CLAIMS

What is claimed is:

1. A method of preparing windings for an electric machine, comprising:

positioning a plurality of needles in a slot of a stator housing;

detecting the position of each needle in the slot to obtain position data;

providing the position data to a control system;

utilizing the control system to position a magnet wire adjacent a selected needle of the plurality of needles; and

using an auto feeder system, controlled by the control system, to automatically feed the magnet wire against the selected needle and through the slot.

2. The method as recited in claim 1, wherein after the magnet wire is automatically fed through the slot, returning the magnet wire through a corresponding slot of the stator housing.

3. The method as recited in claim 2, wherein utilizing comprises utilizing the control system to position the magnet wire adjacent a second selected needle according to a predefined pattern.

4. The method as recited in claim 3, wherein using comprises using the auto feeder system to automatically feed the magnet wire against the second selected needle and through the slot.

5. The method as recited in claim 4, further comprising utilizing the control system and using the auto feeder system repeatedly until a completed winding of the magnet wire is positioned through the slot and the corresponding slot.

6. The method as recited in claim 1, wherein positioning the plurality of needles comprises positioning at least three needles.

7. The method as recited in claim 1, wherein positioning the plurality of needles comprises positioning at least six needles.

8. The method as recited in claim 1, wherein detecting the position of each needle comprises employing a camera system to detect the positions.

9. The method as recited in claim 1, wherein using the auto feeder system comprises using a feeder guide to move an end of the magnet wire adjacent the selected needle and further using a reciprocating feeder to automatically feed the magnet wire through the feeder guide and the slot.

10. A method, comprising:

mounting a stator housing on a fixture;

positioning a plurality of needles in a plurality of stator slots extending longitudinally through the stator housing;

using a camera-based sensor system to detect the position of each needle in the slot to obtain position data;

positioning an automated feeder system at an end of the stator housing;

using the automated feeder system to feed a magnetic wire longitudinally through the stator housing to facilitate creation of a stator winding; and

automatically controlling the automated feeder system to properly position the magnetic wire prior to feeding the magnetic wire through the stator housing.

11. The method as recited in claim 10, further comprising providing the position data to a control system.

12. The method as recited in claim 11, further comprising utilizing the control system to position the magnetic wire adjacent a selected needle.

13. The method as recited in claim 12, further comprising utilizing the automated feeder system to automatically feed the magnetic wire against the selected needle and to move the magnetic wire through a predetermined slot of the plurality of slots.

14. The method as recited in claim 10, wherein positioning the automated feeder system comprises positioning a pair of the automated feeder systems such that one automated feeder system is positioned at each end of the stator housing.

15. A system to facilitate preparation of windings, comprising:

a camera-based vision system positioned to detect and provide data on a position of needles located in a slot of a stator housing;

an auto feeder having a feeder guide and a feeder, the feeder being able to automatically feed magnet wire through the feeder guide during winding of the stator housing; and

a control system, the control system being programmed to move the feeder guide into proximity with selected needles according to a predefined pattern and to move the feeder to feed the magnet wire once the feeder guide is properly aligned with each selected needle.

16. The system as recited in claim 15, wherein the feeder moves in a reciprocating manner when feeding the magnet wire.

17. The system as recited in claim 16, wherein the feeder comprises gripping members to repeatedly grip and release the magnet wire during feeding of the magnet wire.

18. The system as recited in claim 15, wherein the control system is a processor-based control system.