

STEP 1

WIRE INFORMATION

- ▶ Who is the wire manufacturer?
- ▶ What is the package type, shape, size/weight?
 - ▷ These two questions will determine the wire package removal equipment.
- ▶ What is the wire type?
- ▶ What is the wire diameter?
 - ▷ These two questions will help determine the appropriate conduit and size.



STEP 2

WELDING APPLICATION

- ▶ Will the welding be done robotically?
 - ▷ If so, is the main wire feed motor mounted on the robot arm or in a fixed (non-moving) position?
- ▶ Is the welding a semi-automatic welding application?
 - ▷ If so, will the feeder be mobile such as on a swing boom, or on a power-source that is moved around the welding area?
- ▶ Is this a fixed automation application?
 - ▷ If so, does the feeder move or is it stationary?



STEP 3

WIRE PACKAGE PLACEMENT

- ▶ Where will the weld wire package be placed?
- ▶ Is the package in a direct line with the main feed motor during the weld process, or will it be offset?
 - ▷ Every bend radius and plane change in a conduit run will add skid friction coefficient.
- ▶ Are obstacles interfering that will cause tight radial bends or multiple bends and plane changes in the conduit unless avoided?
 - ▷ Power sources, controllers, overhead cranes, gas piping, parts supply totes, torch maintenance equipment, home position of a robot / weld system, can all influence the layout and parts needed in a wire delivery system.



STEP 4**CONDUIT SELECTION – DETERMINING FACTORS**

- ▶ Wire Type and Composition
- ▶ Wire Diameter
- ▶ Application
- ▶ Single conduit run or dual conduit run (static to dynamic)
- ▶ Distance wire is traveling

WIRE TYPE & COMPOSITION

- ▶ Solid Carbon Mig Wire — any conduit material of appropriate I.D. for wire size.
- ▶ Cored Wires — any conduit material of appropriate I.D. for wire size.
 - ▷ Metal lined conduits generally allow greater longevity than a polymer conduit.
- ▶ Aluminum — green polymer conduits or flexible steel conduits lined with a polymer liner.
- ▶ Stainless Steel Wires — any conduit material of appropriate I.D. for wire size.
 - ▷ Green polymer conduits are optimal if ferrous contamination is of concern.
- ▶ Silicon Bronze — green polymer conduits or flexible steel conduits lined with a polymer liner.

WIRE DIAMETER

- ▶ .030" (0.8 mm) diameter and smaller wires use the FC-X-SW or EC-3-R conduits.
- ▶ .035" – .052" (0.9 mm – 1.3 mm) diameter wires use EC-4-R, FC-X, or FC-E conduits.
 - ▷ These three conduits are optimal for the majority of high-volume welding applications in the industry.
- ▶ .062" – 1/8" (1.6 mm – 3.2 mm) diameter wires use EC-5 or FC-XH conduits.
- ▶ 1/8"+ (3.2 mm+) diameter wires use EC-6 or FC-XH-LW.
 - ▷ These wire sizes are used in Submerged arc applications and are discussed in the SAW equipment training program.

APPLICATION

- ▶ Static Application — use of the EC line of green polymer conduits is optimal.
- ▶ Dynamic Application — use of the Flexible line of Wire Wizard conduit is recommended.
 - ▷ EC-3-R and EC-4-R conduits are suitable for flexible applications as well.
- ▶ Hybrid Application — use of both the EC line of green polymer conduit and Wire Wizard Flexible Conduits.



STEP 5

CHOOSING CONDUIT CONNECTORS

- ▶ All male bayonets fit all female quick disconnects.
 - ▷ Male bayonet conduit connectors are tapered for ease of feeding and to reduce wear points.
 - ▷ Available compression connectors with attached strain relief support the weight of conduits to prevent added weight on connection point and potential re-casting of wires.

