

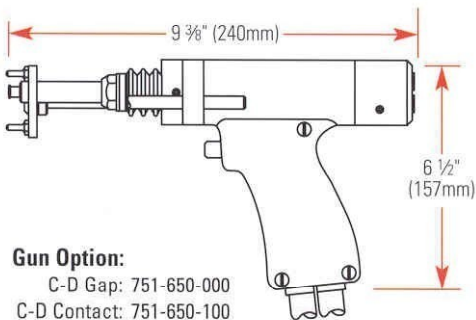
Nelson® NCD 60, 100, 150 Capacitor Discharge Systems

The newest line of Capacitor Discharge stud welding equipment from Nelson Stud Welding represent state of the art technology for small diameter fastening to light gauge metals. Three different model offerings allow for the most economical solution to application demands. The micro-processor controlled system achieves maximum weld control and operator safety. Stepless voltage adjustment and digital displays assist in precise weld adjustment. Diagnostic LED's and fault codes inform the operator of system status. Each system is packaged with Nelson's smallest, lightest weld gun to minimize operator fatigue.

Benefits and Advantages:

- Micro-Processor Controlled
- Stepless Voltage Adjustment
- Digital Displays
- Diagnostic LED's
- Weld Gun Options
- System Reliability
- Highest Weld Quality

System Specifications



Standard Parts List

Item	Description	Model 60	Model 100	Model 150
1	Power Control Unit	77-02-56	77-03-55	77-02-57
2	Standard Gun	See options above		
3	Ground Cable w/Dual Clamps	720-520-000		
4	Combination Cable	722-000-094		



Design Features:

Process Control: Micro-Processor
Charging Voltage: 30–200 Volts
Electrical Supply: 110 Volt, 20 AMP

Model

	60	100	150
Capacitance	54000mf	90000mf	144000mf
Stud Range	¼" Max.	⅝" Max.	¾" Max.
Duty cycle	8/min	8/min	8/min
Weight	59lb	70lb	77lb
Dimensions	11x9x15	9x14x17	9x14x17
Diagnostic LED's	Yes	Yes	Yes
Digital Meter	No	Yes	Yes
Fault Codes	No	Yes	Yes
Capacitance Change	Internal	3 Position	3 Position
Cooling Fan	No	Yes	Yes
Dual Grounds	Yes	Yes	Yes
Weld Time	1–3ms	1–3ms	1–3ms
Stored-Arc Mode	No	No	No

Nelson® Capacitor Discharge Process

The Capacitor discharge stud welding process utilizes the direct current produced by a charged bank of capacitors to obtain an electric arc and thereby the heat for melting the stud and the workpiece. The weld process sequence fundamentally consists of establishing a high current electric arc between the stud and workpiece while moving the stud toward the workpiece. The arc is extinguished by the stud contacting the workpiece, while there is still some charge

flowing from the capacitors. The weld time is very short, ranging from 1 to 3 msec. No ferrule or flux is required with the capacitor discharge stud welding process.

There are, basically, three different methods of capacitor discharge stud welding:

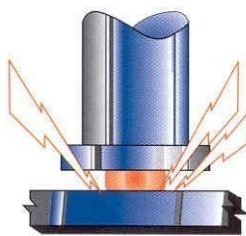
(1) contact, (2) initial gap and (3) stored-arc. These three methods differ primarily in the manner of arc initiation, and are explained below.

Contact capacitor discharge stud welding utilizes studs having a small specially engineered projection or tip on the weld end of the stud. The contact method of capacitor discharge stud welding begins with the stud in contact with the workpiece, with gun pressure pushing the stud toward the workpiece. The capacitors are then discharged, causing a very high current to flow through the small projection on the base of the stud (Fig. 1). The small projection presents a high resistance to the discharge current, heats up and rapid-

ly disintegrates, creating an arc that melts the surfaces to be joined (Fig. 2). Since there is pressure on the stud toward the workpiece, movement of the stud toward the workpiece starts when the arc initiates. The welding arc goes out when the stud contacts the workpiece and with some charge still remaining on the capacitors (Fig. 3). Fusion takes place, and a weld is produced between the stud and the workpiece (Fig. 4).



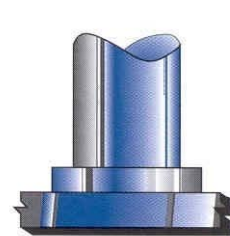
1.



2.



3.



4.