CLAIMS

1. A method of manufacturing a cannula (4) for an intravascular blood pump for percutaneous insertion into a patient's blood vessel, the cannula (4) having an elongate tubular body with a blood flow inlet and a blood flow outlet, the method comprising the steps of:

- forming a first axial section (13) of the elongate tubular body by dispensing a first liquid material onto a mandrel (7) by means of at least one dispenser (8), while the mandrel (7) and the dispenser (8) move relative to each other in an axial direction and a circumferential direction of the mandrel (7),

- forming a second axial section (15) of the elongate tubular body by dispensing a second liquid material onto the mandrel (7) by means of the at least one dispenser (8), while the mandrel (7) and the dispenser (8) move relative to each other in an axial direction and a circumferential direction of the mandrel (7),

wherein the first and second axial sections (13, 15) are formed so as to have different bending stiffnesses, and wherein the first and second liquid materials are dispensed onto the mandrel (7) such that the first and second liquid materials blend into each other to form a transition area (14).

2. The method of claim 1, wherein the first and second liquid materials are dispensed onto the mandrel (7) to form a first wall thickness of the first axial section (13) and a second wall thickness of the second axial section (15), respectively, wherein the first wall thickness, when dried, is different from the second wall thickness, when dried, and the different bending stiffnesses result from the different wall thicknesses.

3. The method of claim 1 or 2, wherein the first and second liquid materials are different and the different bending stiffnesses result from the different materials.

4. The method of any one of claims 1 to 3, wherein the mandrel (7) is rotated about its longitudinal axis, preferably at a speed of 10 to 15 rpm, preferably about 12 rpm.

5. The method of any one of claims 1 to 4, wherein the dispenser (8) is moved in an axial direction along the mandrel (7) while dispensing the first and second liquid materials.

6. The method of any one of claims 1 to 5, further comprising the step of forming a base layer (10) that extends along the entire length of the cannula's body by dispensing a third liquid material onto the mandrel (7), wherein the base layer (10) is preferably formed by dispensing a substantially uniform amount of the third liquid material with respect to the length of the mandrel (7), wherein the base layer (10) preferably has a thickness of 50 µm to 100 µm, when dried.

7. The method of any one of claims 1 to 6, further comprising the step of forming a stiffening structure (16) by dispensing a fourth liquid material in a helical path on the mandrel (7), wherein the first and second liquid materials are preferably dispensed both before and after dispensing the fourth material so as to embed the stiffening structure (16) in the cannula's body.

8. The method of any one of claims 1 to 7, wherein at least one of the first and second liquid materials comprises a solvent that evaporates after dispensing the first and second liquid materials, respectively, wherein the proportion of the solvent is at least 70 vol%, preferably at least 80 vol%, more preferably at least 90 vol%.

9. The method of any one of claims 1 to 8, wherein at least one of the first and second axial sections (13, 15) is formed by dispensing at least five, preferably at least ten, up to twenty layers of the first and second liquid materials, respectively.

10. The method of any one of claims 1 to 9, wherein the mandrel (7) has a circumferential shoulder (24) interconnecting two axially adjacent parts (7a, 7b) of the mandrel (7) with different diameters, wherein the two axially adjacent parts (7a, 7b) of the mandrel (7) are preferably separated from each other to remove the cannula (4) from the mandrel (7).

11. The method of any one of claims 1 to 10, further comprising the step of forming at least one marking (17) arranged on the cannula's body, wherein the at least one marking

is visually perceptible or radiopaque, wherein the at least one marking (17) is preferably formed by dispensing a liquid material by means of the dispenser (8).

12. The method of any one of claims 1 to 11, further comprising the step of forming a lumen (19) extending in the wall of the cannula's body by embedding an elongate element (20) in the wall of the cannula's body.

13. The method of any one of claims 1 to 12, further comprising the step of forming at least one aperture in the cannula's body by dispensing a liquid material onto the mandrel (7), optionally without rotating the mandrel (7) while dispensing said liquid material.

14. The method of any one of claims 1 to 13, further comprising the step of attaching the cannula (4) to a housing (1a) of a pumping device (1) of an intravascular blood pump.

15. A cannula (4) for an intravascular blood pump, obtained by the method of any one of claims 1 to 14, the cannula (4) having an elongate tubular body with a blood flow inlet and a blood flow outlet, the body comprising a first axial section (13) comprising a first material and a second axial section (15) comprising a second material, wherein the first and second axial sections (13, 15) have different bending stiffnesses, and wherein the first and second materials blend into each other in a transition area (14) with no distinct borders between the first and second axial sections (13, 15), wherein the first axial section (13) has a first wall thickness, and the second axial section (15) has a second wall thickness, the first and second axial sections (13, 15) differing in both the material and the wall thickness, wherein the different bending stiffnesses result from the differing materials and the differing wall thicknesses.

16. The cannula of claim 15, wherein the first and second materials are different and axially overlap in the transition area (14).

17. The cannula of claim 15 or 16, wherein the first axial section (13) is a proximalmost section or a distalmost section of the cannula's body and has a greater bending stiffness than the second axial section (15) or the rest of the elongate tubular body.

18. The cannula of any one of claims 15 to 17, wherein the elongate tubular body comprises an embedded stiffening structure (16) made of a plastic material.

19. The cannula of any one of claims 15 to 18, wherein the elongate tubular body comprises a helical wire, preferably made of metal, more preferably made of Nitinol.

20. The cannula of any one of claims 15 to 19, comprising at least one marking (17) extending on or embedded in the elongate tubular body, wherein the at least one marking (17) is visually perceptible or radiopaque.

21. The cannula of any one of claims 15 to 20, wherein the elongate tubular body has a circumferential shoulder (18) interconnecting two axially adjacent sections of the elongate tubular body with different diameters.

22. The cannula of any one of claims 15 to 21, wherein the elongate tubular body comprises at least one lumen (19) extending in a wall of the elongate tubular body.

23. The cannula of any one of claims 15 to 22, wherein the elongate tubular body has a wall thickness in the range from 50 µm to 500 µm.

24. The cannula of any one of claims 15 to 23, attached to a housing (1a) of a pumping device (1) of an intravascular blood pump.

25. An intravascular blood pump for percutaneous insertion into a patient’s blood vessel, comprising a cannula (4) of any one of claims 15 to 24.