

MotorMakers, Inc.

Memo

To:	Manufacturing Design Teams	
Date:	2007-03-22	
From:	Ralph Stirling	
Subject:	Brushless motor assembly system specifications	

<u>Summary</u>

The 2007 model brushless outrunner motor production system must meet specific criteria for feeding of parts, motor assembly, and safety. General instructions for hand assembling these motors can be found at: http://www.gobrushless.com/GBL_single_v2.pdf

Criteria

1. Motor bill of materials:

Qty	Supplier	Part Number	Description
1	GoBrushless.com	S-227-45-9	22.7mm 9-pole stator
1	GoBrushless.com	BS-1	Stock bearing assembly
1	GoBrushless.com	C-22	Rotor can
14	GoBrushless.com	M5-5-1	N50 magnets
2	GoBrushless.com	B-3625-10	3mm ball bearings
	OemWire.com	43779	26 AWG wire

- 2. Stator is to be wound with three phases, with 5 to 15 turns per pole, ensuring the insulation is not damaged during winding. Stripping and terminating the wires is a post-assembly manual task. The PLC logic must include a means of specifying the number of turns to wind.
- 3. Bearing assembly can be inserted in the stator before or after winding.
- 4. Magnets are to be spaced evenly around the inside of the rotor can with alternating polarity.
- 5. A drop of CA glue is to be placed behind each magnet.
- 6. Motor shaft is to be pressed into the rotor can with sufficient accuracy that the can does not contact the stator at maximum speed.
- 7. Stators, cans, and bearings will be gravity fed from tubes. Cans will be oriented one way. Stator angle will be random. Magnets will be fed from stacks, all oriented the same way. Shafts and bearing tubes will be random and must be singulated and oriented.
- 8. Assembly system must incorporate an emergency stop that causes all motion to immediately stop when activated.