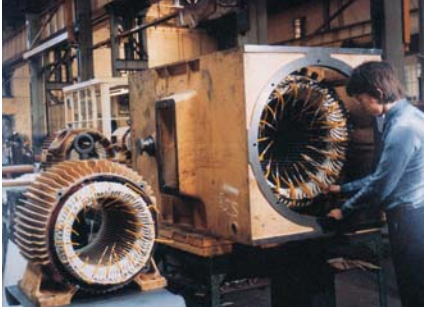


# Dragon Tooth®

## Insulation Piercing Connectors

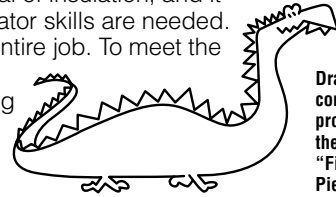


Transformer manufacturers depend on Dragon Tooth® connectors for reliable magnet wire applications.

The tough, high temperature insulation on magnet wire used by electrical motor and transformer manufacturers creates problems in splicing and terminating. The durability of magnet wire insulation has made dip-soldering or brazing extremely difficult without stripping the insulation.

Another splicing and terminating challenge involves the use of aluminum for magnet applications. A manufacturer connecting aluminum magnet wire to copper is faced with the problem of the different coefficients of thermal expansion of the two metals, galvanic corrosion, cold flow and the rapid formation of oxide film on the wire surface.

T&B offers a solution for a highly reliable connection method for magnet wire. It eliminates welding, no longer requires removal of insulation, and it can be installed in seconds. No special operator skills are needed. The connector and matching tooling do the entire job. To meet the essential requirements of magnet wire connections, T&B offers the insulation piercing DRAGON TOOTH® compression connector.



Dragon Tooth connectors proudly earn the title "Fierce Pierce.™"

### Dragon Tooth® Magnet Wire Connectors

Thomas & Betts Dragon Tooth® connectors and installing tools are designed to splice, tap and terminate magnet wire from 32 AWG to 460,000 CMA copper and from 20 AWG to 460,000 CMA aluminum conductors in motor and transformer applications. Dragon Tooth® Magnet Wire Connectors penetrate the insulation and oxide layers to make electrical contact on magnet wiring. The result is permanent, low resistance electrical connections, capable of maintaining contact integrity throughout the life of the connection.

#### Typical Applications



Splice



Termination



Parallel Splice

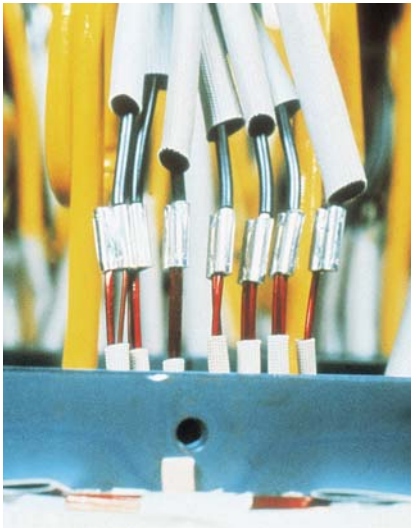


Tap

- Designed to penetrate magnet wire insulation during application, eliminating the need for stripping, brazing, welding or other methods of joining magnet wire.
- Can be installed in seconds.
- Requires minimal training for installation.
- Made of copper alloy, tin plated, with a number of teeth on the inner surface.
- Splices and taps have an open side permitting easy access to wire and makes internal coil tapping possible.
- For aluminum to copper, aluminum to aluminum, or copper to copper magnet wire connections.
- Supplied with bolt holes to accommodate No. 6 through 1/2" studs and includes male and female .250 x .032" disconnects.
- Splices and fork terminals accommodate wire sizes 24 AWG to 12 AWG in a variety of combinations, including combining magnet wire with stripped wire lead. For solid or stranded wire #20 to #4/0 AWG.
- Larger connectors accommodate circular mil range from 50,000 to 460,000 cm.
- Teeth on the transition washers penetrate aluminum and copper oxides, enabling copper to aluminum connections to be made in a bolted joint without the use of inhibiting compounds. Transition washers also accommodate the difference in thermal expansion between copper and aluminum, and enhance the efficiency of bolted grounding connections.
- Connector and matching tooling do the entire job.