POLYMER CONDUIT CONNECTORS

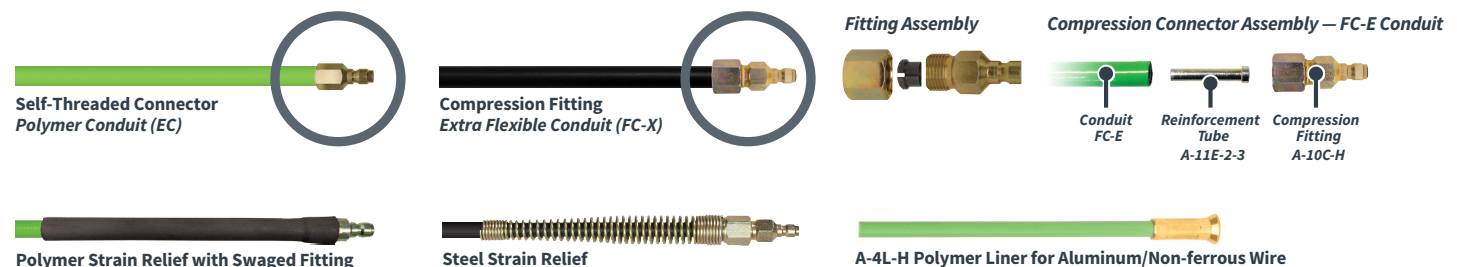
- ▶ Self-threaded connectors easily connect for a snug fit on static applications. They also can be removed and re-used on a new piece of conduit.
- ▶ Compression connectors offer a tight and locked connection. Bayonet and nut can be re-used with a new replacement ferrule. Used in dynamic conduit applications.

FC-X CONNECTORS

- ▶ Compression connectors offer a tight and locked connection. Bayonet and nut can be re-used with a new replacement ferrule. Used in dynamic conduit applications.
- ▶ Hydraulically swaged connectors are a permanent connection and only available in pre-cut lengths that have been assembled at Wire Wizard.

FC-E CONNECTORS

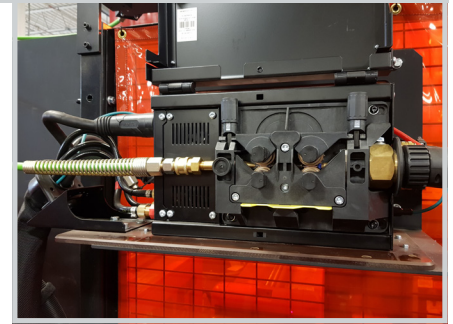
- ▶ Compression connectors offer a tight and locked connection. Bayonet and nut can be re-used with a new replacement ferrule. Used in dynamic conduit applications.
 - ▷ Reinforcement tube required in conduit I.D. when using a compression connector.
- ▶ Hydraulically swaged connectors are a permanent connection and only available in pre-cut lengths that have been assembled at Wire Wizard.



STEP 6

FEEDER INLET CONNECTION

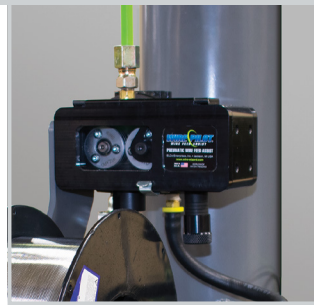
- ▶ Who is the wire feeder manufacturer?
- ▶ Is the feeder inlet a slip fit-thru hole with set screw or is it a threaded connection?
 - ▷ If a threaded connection, is it a male or female threaded connection?
 - ▷ If threaded, knowing the thread count is also very useful information.



STEP 7

OPTIMIZING THE SYSTEM

- ▶ Review the design and determine if optimization equipment would be needed or beneficial
 - ▷ Wire Guide Modules
 - ▷ PFAs
 - ▷ Conduit Balancers
 - ▷ See wire-wizard.com for our full line of accessories



STEP 8

ACCESSORIZING THE SYSTEM (THE FINAL TOUCH)

- ▶ Look for opportunities in which accessories would be optimal
 - ▷ DLG
 - ▷ FDD-MD
 - ▷ Fireproof Covers
 - ▷ See wire-wizard.com for our full line of accessories



Wire Level Gauge
mounted on drum