

# Nelweld® – engineered to meet your needs...

**T**he oldest name in stud welding, NELSON STUD WELDING INC., continues its leadership role into the 21st century with the introduction of a full line of new drawn-arc welding systems. The Nelweld line of equipment offers more features, and superior performance, than any other system available.

Our microprocessor-based systems are proven to be more reliable and repeatable than conventional solid-state systems. And, because the Nelweld systems are based on a modular design, customers can select just the right amount of features and benefits that serve their needs. If those needs change in the future, add on modules can up-grade any system to a higher level of sophistication.

For the most demanding applications, Nelson engineers can provide a customized software solution, not avail-

able anywhere else, which can be downloaded into a customer power source through an RS232 interface port.

Since each Nelweld system can be custom tailored to any application, customers do not need to pay for unwanted features, or struggle with a system that does not quite have the performance features required.

A major feature of the Nelweld products is a unique operator interface. Using simple push buttons, the operator can enter weld parameters for different studs and application conditions. These weld parameters can be stored in memory and recalled with the push of a single button in as many as 6 different pre-sets. Information is displayed in large, bright, digital LED's and panel indicator lights. The "F" function buttons permit custom adjustment or monitoring of as many as 30 different parameters. Should the sys-

tem ever fail to perform to design specification, a series of error codes will tell the operator how to trouble shoot the unit. Nelweld systems have a safety feature that allows the operator to "lock-out" the control module to prevent others from changing the weld parameters.

Nelweld systems have preset values from the factory for all weld parameters. If your application is simple and straightforward, the factory settings will produce excellent weld results. Therefore, starting production will be as simple as powering up, select a preset (one button), and begin welding.

How good are our power units? Nelson offers a 2-year, or 1,000,000 welds warranty, which ever comes first. This is unprecedented in the stud welding industry, and punctuates our commitment to deliver the very best value to our customers.

## Nelweld®

### Other Features & Benefits

- Fully closed loop, Regulated Current Control, ensures that the proper weld energy is delivered to the weld, despite the effects of cable heating, variation in coming primary power, or cable length change.
- Innovative and patented gun circuitry provides for a cooler operating gun, reducing gun maintenance and improving operator comfort.
- Patented two-wire gun control circuitry minimizes downtime normally associated with 3 & 4 wire connector failures, and is more tolerant to wet weather conditions.
- New weld cable connectors on the Nelweld systems have the highest temperature rating available in the industry, which minimizes cable heating.

- Patented operator interface, and, Micro-processor based system as described above.
- Thermostatically controlled fan provides on-demand cooling, reduced noise, minimum ingestion of dirt and contaminates, and reduced energy costs.
- Modular design allows the customer to upgrade the unit to meet changing conditions instead of purchasing a replacement unit.
- Built-in diagnostics continually self-monitor all functions and will display an error code if any portion of the system performance deviates from design specifications. This will assist the operator in determining and correcting the problem.
- Functional handles located at the top four corners of the chassis provide assistance when moving a wheel mounted unit, or serve as lifting points for a hoist.
- A resettable user Weld Counter keeps track of the number of welds in a given production period,

- and another System Counter records the system's life time welds for warranty purposes.
- A Weld Settings Chart is attached to the front of every unit to assist the operator in the initial weld set-up.
- All systems operate on 3 Phase AC current for a smoother, more stable weld arc, and, most systems have multi-voltage transformer taps for greater versatility.
- Other well known Nelson innovations that are standard on the Nelweld family of units include:
  - Weld Thru Deck (N 6000 only)
  - Chuck Saver
  - Stud Save
  - Thermal Protection / Thermal Shutdown
  - Lift Check
  - Infinitely Adjustable Time & Current
  - Short Cycle Welding Mode
  - Stud Stripper

## Factory & Field Installed Options and Kits

### Wheel Kit

Nelweld 2000 – P/N 512-387-002

Nelweld 3000/4000 – P/N 512-387-000

Nelweld 5000/6000 – P/N 512-387-001

All power units (except N2000) are shipped with steel legs at the four corners, and can be moved via forklift or hoist. Optional wheel kits are available to maximize portability in a shop environment.

### Gas Valve Control Kit

Nelweld 2000 – P/N 512-387-014

Nelweld 3000/4000/5000/6000 – P/N 512-387-015

For special applications requiring the addition of an inert shielding gas, an optional gas valve delivery system can be plugged into the gun circuitry for automatic on/off operation.

### Automatic Stud Feed Kit

Nelweld 2000 – P/N 512-387-039

Nelweld 3000/4000/5000/6000 – P/N 512-387-040

The optional stud feeder interface kit enables the Nelweld power unit to communicate with an external stud feeding device for high-speed, auto-

mated applications. With this module, the Nelweld unit will generate an output to the feeder, at the conclusion of the weld cycle, to feed another stud.

