CLAIMS

1. A battery tower (18) comprising:

three or more cell housings (10) stacked on top of one another, each cell housing defining at least one cell compartment (14) and a cooling duct (16) thermally coupled to the at least one cell compartment; and

a cooling duct connector (22) attached to each of the stacked cell housings to fluidly couple the cooling ducts of adjacently stacked cell housings;

wherein the cooling duct connector defines a plurality of separate conduits which each fluidly couple the cooling ducts of two adjacent stacked cell housings, each conduit defined by the cooling duct connector being fluidly isolated from the other conduits defined by the connector such that fluid communication between the conduits is only facilitated via the cooling ducts of the stacked cell housings.

2. The battery tower (18) of Claim 1, wherein each cooling duct (16) is a substantially u-shaped cooling duct comprising a first portion (16a) configured to flow fluid in a first direction and a second portion (16b) configured to flow fluid in a second direction that is substantially opposite to the first direction.

3. The battery tower (18) of Claim 2, wherein the first portion (16a) is a lower portion and the second portion (16b) is an upper portion, and wherein the first and second portions of each cooling duct (16) extend substantially horizontally in the cell housing (10).

4. The battery tower (18) of Claim 3, wherein the u-shaped cooling duct (16) of each cell housing (10) is defined at least in part by a channel (36) extending through the entire length of the cell housing and by an end cap (42) blocking one end of the channel.

5. The battery tower (18) of any of Claims 2 to 4, wherein the cooling duct connector (22) fluidly couples the first portion of the cooling duct (16a) of a cell housing (10) to the second portion of a cooling duct (16b) of an adjacently stacked cell housing.

6. The battery tower (18) of any preceding claim, wherein the cell housing (10) defines a plurality of cell compartments (14) in a stacked configuration on top of one another.

7. The battery tower (18) of any preceding claim, further comprising a plurality of cells (12), wherein each cell is located in a cell compartment (14) of a cell housing (10).

8. The battery tower (18) of Claim 7, wherein the respective cell (12) is bonded into the cell compartment (14) in which it is located.

9. The battery tower (18) of Claim 7 or Claim 8, wherein the cells (12) are pouch cells comprising a flexible outer skin (32) and two electrically conductive cell terminals (24).

10. The battery tower (18) of any preceding claim, wherein the cell housing (10) comprises a single monolithic component defining each of the cell compartments (14) and the cooling duct (16).

11. A battery pack (44) comprising at least two battery towers (18) as claimed in any preceding claim, wherein the at least two battery towers are arranged side by side.

12. The battery pack (44) of Claim 11, wherein the cooling ducts (16) and cooling duct connector (22) of a first battery tower (18a) define a first flow path and the cooling ducts and cooling duct connector of an adjacent second battery tower (18b) define a second flow path,

and wherein the battery pack (44) further comprises a lower transverse pipe (48) and an upper transverse pipe (50) connected to the cooling duct connectors of each battery tower to fluidly couple the first and second flow paths.

13. The battery pack (44) of Claim 12, further comprising a cooling fluid inlet (52) upstream of the first cooling duct defining the first flow path in the first battery tower (18a), and a cooling fluid outlet (54) downstream of the last cooling duct defining the second flow path in the second battery tower (18b).

14. The battery pack (44) of Claim 13, wherein the lower transverse pipe (48) is fluidly coupled to the first and second flow paths upstream of the respective first cooling ducts defining the first and second flow paths in the respective first and second battery towers (18a, 18b),

and wherein the upper transverse pipe (50) is fluidly coupled to the first and second flow paths downstream of the respective last cooling ducts defining the first and second flow paths in the respective first and second battery towers.

15. An electrical water heating system comprising a battery tower (18) as claimed in any of Claims 1 to 10 and/or a battery pack (44) as claimed in any of Claims 11 to 14.