CLAIMS:

1. An electric motor comprising a heatsink for removing heat from the electric motor, the heatsink comprising:

a surface for placing adjacent to the heat source comprising a plurality of cavities formed into the surface, the plurality of cavities open on a side of the surface away from the side of the surface for placing adjacent to the heat source; and

a plurality of projections, each projection extending from the surface adjacent to a corresponding cavity;

wherein each cavity comprises a throat region configured to restrict the flow of air between each respective cavity and the region between a corresponding pair of projections extending from the surface adjacent to the cavity; and

wherein the heatsink is configured to be wrapped around the circumference of the exterior of the motor.

2. The electric motor of claim 1 wherein the throat region of each cavity comprises a region with a reduced width when viewed in cross-section to restrict the flow of air between the cavity and the region between a corresponding pair of projections extending from the surface adjacent to the cavity.

3. The electric motor of claim 1 or 2 wherein the plurality of cavities comprises a plurality of parallel channels.

4. The electric motor of claim 3 wherein the surface comprises a curved surface, the curvature of the curved surface being about a longitudinal axis, and wherein the plurality of parallel channels are parallel to the longitudinal axis.

5. The electric motor of claim 3 or 4 wherein the plurality of channels have a partially circular cross-section when viewed along their length.

6. The electric motor of claim 5 wherein the throat region is formed by a chord of the partially circular cross-section.

7. The electric motor of any of the previous claims wherein the plurality of projections comprises a plurality of fins extending from the surface.

8. The electric motor of claim 7 as dependent on claim 4, or any claim as dependent thereon, wherein each of the plurality of fins extends along and parallel to each channel.

9. The electric motor of claim 7 or 8 wherein each of the plurality of fins have a camber extending away from the surface adjacent to each cavity.

10. The electric motor of claim 9 wherein each of the plurality of fins have an aerofoil shape when viewed in a plane perpendicular to the surface.

11. The electric motor of claim 8, or any claim as dependent thereon, wherein the heatsink comprises a repeating pattern of channels and fins extending in a direction transverse to the longitudinal axis.

12. The electric motor of claim 11, wherein the heatsink comprises:

a first series of repeating channels and fins in a first portion of the heatsink occupying a first length of the longitudinal axis;

a second series of repeating channels and fins in a second portion of the heatsink occupying a second length of the longitudinal axis;

wherein the first and second series of repeating channels are offset with each other in a direction transverse to the longitudinal axis such that the channels and fins of the first and second series do not align in the longitudinal axis.

13. The electric motor of any of the previous claims, wherein the heatsink comprises a proximal region, a central region, and a distal region, and wherein the heatsink comprises a plurality of projections and cavities in the proximal and distal regions, but no cavities or projections in the central region.

14. The electric motor of any of claims 1 to 6 wherein the plurality of projections comprises a plurality of pyramidal structures extending from the surface.

15. The electric motor of any of the previous claims wherein each cavity comprises at least a pair of projections extending from the surface adjacent to and on opposing sides of each cavity.

16 The electric motor of any claims 1 to 6 and 14, wherein each cavity comprises two pairs of projections, each pair of projections extending from the surface adjacent to and on opposing sides of each cavity.

17. The electric motor of any of the previous claims wherein the projections diverge with increasing distance from the surface.

18. The electric motor of any of the previous claims wherein the projections taper with increasing distance from the surface.

19. The electric motor of any of the previous claims wherein each cavity comprises a region that converges with increasing distance from the surface to provide the throat region.

20. The electric motor of any of the previous claims wherein the distance between the projections increases with distance from the surface so that the air flow path between the projections increases in cross-section with increasing distance from the surface.

21. The electric motor of claim 3, or any claim as dependent thereon, comprising a means for blowing air along each of the plurality of channels.

22. The electric motor of any of the previous claims wherein the heatsink is in direct thermal contact with the stator windings of the electric motor.