Generator AC Power (2)	Dimensions H(3)xWxL in (mm)	Weight lbs. (kg)
SAE-400	K1278-7 EPA Tier 2	400 Amp DC Arc Welder with 3,000 Watts of AC Power & 100 ft (30.5m) Includes Oil Drain System and Remote Control	Lincoln Rating 400A/40V/100% 500A/40V/35% 80-575 Amps	3,000 Watts 60 Hz, AC(2) 26 Amps @ 115V	50 x 28 x 83 (1270 x 711 x 2109)	2157 (978)
	K1278-9 Non-EPA	400 Amp DC Arc Welder with 3,000 Watts of AC Power (Export only)	Continuous Adjustment of Voltage and Current 97V Max. OCV @ 1800 RPM	13 Amps @ 230V		

- (1) Based on 10 minute period. High Altitude: For maximum rating, derate the output 5% for every 1,650 ft (500 m) above 3,300 ft. (1,000 m).
 (2) 115V will operate either 60 Hz or 50/60 Hz power tools, lights, etc.
 (3) Height is to top of lift bale; 46 in. (1168mm) case height.

ENGINE SPECIFICATIONS

Engine Model	Description	Horsepower & Displacement	Capacities	Operating Speeds	Fuel Consumption
Perkins® Diesel(4) 1104C-44 EPA Tier 2	4 Cylinder, 4 Cycle Water-cooled Diesel Engine with Dry Cartridge Air Filter	68.4 HP @ 1,725 RPM 269 cu in (4.4 ltrs)	Fuel: 22.5 gals (85.2 ltrs) Oil: 10.1 qts (9.6 ltrs)	Full Load: 1,725 (400A) High Idle: 1,800 RPM Low Idle: 1,100 RPM	1.8 gals/hr - 6.8 ltrs/hr 0.7 gals/hr - 2.6 ltrs/hr 0.3 gals/hr - 1.1 ltrs/hr
		64.4 HP @ 1,710 RPM 269 cu in (4.4 ltrs)	Radiator Coolant: 3.4 gals (12.8 ltrs)	Full Load: 1,710 (400A) High Idle: 1,800 RPM Low Idle: 1,100 RPM	1.8 gals/hr - 7.0 ltrs/hr 0.7 gals/hr - 2.6 ltrs/hr 0.3 gals/hr - 1.0 ltrs/hr

- (4) Engine warranty is 2 years/3,000 hours.

SYSTEM SELECTION

One-Pak® Welding Packages

Order a Lincoln One-Pak® and get everything you need to complete a welding package — all with one order number. (Packages require assembly.)

Each UNASSEMBLED Package Contains:

NEW!
NEW!
NEW!
NEW!

- SAE-400 (K1278-7 with EPA Tier 2 engine)
- Large Welder Trailer (K2637-1)
- Duo-Hitch™: 2" Ball/Lunette Eye Hitch (included)
- Fender and Light Kit (K2639-1)
- Cable Rack (K2640-1)
- Cable Connectors - two (K2487-1)
- Electrode Cable 3/0, two 50 ft. (15.3m) lengths (K2485-3)
- Electrode Cable 3/0, 10 ft. (3m) (K2483-3)
- Work Cable 3/0, 50 ft. (15.3m) (K2484-3)
- 400A Electrode Holder (K909-8)
- 500A Work Clamp (K910-2)

Order:

K1866-3 SAE-400 One-Pak® Package



K1278-7 Shield Arc® SAE-400



K2637-1 Large Welder Trailer



Duo-Hitch: 2" Ball/Lunette Eye Hitch (included)



K2640-1 Cable Rack

Ready-Pak® Welding Packages

Order a Lincoln Ready-Pak® and get an **assembled** welding package.

Each COMPLETELY ASSEMBLED Package Contains:

NEW!
NEW!
NEW!
NEW!

- SAE-400 (K1278-7 with EPA Tier 2 engine)
- Large Welder Trailer (K2637-1)
- Duo-Hitch™: 2" Ball/Lunette Eye Hitch (included)
- Fender and Light Kit (K2639-1)
- Cable Rack (K2640-1)
- Cable Connectors - two (K2487-1)
- Electrode Cable 3/0, two 50 ft. (15.3m) lengths (K2485-3)
- Electrode Cable 3/0, 10 ft. (3m) (K2483-3)
- Work Cable 3/0, 50 ft. (15.3m) (K2484-3)
- 400A Electrode Holder (K909-8)
- 500A Work Clamp (K910-2)

Order:

K2388-3 SAE-400 Ready-Pak® Package



Completely Assembled Ready-Pak® Pkg.



