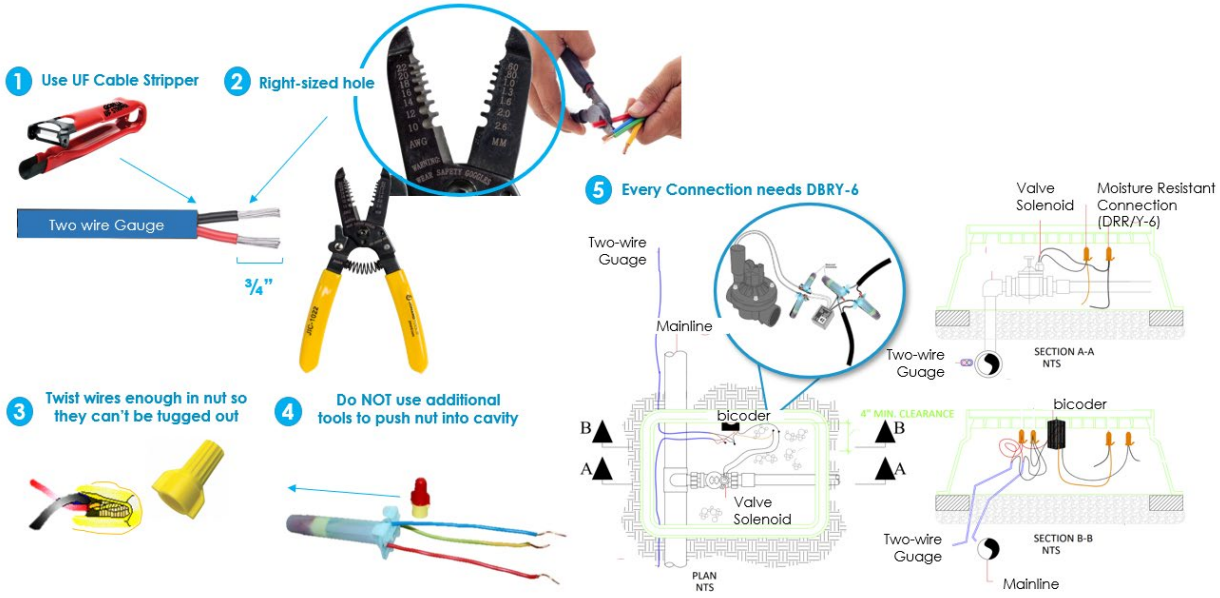
How to Make a Proper Splice



Splicing Best Practices

1. **Outer Sheath** Make sure to use a UF cable stripper (potato peeler) to remove the two-wire gauge's rigid sheath (outer jacket). Using a common knife to slice off the sheath could result in cutting into the wire's insulation or nicking the wire itself.
2. **Inner Jacket** Make sure to use the correct hole size when using the wire stripper to remove the PVC insulation, else the wire itself could be cut. Additionally, don't strip more than ¾" of insulation. If you do, clip it off, as any additional stripped wire could stick out of the nut.
3. **Wire Nut** Make sure you twist the wires tightly enough with the wire nut. To check if wires are twisted tightly enough into the nut, gently tug on the wires to ensure they don't pull out. Note: be sure to not twist too intensely as the wire copper could break.
4. **DBR/Y-6 Connector** Do *not* use any additional tools (ex: screwdriver) to push nut into the end of the DBR/Y pocket. Use only pressure from your hands. Additional tools can create cavities in the dielectric grease that allow water to get in.
5. **Waterproof Connections** Use 3M™ DBR/Y-6 or equivalent connectors for all wire connections. Mount all connections vertically upright to eliminate standing water inside the DBR/Y-6 connector avoid water submersions. Make all splices inside a valve box.

Other

6. **Recommend having 24-36" of extra 2-wire at each splice** to allow for future repairs and easier troubleshooting.
7. **Mark the location** of all decoders, splices and surge protectors on the plans
8. Do not attach more than one valve to a decoder that is specifically for a single valve decoder (WT2W-H2O-1VD).

Importance of DBRY-6 or Equivalent according to our Installation Specs Sheet

These spec items are automatically adhered to when using 3M DBR/Y-6 or equivalent	
• *Use connectors that effectively seal moisture out.*	✓
• *Use twist connectors with a steel spring and flame-retardant insulator.*	✓
• *Use a connector with an outer tube made of UV-resistant polypropylene.*	✓
• *Use moisture-resistant grease inside the connector.*	✓
• *Use a connector with a minimum voltage rating of 600 volts.*	✓
• *Use a connector that can operate in temp ranging from -40°F to 221°F (- 40°C to 105°C).*	✓
• *Use a connector that can fit five 18-gauge, four 12-gauge, or three 10-gauge wires inside the connector.*	✓

Why is a bad wire splice so bad?

Wires that are loose or unshielded are exposed to oxidation (= corrosion), other copper conductors (= shorts), water (= shorts) or paths to ground/soil (= open circuits).

- Exposed wire with any presence of moisture could have water act as a conduit in the wire, rapidly increasing the current and causing a short (over current) to be drawn into the solenoid.
- Exposed wire that is severely corroded will increase the resistance in the wire, meaning the solenoid could receive *too much* current if the bad splice is located *after* the solenoid in the wire path or *too little* current if bad splice before it.
- Exposed wire may have a path to ground (touches dirt) allowing there to be an open circuit where current continuously passes the solenoid allows current to continuously pass through the solenoid, maturing it.

Rate of degradation will depend on how long station runs while wet (could resume normal operation once dried), extent of corrosion, number of stations running concurrently, etc.