### Second Output Kit

Nelweld 3000/4000 – 512-387-010

Nelweld 5000/6000 – 512-387-011

The second output kit adds the necessary hardware and controls to allow the user to convert the power unit from a single gun system to a dual gun system. An additional gun and cable set must also be purchased. This capability will improve production rates, and, reduce change over time when welding different studs.

### RS232 Kit

P/N 512-387-020

The RS232 is a serial port that allows for interface between the Nelweld power unit and a personal computer or laptop. It is required for the demands of critical applications that require process monitoring, machine calibration, or for remote control operation. The connector is also required for computer assisted troubleshooting of the Nelson power unit.

### Remote Control Kit

P/N 512-387-021

This kit allows the use of a computer to emulate the front panel interface to provide remote operation of the Nelweld unit.

### Process Monitoring Kit

P/N 512-387-022

The hardware/software package enables a computer to record and retrieve preset and actual weld parameters of every weld made. This is important for critical applications or conformance to QS9000 & ISO9000 requirements.

### Diagnostic & Calibration Kit

P/N 512-387-023

This kit consists of hardware and software that will allow a user to use a personal computer or laptop to trouble shoot the power unit in more detail than possible through the operator interface. It also facilitates calibration of the Nelweld unit to NIST standards.

# The Nelweld® line of equipment

## Nelweld Model 2000 Stud Range: 3/16" to 1/2" (5mm–13mm)

### Specifications

Transformer Rating	850 amps	
Input voltage	230/460/575 VAC	60 Hz
	208/230/460 VAC	60 Hz
	400 VAC <b>CE</b>	50/60 Hz
	220/380/415/440 VAC	50/60 Hz
Fusing	20A@208VAC	
	20A@230VAC	
	4A@460VAC	
	4A@575VAC	
	400V – Check local standards	
Timing Control	.01-700 milliseconds, stepless	
Regulated Output	200-850 amps, regulated	
Case Dimensions	12.5"(318) H x 14.5"(368) W x 21.5"(546) D	
Weight	149 lbs. (68 Kg)	

### Duty Cycle

Rated @ continuous operation	
1/2" (13mm)	3 per minute
3/8" (10mm)	7 per minute
5/16" (8mm)	10 per minute
1/4" (6mm)	12 per minute
3/16" (5mm)	15 per minute



### Single Gun System Configuration

Item	Description		Part Number
1A	Power/Control Unit	230/460/575 VAC	750-603-000
		60 Hz	
1B	Power/Control Unit	208/230/460 VAC	750-603-001
		60 Hz	
1C	Power/Control Unit	400 VAC <b>CE</b>	750-603-050
		50/60 Hz	
1D	Power/Control Unit	220/380/415/440 VAC	750-603-051
		50/60 Hz	
2	NS40N Welding Gun		751-692-000
3	#1-25 ft. Ground Cable & Clamp		720-542-001
4	#1-25 ft. Combination Cable		722-000-124

## Nelweld Model 3000 Stud Range: 3/16" to 5/8" (5mm–16mm)

### Specifications

Transformer Rating	2000 amps	
Input voltage	230/460/575 VAC	60 Hz
	208/230/460 VAC	60 Hz
	400 VAC <b>CE</b>	50/60 Hz
	220/380/415/440 VAC	50/60 Hz
Fusing	60A@208VAC	
	60A@230VAC	
	12A@460VAC	
	8A@575VAC	
	400V – Check local standards	
Timing Control	20-1000 milliseconds, stepless	
Regulated Output	300-1400 amps, regulated	
Case Dimensions	24"(610) W x 27"(686) H x 33.5"(850) D	
Weight	725 lbs. (330 Kg)	

### Duty Cycle

Rated @ continuous operation	
5/8" (16mm)	6 per minute
1/2" (13mm)	10 per minute
3/8" (10mm)	15 per minute
5/16" (8mm)	20 per minute
1/4" (6mm)	33 per minute
3/16" (5mm)	50 per minute



### Single Gun System Configuration

Item	Description		Part Number
1A	Power/Control Unit	230/460/575 VAC	750-602-000
		60 Hz	
1B	Power/Control Unit	208/230/460 VAC	750-602-001
		60 Hz	
1C	Power/Control Unit	400 VAC <b>CE</b>	750-602-050
		50/60Hz	
1D	Power/Control Unit	220/380/415/440 VAC	750-602-051
		50/60Hz	
2	NS40N Welding Gun		751-692-000
3	#1-25 ft. Ground Cable & Clamp		720-542-001
4	#1-25 ft. Combination Cable		722-000-124