GENERAL OPTIONS

Power Plug Kit

Provides two 115V plugs rated at 20 amps each, and two 230V plugs rated at 15 amps each. 120V plug may not be compatible with common household receptacles.

Order K802D



GFCI Receptacle Kit

Includes one UL approved 115V ground fault circuit interrupter duplex type receptacle and installation instructions. Replaces the factory installed 115V duplex receptacle. Each receptacle of the GFCI duplex is rated at 20 amps. Maximum total current from the GFCI duplex is limited to 20 amps.

Order K1690-1



Large Welder Trailer



For heavy-duty road, off-road, plant and yard use. Includes pivoting jack stand, safety chains, and 14" wheels. Stiff .120" welded rectangular steel tube frame construction is phosphate etched and powder coat painted for superior rust and corrosion resistance. Low sway suspension gives outstanding stability with manageable tongue weight. Wheel bearings are packed with high viscosity, high pressure, low washout Lubriplate® grease. Includes a Duo-Hitch™ – a 2" Ball/Lunette Eye combination hitch. Overall width: 60".

Order:

- K2637-1** Trailer
- K2639-1** Fender & Light Kit
- K2640-1** Cable Rack



Four-Wheeled Steerable Yard Trailer



For off-road, plant and yard use. Includes an automatically engaging drawbar lock when the drawbar is raised to the vertical position. 13" wheels. Wheel bearings are packed with high viscosity, high pressure, low washout Lubriplate® grease. Assembles directly to the base of the SAE-400 or SAE-400 Severe Duty welder. Also includes a Duo-Hitch™ – a 2" Ball/Lunette Eye combination hitch. Overall width: 55".

Order K2641-1

GENERAL OPTIONS CON'T.

Oil Drain Kit

For K1278-9. Includes ball valve, hose and clamp to direct used oil beyond the base of the machine.

Order K2144-1

Service Indicator Kit

Provides a GO/NO-GO visual indication of air cleaner element useful service life. Filter service based on restriction readings allows the longest life possible from the filter and best engine protection.

Order K1858-1



Multi-Weld™ 350

For multiple arcs from the DC output of a welding power source. See bulletin E5.300 for Multi-Weld™ 350 and distribution system.

Order K1735-1



STICK OPTIONS

Accessory Kit

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

Order K704



Remote Control Kit

Contains remote control rheostat and 100 ft. (30.5 m) control cable.

Order K924-5



TIG OPTIONS

Pro-Torch® PTA-26V TIG Torch

Air-cooled 200 amp torch equipped with valve for gas flow control. 25 ft. (7.6 m) length.

Order K1783-9



TIG OPTIONS, CON'T.



Magnum® Parts Kit for PTA-26V TIG Torch
Provides all the torch accessories you need to start welding. Parts kit provides collets, collet bodies, a back cap, alumina nozzles and tungstens in a variety of sizes, all packaged in an easy to carry reclosable sack.
Order KP509



TIG Module
Portable, high frequency unit with gas valve for TIG welding. Rated at 300 amps/60% duty cycle.
Order K930-2



Control Cable
Connects TIG Module to the SAE-400.
Order K936-4



Control Cable Extension
Allows the TIG Module to be operated at distances up to 200 ft. from the power source. Available in 45 ft. (13.7 m) sections.
Order K937-45



Arc Start™ Switch
Comes with a 25 ft. (7.6 m) cable. Attaches to the TIG torch for convenient finger control.
Order K814



Contactor Kit
For use with TIG Module.
Order K938-1



Water Valve Kit
For use with a water-cooled TIG torch. Installs inside of TIG module.
Order K844-1

TIG OPTIONS, CON'T.



