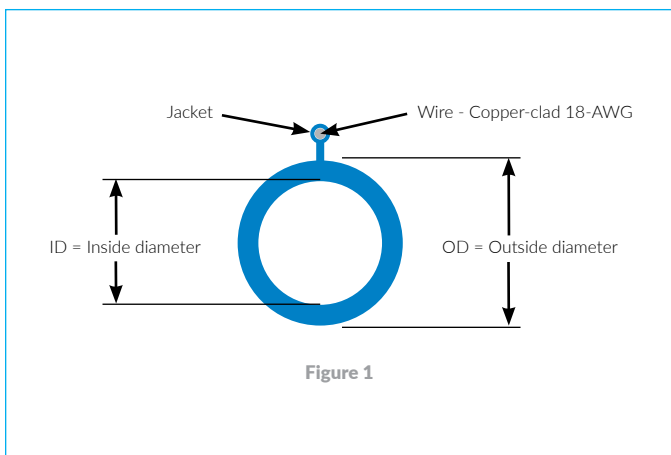


## ConQuest® toneable conduit coupling

CommScope toneable conduit utilizes an embedded 18-AWG tone wire to facilitate conduit location once installed. The 18-AWG copper-clad tone wire is applied to the outside of the conduit during the manufacturing process. The tone wire is embedded in a layer of HDPE for corrosion and electrical protection. Narrow webbing connects the wire to the conduit for ease of access for splicing. A cross-section of toneable conduit is shown in Figure 1.



Toneable conduit is available in 3/4" through 2" diameters

Conduit size	CU-clad wire size AWG	Outside diameter (inches)	Wall thickness (inches)	Nominal inner diameter (inches)	Min. bend radius unsupported (inches)	Max. pulling tension (lbs.)	Weight (lb./ft.)
3/4" SDR 11	18	1.050 ± 0.005	0.095 ± 0.020	0.84	20	687	0.128
1.00" SDR 13.5	18	1.315 ± 0.007	0.097 ± 0.020	1.101	26	894	0.166
1.25" SDR 13.5	18	1.660 ± 0.008	0.123 ± 0.020	1.394	34	1,425	0.263
1.50" SDR 13.5	18	1.900 ± 0.010	0.141 ± 0.020	1.598	38	1,867	0.344
2.00" SDR 11	18	2.375 ± 0.012	0.216 ± 0.026	1.917	48	3,515	0.642
2.00" SDR 13.5	18	2.375 ± 0.012	0.176 ± 0.021	2.002	48	2,917	0.534
2.00" SCH 40	18	2.375 ± 0.012	0.154 ± 0.020	2.047	48	2,579	0.473

It is important to note that the tone wire is for location testing only, and is for signal location transport up to five watts of power. Using insulation leakage test devices is not recommended, as the wire is not rated for high voltage (these test sets can reach up to 1000 volts) or high amps.

Continuity tests while the conduit is on the reel can be performed with a volt-ohm meter. Continuity testing after the conduit has been placed can be performed according to the following procedure: Place a locator transmitter at one end of the run; and connect directly to the wire, use a halo clamp around the conduit, or set the transmitter over the location of the buried conduit and turn it on. Go to the far end and see if the locator signal can be picked up with the receiver. If so, continuity exists. If not, follow the signal away from the transmitter until it disappears. That signifies either a break in the wire or a depth beyond the locator capability.

To install ConQuest® toneable conduit, employ standard HDPE conduit installation procedures. When conduit needs to be coupled, be certain to over-pull the two ends by a minimum of two feet so the tone wire can be spliced at the coupled joint.

To couple the conduit and splice the tone wire to maintain electrical continuity, these procedures are recommended:

The tone wire should be separated from the conduit end for a minimum length of 12 inches + 2.5x the length of the coupler. For example, if the coupler being used is five inches long, it should be separated from the conduit end for a minimum of 24.5 inches: 12 inches + (5 inches x 2.5). This is shown in Figure 2.

Separate the tone wire jacket from the conduit using a utility knife, as shown in Figure 3. Make the cut as close to the conduit wall as possible, to not leave a ridge on the conduit when coupling the conduit. This is best accomplished by scoring the jacket at the conduit several times. Generally, on the third or fourth pass of the knife, the wire jacket will completely separate. Attempting to separate the tone wire jacket from the conduit in one pass will usually result in the knife cutting the jacket up into the tone wire, which could result in future corrosion.