# Dragon Tooth®

## Insulation Piercing Connectors



DRAGON TOOTH® connectors transform the perpendicular compression force, which would normally contribute to conductor creep, into distributive forces that effectively resist cold flow, as indicated by the illustration below.

These connectors are made of copper alloy, tin plated, with a number of teeth on the inner surface. When compressed onto an insulated magnet wire, the sharp, hardened teeth penetrate both the insulation and oxide and bite into the conductor. An electrically sound, low-resistance connection is established as a result of the combination of high pressures at the edges of the teeth, and the sliding action between the teeth and the conductor. The open barrel design permits midspan splicing and tapping.

### How to Select a Connector

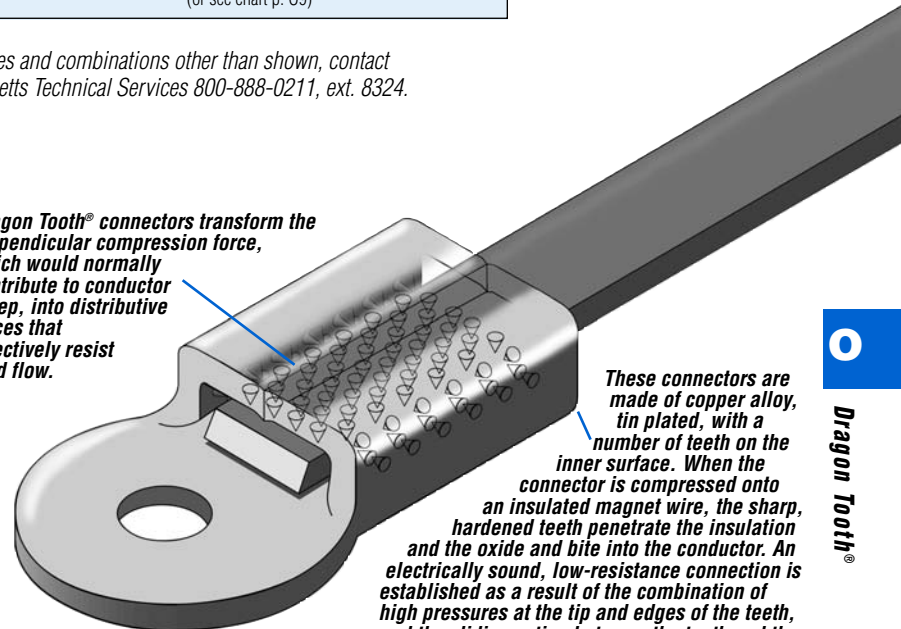
- 1 Determine total circular mil area (CMA). All wires to be installed in a connector barrel including stripped, stranded wire. Eg., two #6 AWG = 52480CMA.
- 2 Refer to Circular Mil column of chart and find the connector series corresponding to the total CMA. eg., 204XXX.
- 3 Next, refer to either Round Wire column, or Rectangular Wire column, depending on the type you are using, and check for any limitations, (such as max. wire i.e. width/height). If there are limitations, you may have to make a selection from the next larger size.
- 4 Select the tool and die appropriate for the application.

Formula for calculating circular mil area (CMA)	
Square or rectangular wire:	Thickness x Width x 1.273 x 10 <sup>6</sup> = CMA
Round wire:	Diameter <sup>2</sup> x 10 <sup>6</sup> = CMA (or see chart p. 09)

For wire sizes and combinations other than shown, contact Thomas & Betts Technical Services 800-888-0211, ext. 8324.



*Dragon Tooth® connectors transform the perpendicular compression force, which would normally contribute to conductor creep, into distributive forces that effectively resist cold flow.*



*These connectors are made of copper alloy, tin plated, with a number of teeth on the inner surface. When the connector is compressed onto an insulated magnet wire, the sharp, hardened teeth penetrate the insulation and the oxide and bite into the conductor. An electrically sound, low-resistance connection is established as a result of the combination of high pressures at the tip and edges of the teeth, and the sliding action between the teeth and the conductor.*

Dragon Tooth®

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