WHAT IS CLAIMED IS:

1. A compact high speed centrifuge for use with low volume sample containers, the centrifuge comprising:

a centrifuge housing;

a centrifuge rotor having a perimeter;

a motor for rotating said centrifuge rotor;

a detector integrated with the motor and configured to determine at least a rotational position of a rotating portion of the motor, wherein the detector uses at least two different types of encoder information to determine said rotational position;

a first air bearing configured to operably support an underside surface of the centrifuge rotor, wherein at least a portion of the first air bearing is defined by the centrifuge housing; and

a second air bearing configured to operably support an lateral surface of the centrifuge rotor, wherein at least a portion of the second air bearing is defined by the centrifuge housing;

wherein the detector has a first surface for detecting a first type of encoder information and a second surface for detecting a second type of encoder information different from the first type of encoder information.

2. A centrifuge as in claim 1 wherein the detector uses at least an optical encoder technique and a Hall-effect technique to determine rotational position.

3. A centrifuge as in claim 1 wherein the detector uses at least an optical encoder technique and a Hall-effect technique to determine at least rotational position and rotational velocity.

4. A centrifuge as in claim 1 wherein the first surface and the second surface are oriented in different directions.

5. A centrifuge as in claim 1 wherein the first surface and the second surface are oriented in the same direction.

6. A centrifuge as in claim 1 comprising a plurality of detectors for determining rotational position.