CLAIMS

1. An intravascular blood pump (1) for percutaneous insertion into a patient's blood vessel, comprising:

a pump casing (2) having a blood flow inlet (21) and a blood flow outlet (22),

an impeller (3) arranged in said pump casing (2) so as to be rotatable about an axis of rotation (10), the impeller (3) having blades (31) sized and shaped for conveying blood from the blood flow inlet (21) to the blood flow outlet (22),

a drive unit (4) for rotating the impeller (3), the drive unit (4) comprising a plurality of posts (40) arranged about the axis of rotation (10) and a back plate (50) connecting rear ends (450) of the posts (40), wherein the posts (40) and the back plate (50) form a magnetic core (400) of the drive unit (4), and

a coil winding (44) disposed around each of the posts (40), the coil windings (44) being controllable so as to create a rotating magnetic field,

wherein the impeller (3) comprises a magnetic structure (32) arranged to interact with the rotating magnetic field so as to cause rotation of the impeller (3), and

characterized in that the magnetic core (400) or a part of it comprises or consists of a discontinuous soft magnetic material which is discontinuous regarding electric conductivity in a cross-section, wherein at least one weld (82, 83, 86) is provided at a surface (811) of the discontinuous soft magnetic material, the weld (82, 83, 86) bridging at least one discontinuity regarding electric conductivity in the discontinuous soft magnetic material.

2. Intravascular blood pump (1) according to claim 1, wherein at least one of the at least one weld (82, 83, 86) is arranged at a rear end surface (45) of the posts.

3. Intravascular blood pump (1) according to claim 1, wherein at least one of the at least one weld (82, 83, 86) is arranged at an impeller-side end surface of the posts (40).

4. Intravascular blood pump (1) according to claim 1, wherein at least one of the at least one weld (82, 83, 86) is arranged at an impeller-side end surface of the posts (40) and at least one further weld (82, 83, 86) is arranged at the rear end surface (45) of the posts (40).

5. Intravascular blood pump (1) according to any one of the preceding claims, wherein two of the at least one weld (82, 83, 86) are arranged at one end of the posts (40) spaced apart from each other.

6. Intravascular blood pump (1) according to any one of the preceding claims, wherein at least one of the at least one weld (82, 83, 86) extends over a side surface of the posts (40), preferably at least partially surrounding at least one of the posts (40).

7. Intravascular blood pump (1) according to any one of the preceding claims, wherein more than one of the at least one weld (82, 83, 86) is arranged on a same surface side of the posts (40).

8. Intravascular blood pump according to any one of the preceding claims, wherein the at least one weld (82, 83, 86) comprises a weld seam bridging the at least one discontinuity regarding electric conductivity in the discontinuous soft magnetic material.

9. Intravascular blood pump (1) according to any one of the preceding claims, wherein at least one of the posts (40) comprises laminations of soft magnetic material with soft magnetic sheets (85) oriented parallel to a longitudinal axis (LA) thereof.

10. Intravascular blood pump (1) according to claim 9, wherein the at least one of the posts (40) has a triangular cross section (84) in a direction transverse to the axis of rotation (10) and the soft magnetic sheets (85) of soft magnetic material are oriented in or parallel to a plane through a bisecting line (B) of the triangular cross section (84).

11. Method of manufacturing a magnetic core (400), or a part of the magnetic core (400), for a drive unit (4) of an intravascular blood pump (1), in particular for an intravascular blood pump (1) according to any one of claims 1 to 10, characterized by the following steps:

- providing a work piece (8, 81) of discontinuous soft magnetic material which is discontinuous regarding electric conductivity in a cross-section of the work piece (8, 81) and from which the magnetic core (400), or the part of a magnetic core (400), is to be manufactured, and
- providing a weld (82, 83, 86) at a surface (811) of the work piece (8, 81) such that the weld (82, 83, 86) bridges at least one discontinuity regarding electric conductivity in the discontinuous soft magnetic material of the work piece (8, 81).

12. Method according to claim 11, wherein the magnetic core (400) or the part of the magnetic core (400) is separated out of the work piece (8, 81) after providing the weld.

13. Method according to claim 12, wherein at least a part of the weld (82, 83, 86) remains at the magnetic core (400) or the part of the magnetic core (400) after separating the magnetic core (400) or the part of the magnetic core (400) out of the work piece (8, 81).

14. Method according to claim 12 or 13, wherein the step of separating the magnetic core (400) or the part of the magnetic core (400) out of the work piece (8, 81) comprises separating at least one post (40) out of the work piece (8, 81) by electric discharge machining.

15. Method according to any one of claims 12 to 14, wherein the at least one weld (82, 83, 86) is produced by laser welding or by two-fold application of a welding laser, especially two-fold laser welding.