If a ridge remains after separating the tone wire from the conduit, shave any remaining HDPE with the knife until smooth. Shave the conduit for a length of 10 inches, which should be enough for the coupler length requirements. Should the coupler be longer than this, continue shaving the ridge until it matches half the length of the coupler.

In order to splice the tone wire, begin, with conduit cutters, by cutting the conduits perpendicular 12 inches from the end, as shown in Figure 4, so there is a clean face for coupling the conduit. The ends of each conduit should now overlap slightly to allow coupling of the conduits.

**CAUTION**

The tone wire may develop induced foreign voltage during certain field conditions. Adjacent or parallel power lines may cause a voltage level that can be hazardous. Always test for foreign power prior to stripping or working with the tone wire, using acceptable test equipment. The wire is 18-AWG copper-clad steel rated at 30.041 ohm/1,000 ft. 68°F.

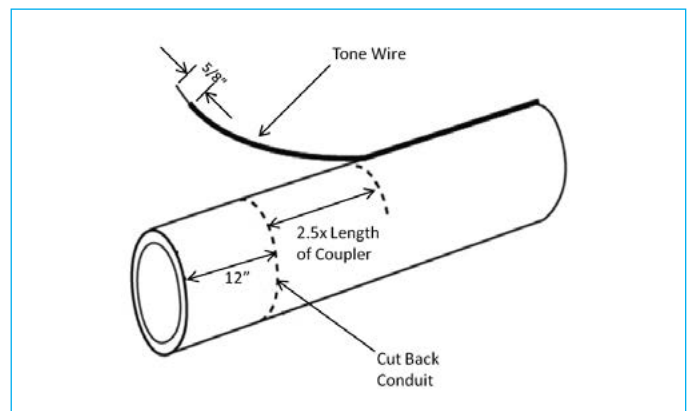


Figure 2



Figure 3



Figure 4

## Join the conduits with an approved coupler according to the manufacturer's directions.

Strip back 5/8" of the HDPE jacket from around the tone wire (Figures 5 and 6)



Figure 5



Figure 6

CommScope recommends the use of large direct-bury waterproof connectors for joining the tone wires and providing environmental protection (Figure 7). These can be purchased off the shelf at most home improvement stores. They should be UL Listed as a 486D wire connector system for use with underground conductors for use in damp or wet conditions.



Figure 7

Insert the tone wires into the gel-filled connector fully onto both wire ends, and twist (clockwise) until it becomes tight as in Figure 8.

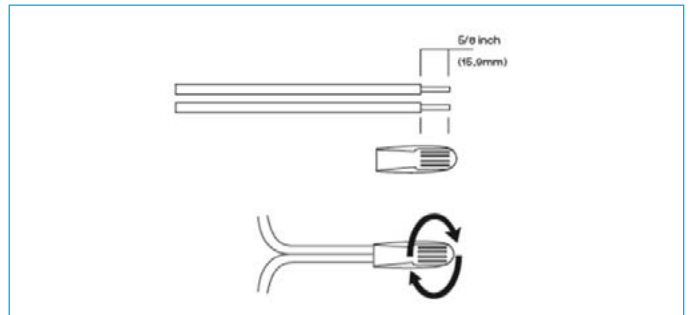


Figure 8

Fold the excess slack of the tone wire back onto the conduit, and tape or tie wrap to the conduit as in Figure 9.

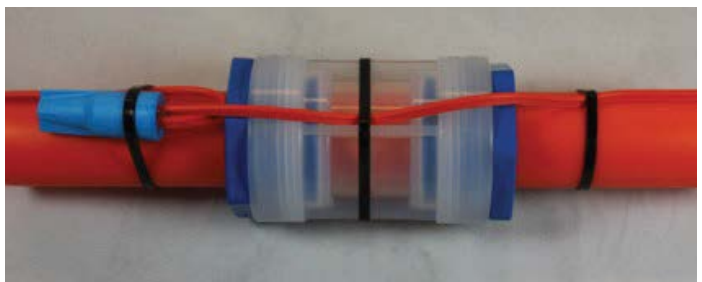


Figure 9

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