CV Adapter
Provides constant voltage output for semiautomatic wire welding. Includes connector for 14-pin control cable and local/remote switch. Mounts inside SAE-400.
Order K385-2

WIRE FEEDER OPTIONS



LN-25 PRO Wire Feeder
Portable CC/CV unit for flux-cored and MIG welding with MAXTRAC® wire drive system. Includes gas solenoid and internal contactor. Requires CV Adapter.
Order K2613-1



Magnum® 350 Innershield® Gun (for LN-25 PRO)
For self-shielded wire with 15 ft. (4.5 m) cable. For .062"-3/32" (1.6-2.4 mm) wire.
Order K126-2



Drive Roll and Guide Tube Kit (for LN-25 PRO)
For cored or solid steel wire.
Order KP1697-068
for .068"-.072" (1.8 mm)
KP1697-5/64
for 5/64" (2.0 mm)



Magnum® 300 MIG Gun
For .035"-.045" (0.9-1.2 mm) gas-shielded wire with 15 ft. (4.5 m) cable.
LN-25 PRO
Order K1802-1
(includes Connector Kit)

**WIRE FEEDER OPTIONS,
CON'T.**



**Drive Roll and Guide Tube Kit
(for LN-25 PRO)**
For .035" and .045" (0.9-1.1 mm)
solid steel wire.
Order KP1696-1



LN-23P Wire Feeder
Portable CV unit for Innershield pipe
welding. Includes drive rolls and
guide tubes. Requires LN-23P
K2379-1 Interface Kit and Gun and
Cable Assembly.
Order K316L-2



LN-23P Interface Kit
Required for connecting an LN-23P
Wire Feeder to the K385-2 CV
Adapter.
Order K2379-1



**Magnum® 250 Innershield® Gun
(for LN-23P)**
For lighter weight and easier
handling. Rated 250 amps, 60%
duty cycle. For .068 through 5/64"
(1.7-2.0 mm) Innershield wire and
includes reduced speed switch.
Order K355-10

SAE-400 ORDER FORM

NEW!
NEW!

NEW!
NEW!
NEW!
NEW!

NEW!

PRODUCT DESCRIPTION	ORDER NUMBER	QUANTITY	PRICE
SAE-400	K1278-7		
SAE-400 ONE-PAK® PKG.	K1866-3		
SAE-400 READY-PAK® PKG.	K2388-3		
RECOMMENDED GENERAL OPTIONS			
Power Plug Kit	K802D		
GFCI Receptacle Kit	K1690-1		
Large Welder Trailer with Duo-Hitch™: 2" Ball/Lunette Eye Hitch	K2637-1		
- Fender and Light Kit	K2639-1		
- Cable Rack	K2640-1		
Four-Wheeled Yard Trailer with Duo-Hitch™: 2" Ball/Lunette Eye Hitch	K2641-1		
Oil Drain Kit (for K1278-9)	K2144-1		
Service Indicator Kit	K1858-1		
Multi-Weld™ 350 (See Bulletin E5.302)	K1735-1		
RECOMMENDED STICK OPTIONS			
Accessory Kit	K704		
Remote Control Kit	K924-5		
RECOMMENDED TIG OPTIONS			
Pro-Torch® PTA-26V TIG Torch	K1783-9		
Magnum® Parts Kit for PTA-26V TIG Torch	KP509		
TIG Module	K930-2		
Control Cable	K936-4		
Control Cable Extension	K937-45		
Arc Start™ Switch	K814		
Contact Kit	K938-1		
Water Valve Kit	K844-1		
RECOMMENDED WIRE FEEDER OPTIONS			
CV Adapter	K385-2		
LN-25 PRO Wire Feeder	K2613-1		
Magnum® 350 Innershield® Gun (For LN-25 PRO)	K126-2		
Drive Roll and Guide Tube Kit .068"-.072" (For LN-25 PRO)	KP1697-068		
Drive Roll and Guide Tube Kit 5/64" (For LN-25 PRO)	KP1697-5/64		
Magnum® 300 MIG Gun - for LN-25 PRO (includes Connector Kit)	K1802-1		
Drive Roll and Guide Tube Kit (for LN-25 PRO)	KP1696-1		
LN-23P Wire Feeder	K316L-2		
LN-23P Interface Kit	K2379-1		
Magnum® 250 Innershield® Gun (For LN-23P)	K355-10		
TOTAL:			

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 responsible 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.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.



THE WELDING EXPERTS®

THE LINCOLN ELECTRIC COMPANY®

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