### Dual Gun System Configuration

Item	Description		Part Number
1A	Power/Control Unit	230/460/575 VAC	750-602-500
		60 Hz	
1B	Power/Control Unit	208/230/460 VAC	750-602-501
		60 Hz	
1C	Power/Control Unit	400 VAC <b>CE</b>	750-602-550
		50/60 Hz	
1D	Power/Control Unit	220/380/415/440 VAC	750-602-551
		50/60 Hz	
2	NS40N Welding Gun (2)		751-692-000
3	#1-25 ft. Ground Cable & Clamp (2)		720-542-001
4	#1-25 ft. Combination Cable (2)		722-000-124

*The heavy duty gun(s) and 4/0 cable sets are also available*

## Nelweld Model 4000

Stud Range: 3/16" to 7/8" (5mm–22mm)

### Single Gun System Configuration

Item	Description	Part Number
1A	Power/Control Unit 230/460/575 VAC 60 Hz	750-601-000
1B	Power/Control Unit 208/230/460 VAC 60 Hz	750-601-001
1C	Power/Control Unit 400 VAC <b>CE</b> 50/60 Hz	750-601-050
1D	Power/Control Unit 220/380/415/440 VAC 50/60 Hz	750-601-051
2	NS40N Welding Gun	751-692-000
3	#1-25 ft. Ground Cable & Clamp	720-542-001
4	#1-25 ft. Combination Cable	722-000-124

### Dual Gun System Configuration

Item	Description	Part Number
1A	Power/Control Unit 230/460/575 VAC 60 Hz	750-601-500
1B	Power/Control Unit 208/230/460 VAC 60 Hz	750-601-501
1C	Power/Control Unit 400 VAC <b>CE</b> 50/60 Hz	750-601-550
1D	Power/Control Unit 220/380/415/440 VAC 50/60 Hz	750-601-551
2	NS40N Welding Gun (2)	751-692-000
3	#1-25 ft. Ground Cable & Clamp (2)	720-542-001
4	#1-25 ft. Combination Cable (2)	722-000-124

*The heavy duty gun(s) and 4/0 cable sets are also available*

### Duty Cycle

Rated @ continuous operation	
7/8" (22mm)	4 per minute
3/4" (19mm)	12 per minute
5/8" (16mm)	15 per minute
1/2" (13mm)	19 per minute
3/8" (10mm)	22 per minute
5/16" (8mm)	40 per minute
1/4" (6mm)	50 per minute
3/16" (5mm)	unlimited

### Specifications

Transformer Rating	2400 amps
Input voltage	230/460/575 VAC–60 Hz 208/230/460 VAC–60 Hz 400 VAC–50/60 Hz <b>CE</b> 220/380/415/440 VAC–50/60 Hz
Fusing	100A@208VAC 100A@230VAC 60A@460VAC 60A@575VAC 400V – Check local standards
Timing Control	20-1000 milliseconds, stepless
Regulated Output	300-2100 amps, regulated
Case Dimensions	24"(610) W x 27"(686) H x 33.5"(850) D
Weight	725 lbs. (330 Kg)



## Nelweld Model 5000

Stud Range: 3/16" to 1" (5mm–25mm)

### Single Gun System Configuration

Item	Description	Part Number
1A	Power/Control Unit 230/460/575 VAC 60 Hz	750-604-000
1B	Power/Control Unit 208/230/460 VAC 60 Hz	750-604-001
1C	Power/Control Unit 400 VAC <b>CE</b> 50/60 Hz	750-604-050
1D	Power/Control Unit 220/380/415/440 VAC 50/60 Hz	750-604-051
2	NS40N Welding Gun	751-692-000
3	#1-25 ft. Ground Cable & Clamp	720-542-001
4	#1-25 ft. Combination Cable	722-000-124

### Dual Gun System Configuration

Item	Description	Part Number
1A	Power/Control Unit 230/460/575 VAC 60 Hz	750-604-500
1B	Power/Control Unit 208/230/460 VAC 60 Hz	750-604-501
1C	Power/Control Unit 400 VAC <b>CE</b> 50/60 Hz	750-604-550
1D	Power/Control Unit 220/380/415/440 VAC 50/60 Hz	750-604-551
2	NS40N Welding Gun (2)	751-692-000
3	#1-25 ft. Ground Cable & Clamp (2)	720-542-001
4	#1-25 ft. Combination Cable (2)	722-000-124

*The heavy duty gun(s) and 4/0 cable sets are also available*

### Duty Cycle

Rated @ continuous operation	
1" (25mm)	5 per minute
7/8" (22mm)	6 per minute
3/4" (19mm)	13 per minute
5/8" (16mm)	18 per minute
1/2" (13mm)	30 per minute
3/8" (10mm)	40 per minute
5/16" (8mm)	unlimited
1/4" (6mm)	unlimited
3/16" (5mm)	unlimited

