CLAIMS

1. A system (100), comprising a catheter (1), the catheter (1) comprising an elongate tubular portion (11) and at least one connected device (230), the elongate tubular portion (11) configured to be inserted into a patient's blood vessel and having a proximal end (21) and a distal end (22) and a lumen (12) extending from the proximal end (21) to the distal end (22), each connected device (230) connected to the elongate tubular portion (11) and having at least one cavity (13), wherein the at least one cavity (13) is in fluid communication with the lumen (12) of the elongate tubular portion (11),

wherein the system further comprises at least one sensor (15) for detecting an orientation of at least one of the elongate tubular portion (11) and the at least one connected device (230), and a control unit (5) configured to receive data from the at least one sensor (15) including the orientation detected by the at least one sensor (15), to determine whether the detected orientation matches an orientation in which air is releasable from the cavity (13) and to compute a difference of the detected orientation and a predetermined orientation to guide a user to change the orientation in order to approach the predetermined orientation.

2. The system of claim 1, wherein the control unit (5) is configured to display at least one of: a matching indicator representing the matching of a detected orientation with an orientation in which air is releasable from the cavity (13), the detected orientation, and a representation indicating the difference between the detected orientation and the predetermined orientation.

3. The system of claim 1 or 2, wherein the predetermined orientation is a vertical orientation or a conical range around a vertical axis defined by a predetermined angle.

4. The system of any one of claims 1 to 3, wherein the at least one sensor (15) is arranged in the connected device (230) and configured to detect an orientation of the connected device (230).

5. The system of any one of claims 1 to 4, wherein the at least one sensor (15) includes at least one of a gravity sensor, an accelerometer and a gyroscope.

6. The system of any one of claims 1 to 5, further comprising a pump unit (2), and a drive unit (4) to provide an intravascular blood pump (10) for percutaneous insertion into a patient's blood vessel, wherein the pump unit (2) is one of the at least one connected device (230) and is disposed at the distal end (22) of the elongate tubular portion (11) of the catheter (1) and comprises a cavity (13), the pump unit (2) including an impeller (18) which is rotatable about an axis of rotation to convey blood from a blood flow inlet (19) to a blood flow outlet (20) of the pump unit (2), and wherein the drive unit (4) is disposed in the at least one cavity (13) of a handle portion (3) which is another one of the at least one connected device (230) and which is coupled to a flexible drive shaft (16) so as to cause rotation of the impeller (18).

7. A method of preparing a catheter (1) for use in a patient, the catheter (1) comprising an elongate tubular portion (11) and a at least one connected device (230), the elongate tubular portion (11) being configured to be inserted into a patient's blood vessel and having a proximal end (21) and a distal end (22) and a lumen (12) extending from the proximal end (21) to the distal end (22), each of the at least one connected device (230) connected to the elongate tubular portion (11) and having at least one cavity (13), wherein the at least one cavity (13) is in fluid communication with the lumen (12) of the elongate tubular portion (11),

the method comprising the steps of:

- supplying a fluid (30) into at least one of (a) the at least one cavity (13) of at least one of the at least one connected device (230) and (b) the lumen (12) of the elongate tubular portion (11) to purge at least one of the at least one cavity (13) and the lumen (12);
- detecting an orientation of at least one of the elongate tubular portion (11) and the at least one connected device (230);
- determining whether the detected orientation matches an orientation in which air is releasable from the cavity (13); and
- computing a difference between the detected orientation and a predetermined orientation to guide a user to change the orientation in order to approach the predetermined orientation.

8. The method of claim 7, further comprising displaying at least one of: a matching indicator representing the matching of a detected orientation with an orientation in which air is releasable from the cavity (13), the detected orientation, and a representation indicating a difference between the detected orientation and the predetermined orientation.

9. The method of claim 7 or 8, wherein the predetermined orientation is a vertical orientation or a conical range around a vertical axis defined by a predetermined angle.

10. The method of any one of claims 7 to 9, wherein the fluid supply is activated, when the detected orientation matches the predetermined orientation, and the fluid supply is deactivated, when the detected orientation differs from the predetermined orientation.

11. The method of any one of claims 7 to 10, further comprising measuring a volume of the supplied fluid (30).

12. The method of any one of claims 7 to 11, wherein the orientation is detected by means of at least one sensor (15), wherein the at least one sensor (15) includes at least one of a gravity sensor, an accelerometer and a gyroscope.

13. The method of claim 12, wherein the at least one sensor (15) is arranged in at least one of a handle portion (3) and a pump unit (2) and the elongate tubular portion (11).

14. The method of claim 13, wherein the handle portion (3) is one of the at least one connected device (230) and the pump unit (2) is another one of the at least one connected device (230).

15. The method of claim 14, wherein the sensor includes a camera.

16. The method of claim 15, wherein the camera is arranged outside of the handle portion (3) and the pump unit (2) and the elongate tubular portion (11).

17. The system of claim 6, wherein the pump unit (2) is an expandable pump unit with the impeller (18) being coupled to a flexible drive shaft (16) which extends through the lumen (12) of the elongate tubular portion (11) of the catheter (1).