

Claims

- 5 1. An external drive unit (7) for an implantable heart assist pump (4) comprising

a motor (35) for driving the heart assist pump, wherein the motor (35) is connectable to the heart assist pump via a transcutaneous drive shaft (3),

characterized by a heat spreader (19) comprising a contact surface configured to contact a skin of a patient, wherein the contact surface is connected or connectable with the motor (35) in a thermally-conductive manner to transfer heat generated by the motor (35) to tissue of the patient.
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2. The drive unit (7) of claim 1, characterized in that a surface area of the contact surface is at least 25 cm², preferably at least 50 cm².
3. The drive unit (7) of any one of claims 1 or 2, characterized in that the heat spreader (19) is flexible at least in areas.
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4. The drive unit (7) of any one of claims 1 to 3, characterized in that the heat spreader (19) is a foil or a patch.
5. The drive unit (7) of any one of claims 1 to 4, characterized in that the heat spreader (19) comprises a thermally conductive layer (31), wherein the thermally conductive layer (31) contains pyrolytic carbon and/or a metal, in particular copper and/or aluminium.
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6. The drive unit (7) of any one of claims 1 to 5, characterized in that the heat spreader (19) comprises a biocompatible coating (32).
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7. The drive unit (7) of any one of claims 1 to 6, characterized in that the heat spreader (19) comprises an adhesive surface for attaching the heat spreader (19) to the skin.
8. The drive unit (7) of any one of claims 1 to 7, characterized in that the heat spreader (19) comprises openings (40, 40') or recesses to allow for an evaporation of sweat from the skin.
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9. The drive unit (7) of claim 8, characterized in that the openings (40, 40') are elongated.
10. The drive unit (7) of any one of claims 1 to 9, characterized in that the heat spreader (19) comprises a sweat absorbent material (34), in particular a textile.
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- 5 11. The drive unit (7) of any one of claim 1 to 10, characterized in that the motor (35) comprises a stator (37) and a rotatably mounted rotor (36) connectable to the drive shaft (3), wherein a fluid gap (43) is formed between the rotor (36) and the stator (37), wherein the fluid gap (43) is in fluid connection with a purge opening (42) for injecting a purge medium into the fluid gap (43).
- 10 12. The drive unit (7) of claim 11, characterized in that a width of the fluid gap (43) is at most 1 mm.
13. The drive unit (7) of any one of claims 11 or 12, characterized in that a width of the fluid gap (43) is at least 0.1 mm.
- 15 14. The drive unit (7) of any one of claims 1 to 13, characterized in that the heat spreader (19) comprises a heat pipe.
- 20 15. A heart assist device (1) comprising the drive unit (7) of any one of the previous claims and the implantable heart assist pump (4).