

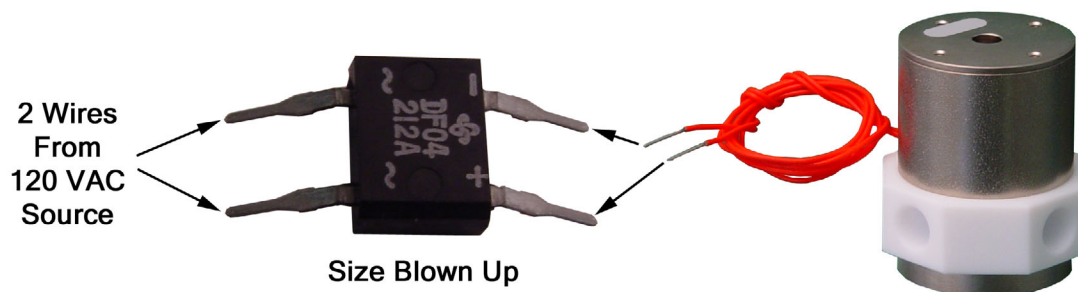
## 120 VAC NResearch Inc.® solenoid valves

### Operating Voltages

The most common voltages used by the industry to operate miniature solenoid valves are 12V and 24V DC (Direct Current). However, certain applications do not have such low voltage levels and/or direct current readily available. To fulfill the demand for valves that are able to operate from a single-phase 120V AC (Alternating Current) power source, NResearch Inc.® offers a range of 120VAC valves. Unlike regular 12VDC and 24VDC valves, each 120VAC valve consists of two components, a high voltage DC valve and a full-wave rectifier bridge. The latter component converts alternating current into (pulsating) direct current, and is always shipped along with the valve, without being electrically connected to it. It is relatively small, sized approximately 1/3" x 1/4" x 1/8", not including the four electrical connection pins.

### Electrical Connections

The NResearch Inc.® 120VAC solenoid valves are equipped with two red lead wires. The rectifier bridge is to be connected between the two wires coming from the 120VAC power source and the solenoid valve, as illustrated below. Please note, that the rectifier bridge is shown significantly larger, than its real size, in order to enhance visibility.



### Making Electrical Connections

Please keep electrical safety in mind. Make absolutely sure, that the two wires that will be used to connect the valve & rectifier to the 120VAC source are disconnected on both ends from any equipment / instrument / power source, etc. You must be able to see four disconnected ends of the two wires before you proceed to the following steps. You may attach a heat sink to the rectifier bridge to eliminate possible damage that results from overheating during the soldering process. It is always a good practice to use heat shrink tubing to insulate finished solder joints, and pins and wires, that are left exposed. Note, that heat shrink tubing needs to be fitted on the wires before the soldering process takes place. Now carefully solder the two red lead wires from the NResearch Inc.® 120VAC solenoid valve to the terminals marked with + and - on the rectifier bridge. The two red lead wires are interchangeable, it makes no difference, which lead is attached to the + terminal. Next, the two wires that will be connected to the 120VAC power source (line and neutral) need to be soldered to the two terminals marked with S shaped signs on the rectifier bridge. Does not matter whether the line goes to the left side pin and the neutral to the right side pin, or the other way around. After applying heat to the heat shrink tubing or applying other means of insulating to all exposed pins/wires/solder joints, you may start getting ready to connecting the assembly to the powered-down 120VAC source connections. Do not attempt this final step unless you are qualified and authorized, and fully understand the dangers posed by electricity. If you are unsure, please have a qualified electrician do it for you.