Claims

1. A method of manufacturing a stator for a slotless electric motor, the method comprising:

disposing a conductor in the shape of an annular cylinder;

bonding a plurality of bonded lengths of the conductor wherein the bonded lengths comprise regions of the conductor wherein adjacent wires are bonded along the bonded lengths and wherein the average spacing between adjacent wires is smaller in the bonded lengths than in non-bonded lengths, wherein the plurality of bonded lengths are separated by non-bonded lengths;

folding the conductor to provide a plurality of petals repeated along the conductor, wherein each petal comprises a pair of bonded lengths connected by a non-bonded length, wherein the pair of bonded lengths are disposed parallel to each other, and wherein:

adjacent petals on the conductor are connected by a non-bonded length; and,

the non-bonded lengths in the petals are bounded by a circumference of a first circle, wherein the first circle has a first diameter;

the non-bonded lengths which connect the petals are bounded by a circumference of a second circle, wherein the second circle has a second diameter, wherein the second diameter is less than the first diameter, and wherein the first circle and second circle are coplanar and concentric;

rotating each petal about a point on the second circle to align in parallel the bonded lengths of all of the petals to thereby provide the stator comprising a cylindrically-shaped conductor having a diameter equal to the second diameter and wherein the bonded lengths are equidistantly disposed around and from a central longitudinal axis of the cylindrically-shaped conductor.

2. The method of claim 1, wherein:

the step of bonding a plurality of bonded lengths on the conductor comprises:

applying a bonding compound to lengths of the conductor to thereby form a plurality of bonded lengths.

3. The method of claim 2, wherein:

the step of bonding a plurality of bonded lengths on the conductor further comprises activating the bonding compound.

4. The method of any of the preceding claims, comprising:

applying a half-twist to one of the non-bonded lengths of the conductor at a first point on the conductor so that a cross-section of the wire at the first point of the conductor is a mirror-image of a cross-section of the wire at a second point of the conductor, such that, a wire on the inner radial face at the first point is on the outer radial face at the second point.

5. The method of any of the preceding claims, comprising:

disposing the cylindrically-shaped conductor within a central hole of a flux ring having an inner diameter which is greater than the second diameter to thereby provide a stator comprising a cylindrically-shaped conductor with a flux ring disposed around an outer radial surface of the conductor.

6. The method of claim 5, wherein:

the flux ring has an axial length which is at least the length of the bonded lengths of the conductor.

7. The method of any of the preceding claims, the method comprising:

disposing an expandable mandrel in the centre of the cylindrically-shaped conductor; and,

expanding the expandable mandrel when the cylindrically-shaped conductor is disposed within the central hole of the flux ring to thereby increase the diameter of the cylindrically-shaped conductor to a diameter between the second diameter and the inner diameter of the flux ring.

8. The method of any the preceding claims, comprising;

bending a first axial end of the cylindrically-shaped conductor to toward the longitudinal axis.

9. The method of any the preceding claims, comprising;

bending a second axial end of cylindrically-shaped conductor away from the longitudinal axis.

10. A stator for a slotless electric motor obtainable by the method of any of claims 1 to 9.

11. A method of manufacturing a slotless electric motor, the method comprising:
performing the method of any of claims 1 to 10 to provide a stator;
providing a rotor configured to rotate around an axial centre of the stator.