### Specifications

Transformer Rating	2700 amps
Input voltage	230/460/575 VAC–60 Hz 208/230/460 VAC–60 Hz 400 VAC–50/60 Hz <b>CE</b> 220/380/415/440 VAC–50/60 Hz
Fusing	200A@208VAC 200A@230VAC 100A@460VAC 100A@575VAC 400V – Check local standards
Timing Control	20-1500 milliseconds, stepless
Regulated Output	300-2500 amps, regulated
Case Dimensions	28"(710) W x 31"(786) H x 35.5"(900) D
Weight	1050 lbs. (480 Kg)





# Nelweld Model 6000

Stud Range: 3/16" to 1" (5mm-25mm)\*

## Specifications

Transformer Rating	7600 amps		
Input voltage	230/460/575 VAC	60 Hz	
	208/230/460 VAC	60 Hz	
	400 VAC <b>CE</b>	50/60 Hz	
	220/380/415/440 VAC	50/60 Hz	
Fusing	200A@208VAC		
	200A@230VAC		
	100A@460VAC		
	100A@575VAC		
	400V – Check local standards		
Timing Control	20-1500 milliseconds, stepless		
Regulated Output	300-2500 amps, regulated		
Case Dimensions	28"(710) W x 31"(786) H x 35.5"(900) D		
Weight	1050 lbs. (480 Kg)		

## Duty Cycle

Rated @ continuous operation		
1" (25mm)	10 per minute	
7/8" (22mm)	13 per minute	
3/4" (19mm)	20 per minute	
5/8" (16mm)	25 per minute	
1/2" (13mm)	30 per minute	
3/8" (10mm)	unlimited	
5/16" (8mm)	unlimited	
1/4" (6mm)	unlimited	
3/16" (5mm)	unlimited	



## Single Gun System Configuration

Item	Description		Part Number
1A	Power/Control Unit	230/460/575 VAC 60 Hz	750-600-000
1B	Power/Control Unit	208/230/460 VAC 60 Hz	750-600-001
1C	Power/Control Unit	400 VAC <b>CE</b> 50/60 Hz	750-600-050
1D	Power/Control Unit	220/380/415/440 VAC 50/60 Hz	750-600-051
2	NS 20N Welding Gun		751-693-000
3	#4/0-25 ft. Ground Cable & Clamp		720-542-000
4	#4/0-25 ft. Combination Cable		722-000-123

*Standard duty gun(s) and #1 cable sets are also available*

## Dual Gun System Configuration

Item	Description		Part Number
1A	Power/Control Unit	230/460/575 VAC 60 Hz	750-600-500
1B	Power/Control Unit	208/230/460 VAC 60 Hz	750-600-501
1C	Power/Control Unit	400 VAC <b>CE</b> 50/60 Hz	750-600-550
1D	Power/Control Unit	220/380/415/440 VAC 50/60 Hz	750-600-551
2	NS 20N Welding Gun (2)		751-693-000
3	#4/0-25 ft. Ground Cable & Clamp (2)		720-542-000
4	#4/0-25 ft. Combination Cable (2)		722-000-123

## Standard Guns



### NS 40N

Standard Duty Drawn Arc—  
NS 40N, two wire, 751-692-000

Gun Capacity	5/8" (16mm)
Length	7-1/2" (190mm)
Weight w/o cables	3 lbs. 1 oz. (1.4kg)
Weight w/working weight of cable	4 lbs. 10 oz. (2.1kg)

*Optional kits recommended for studs 3/8" diameter or larger*  
Steel Tranquil-arc Kit— P/N 512-241-000  
Aluminum Tranquil-arc Kit – P/N 512-241-100



### NS 40SCN

Short Cycle—  
NS 40SCN, two wire, 751-695-000

Gun Capacity	3/8" (10mm)
Length	7-1/2" (190mm)
Weight w/o cables	3 lbs. 8 oz. (1.6kg)
Weight w/working weight of cable	5 lbs. 4 oz. (2.4kg)



### NS 20N HD

Heavy Duty—  
NS 20N HD, two wire, 751-693-000

Gun Capacity	1-1/4" (32mm)
Length	13" (330mm)
Weight w/o cables	7 lbs. 6 oz. (3.4kg)
Weight w/working weight of cable	10 lbs. 8 oz. (4.7kg)

# Nelweld®

The world's leading Stud Welding Systems technology



Patents Pending

- Innovative user interface
- Microprocessor controls and monitors
- Digital Readout of time & current
- Built-In diagnostics
- Modular construction
- Presettable time and current
- Patented 2-wire gun circuitry
- Innovative gun circuitry for cooler gun operation
- Temperature hardened and controlled
- Lockout features

**NELSON®**  
STUD WELDING



NELSON STUD WELDING's design, production and distribution operations have been certified to the QS-9000, 1998 and ISO 9002, 1994, International Quality System Standard. Certificate Number 00.273.1



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