

CLAIMS

1. An intravascular blood pump (1), comprising:
a catheter (5);
a housing (11) in which a rotor (10) is housed, the housing (11) being attached to a
5 distal end of the catheter (5); and
a flexible drive shaft (12) extending through the catheter (5) and connected to the rotor
(10), said drive shaft (12) comprising at least one outer layer (28) and at least one
inner layer (29),
wherein the drive shaft (12) is rotatably supported in a proximal bearing (13) located
10 proximally of the rotor (10) and wherein the at least one outer layer (28) of the drive
shaft (12) is absent or thinned at a location where the drive shaft (12) is supported in
the proximal bearing (13).
2. The intravascular blood pump (1) according to claim 1, wherein at least one of the at
least one inner layer (29) and the at least one outer layer (28) comprises or consists of
15 a wire.
3. The intravascular blood pump (1) according to claim 1 or 2, wherein the drive shaft
(12) is at least partly filled with a sealant penetrating into the at least one inner layer
(29).
4. The intravascular blood pump (1) according to any one of claims 1 to 3, comprising a
20 purge fluid supply line arranged to supply purge fluid such that the purge fluid flows
through the proximal bearing (13).
5. The intravascular blood pump (1) according to any one of claims 1 to 4, wherein, at
the location where the at least one outer layer (28) of the drive shaft (12) is absent or
thinned, a bearing sleeve (30) surrounds the at least one inner layer (29) or the thinned
25 at least one outer layer (28) and said bearing sleeve (30) forms an inner surface of the
proximal bearing (13).
6. The intravascular blood pump (1) according to claim 5, wherein the at least one inner
layer (29) is axially disconnected inside the bearing sleeve (30).

7. The intravascular blood pump (1) according to claim 5 or 6, wherein the bearing sleeve (30) is fixedly connected to the at least one inner layer (29) or the thinned at least one outer layer (28) of the drive shaft (12).
- 5 8. The intravascular blood pump (1) according to any one of claims 5 to 7, wherein the bearing sleeve (30) comprises at least one of the following materials: ceramics and metals.
9. The intravascular blood pump (1) according to any one of claims 5 to 8, wherein the intravascular blood pump (1) comprises at least one protective ring (31) extending
10 over both the at least one outer layer of the drive shaft (12) and a portion of the bearing sleeve (30).
10. The intravascular blood pump (1) according to claim 9, wherein the protective ring (31) is fixedly connected to the drive shaft (12).
11. The intravascular blood pump (1) according to claim 9 or 10, wherein the protective
15 ring (31) comprises at least one of the following materials: ceramics and metals.
12. The intravascular blood pump (1) according to any one of claims 9 to 11, wherein the protective ring (31) provides an axial bearing surface of the proximal bearing (13).
13. The intravascular blood pump (1) according to any one of claims 9 to 12, wherein two different adhesives are used in the intravascular blood pump (1):
20 - a first adhesive penetrating the inner layer (29); and
- a second adhesive connecting at least one of the bearing sleeve (30) and the at least one protective ring (31) to the drive shaft (12).
14. The intravascular blood pump (1) according to any one of claims 9 to 13, wherein the bearing sleeve (30) extends into the rotor (10).
- 25 15. The intravascular blood pump (1) according to any one of claims 1 to 14, wherein a radial bearing gap between the outer bearing ring (32) and the bearing sleeve (30) is between 1 μm and 10 μm , preferably between 2 μm and 8 μm wide.