CLAIMS

1. A battery pack (100) for mounting on a vehicle (200) comprising:

an elongated cell rack (105) comprising two or more battery cells (110) arranged therein, wherein two adjacent battery cells (110) of the two or more battery cells (110) are spaced apart by a distance selected between 1.0 mm and 5.0 mm;

a tubular battery case (115) at least partially surrounding the elongated cell rack (105);

a top seal cover (120) sealing a top portion (125) of the elongated cell rack (105);

a bottom seal cover (130) arranged at a bottom portion (135) of the elongated cell rack (105); and

a female pin receptacle (140) arranged on the bottom seal cover (130) at the bottom portion (135) of the elongated cell rack (105),

wherein the battery pack further comprises a bottom cover (155) arranged on the female pin receptacle (140).

2. The battery pack (100) of claim 1, further comprising a top cover (145) forming a first waterproof seal at the top portion (125) of the elongated cell rack (105).

3. The battery pack (100) of claim 1 or claim 2, wherein the bottom cover (155) is engageable with the female pin receptacle (140) and the bottom seal cover (130) to render the bottom portion (135) of the elongated cell rack (105) accessible for insertion of at least one male pin (220).

4. The battery pack (100) of any one of claims 1 to 3, further comprising a sealing gasket ring (162) positionable on the bottom cover (155).

5. The battery pack (100) of any one of claims 1 to 4, further comprising a battery capacity indicator (150).

6. The battery pack (100) of claim 5, wherein the battery capacity indicator (150) is positionable at the top portion (125) of the elongated cell rack (105).

7. The battery pack (100) of any one of claims 1 to 6, further comprising a first lubricating member (165) fixedly surrounding the bottom portion (135) of the elongated cell rack (105).

8. The battery pack (100) of any one of claims 1 to 7, further comprising a second lubricating member (170) fixedly surrounding the top portion (125) of the elongated cell rack (105).

9. The battery pack (100) of claim 8, wherein one or each of the first lubricating member (165) and the second lubricating member (170) is in the form of a sleeve and is made of self-lubricating material.

10. The battery pack (100) of any one of claims 1 to 9, further comprising a pivotable pull-ring (175) at the top portion (125) of the elongated cell rack (105).

11. The battery pack (100) of any one of claims 1 to 10, wherein the tubular battery case (115) comprises aluminum.

12. The battery pack (100) of any one of claims 1 to 11, wherein the tubular battery case (115) comprises or consists of a one-piece tubular segment.

13. A set (300) comprising a battery pack (100) for mounting on a vehicle (200), the set (300) comprising the battery pack (100) comprising:

an elongated cell rack (105) comprising two or more battery cells (110) arranged therein, wherein two adjacent battery cells (110) of the two or more battery cells (110) are spaced apart by a distance selected between 1.0 mm and 5.0 mm;

a tubular battery case (115) at least partially surrounding the elongated cell rack (105);

a top seal cover (120) sealing a top portion (125) of the elongated cell rack (105);

a bottom seal cover (130) arranged at a bottom portion (135) of the elongated cell rack (105); and

a female pin receptacle (140) arranged on the bottom seal cover (130) at the bottom portion (135) of the elongated cell rack (105),

and the set (300) further comprising:

a connector comprising a front end surface (230) and at least one male pin (220) protruding from the front end surface (230), the at least one male pin (220) being configured to

cooperate with the female pin receptacle (140) to provide an electrical connection, wherein the at least one male pin (220) has a complementary shape to the female pin receptacle (140) of the battery pack (100), wherein the battery pack (100) further comprises a bottom cover (155) arranged on the female pin receptacle (140).

14. The set (300) of claim 13, wherein the bottom cover (155) is engageable with the female pin receptacle (140) and the bottom seal cover (130) to render the bottom portion (135) of the elongated cell rack (105) accessible for insertion of the at least one male pin (220) and wherein the bottom cover (155) renders the bottom portion (135) to be engageable with the front end surface (230)to form a second waterproof seal.

15. The set (300) of claim 14, wherein the battery pack (100) further comprises a sealing gasket ring (162) positionable on the bottom cover (155), to form a third waterproof seal with the front end surface (230) from which the at least one male pin (220) protrudes by being pressed between the front end surface (230) and the female pin receptacle (140).

16. A vehicle (200) comprising the battery pack (100) of any one of claims 1 to 12 or the set (300) of any one of claims 13 to 15.

17. The vehicle (200) of claim 16, being an electric scooter.

18. The vehicle (200) of claim 16 or claim 17, further comprising a receptacle (210) configured to receive the battery pack (100).

19. The vehicle (200) of claim 18, wherein the receptacle (210) further comprises the at least one male pin (220) protruding from the front end surface (230).

20. A method (400) of swapping a first battery pack (100A) with a second battery pack (100B) in a vehicle (200), each of the first battery pack (100A) and the second battery pack (100B) comprising:

an elongated cell rack (105) comprising two or more battery cells (110) arranged therein, wherein two adjacent battery cells (110) of the two or more battery cells (110) are spaced apart by a distance selected between 1.0 mm and 5.0 mm;

a tubular battery case (115) at least partially surrounding the elongated cell rack (105);

a top seal cover (120) sealing a top portion (125) of the elongated cell rack (105);

a bottom seal cover (130) arranged at a bottom portion (135) of the elongated cell rack (105);

a female pin receptacle (140) arranged on the bottom seal cover (130) at the bottom portion (135) of the elongated cell rack (105); and

a bottom cover (155) arranged on the female pin receptacle (140),

wherein the method (400) comprises:

a first step (410) of retrieving the first battery pack (100A) from a receptacle (210) of the vehicle (200) by disconnecting the female pin receptacle (140) of the first battery pack (100A) from at least one male pin (220) protruding from a front end surface (230) of the receptacle (210),

a second step (420) of sliding the second battery pack (100B) into the receptacle (210) of the vehicle (200), and

a third step (430) of engaging the second battery pack (100B) with the vehicle (200) by connecting the at least one male pin (220) protruding from the front end surface (230) of the receptacle (210) with a female pin receptacle (140) of the second battery pack (100B).

21. A vehicle sharing system (500) comprising the vehicle (200) of any one of claims 16 to 19.

22. The vehicle sharing system (500) of claim 21, further comprising a battery charging station (510) configured to charge the battery pack (100) removed from the vehicle (200).