CLAIMS

1. An implantable medical device ~~for transcatheter delivery~~ including:

an anchor unit ~~(100)~~ configured to be permanently anchored at a cardiac valve of a patient,

~~at least one locking unit (300) for fixation of tissue of said cardiac valve and/or fixation of at least a part of a shape of said anchor unit (100) and/or for connection to a further unit via at least one coupling unit (200), wherein said further unit is preferably a cardiac valve replacement or repair unit (600) and/or a driving unit (500) such as of a cardiac assist device, and~~

~~said at least one coupling unit (200) being~~ at least one locking unit, and

a plurality of coupling units of fixed ~~permanent length or non-reversibly~~ or adjustable length ~~before locking said coupling unit (200) to said fixed permanent length~~ for connecting said anchor unit ~~(100)~~ to said at least one ~~of said~~ locking unit ~~(300);~~

~~and said~~; each coupling unit ~~(200)~~ having a first end portion and a second end portion, said first end portion connectable to said anchor unit ~~(100), and~~

~~said second end portion including said~~ , and said second end portion including said at least one locking unit, wherein the first end portion of each of the coupling units pivotably connects the coupling unit to different positions at the anchor unit, and the second end portion of the coupling units connected to each other by the at least one the locking unit ~~(300)~~.

2. The device of claim 1, wherein said anchor unit ~~(100)~~ is a flexible anchor unit ~~(100)~~ and said at least one coupling unit ~~(200) and said fixation includes stabilizing~~stabilizes said anchor unit ~~(100)~~ when said coupling unit ~~(200)~~ is connected to said anchor unit ~~(100)~~ and locked by said locking unit ~~(300), such as~~.

3. The device of claim 2, wherein said coupling unit includes at least one lockable arm.

4. The device of claim 2, wherein said coupling unit is locked by said locking unit to at least one other coupling unit ~~(200) or~~.

5. The device of claim 2, wherein said coupling unit is locked by said locking unit to a portion of said anchor unit ~~(100)~~ remote ~~of~~from said first end ~~position at~~portion of said ~~anchor~~coupling unit ~~(100). .~~

~~3. The device of claim 2, wherein said coupling unit (200) includes at least one lockable arm for said fixation of said shape of said anchor unit (100), such as a second end portion is locked to said anchor unit (100) at a different position than said first end portion for stabilizing said anchor unit (100), preferably by a locking unit (300), such as remote of said first end portion.~~

~~4. The device of any of claims~~ 6. The device of claim 1~~-3~~, wherein said coupling unit ~~(200)~~ includes at least one ~~preferably lockable~~ arm connectable at a first end to said anchor unit ~~(100)~~ and connectable remote of said first end to at least one leaflet of said valve for ~~said~~ fixation of tissue of said cardiac valve.

~~5.~~7. The device of ~~any of claims~~claim 1~~-4, wherein said~~, further ~~unit is said~~comprising a driving unit ~~(500), such as of a cardiac assist device,~~that is connectable to said at least one coupling unit ~~(200), such as at said second end portion, preferably by said locking unit (300), wherein said coupling unit (200) is preferably at least one arm~~.

~~6.~~8. The medical device of claim ~~5~~7, wherein said locking unit ~~(300)~~ includes an attachment element for releasably connecting said ~~cardiac assist device (500)~~ driving unit to said anchor unit ~~(100)~~

~~7.~~9. The medical device of claim ~~5 or 6~~7, wherein said coupling unit ~~(200)~~ comprises at least one freely pivoting and/or rotating joint.

~~8. The medical device of any of claims 1-7, including a plurality of coupling units (200), said first end portion of each of said coupling units (200) preferably including an attachment unit (250) pivotably connecting said coupling unit (200) to different positions at said anchor unit (100), and said second end portion of said coupling units (200) connected to each other by at least one of said locking units (300).~~

~~9. The medical device of any of claims 1-8~~

10. The medical device of claim 1, wherein said coupling unit ~~(200)~~ includes an extension unit ~~(400)~~ configured to extend from an annulus of said cardiac valve towards the apex of said heart~~, said~~.

11. The medical device of claim 10, wherein said extension unit ~~(400) preferably having a different thickness at different longitudinal positions.~~

~~10. The medical device of claim 9, wherein said extension unit (400)~~ has said locking unit ~~(300)~~ arranged to fixate at least one leaflet and/or chordae to said extension unit ~~(400)~~ to limit a range of motion thereof during the cardiac cycle.

~~11.~~12. The medical device of claim ~~9 or~~ 10, wherein said locking unit ~~(300)~~ is a device for gathering tissue of cardiac valve leaflet tissue of said cardiac valve and adapted to be attached to said extension unit ~~(400)~~ and said leaflet tissue.

~~12.~~13. The medical device of ~~any of claims~~claim 1~~-11~~, wherein said locking unit ~~(300)~~ includes a suture ~~(60)~~ having a looped portion, a clip, a clamp adapted to be crimped around one or more leaflets and/or ~~said~~an extension unit ~~(400).~~.

~~13.~~ 14. The medical device of ~~any of claims~~claim 1~~-12~~, wherein said first end including an attachment unit ~~(250)~~ for attaching said first end to said anchor unit ~~(100)~~

~~14.~~15. The medical device of ~~any of claims~~claim 1~~-13~~, wherein said anchor unit ~~(100),~~, when implanted, is connected to a further unit~~, such as a cardiac valve replacement or repair unit (600),~~ via said at least one coupling unit ~~(200).~~.

~~15.~~16. The medical device of ~~any of claims 1-14~~claim 15, wherein said cardiac valve replacement or repair unit is arranged rotatably within a circumference of said anchor unit.

17. The medical device of claim 1, wherein said at least one coupling unit ~~(200)~~ is arranged to limit movement of a cardiac valve replacement or repair unit ~~(600)~~ relative said anchor unit ~~(100).~~.

~~16.~~18. The ~~medical~~ device of claim ~~14 or 15~~1, wherein said ~~cardiac valve replacement or repair~~locking unit ~~(600) is arranged rotatably within~~fixes a ~~circumference~~part of a shape of said anchor unit ~~(100), such as to provide a threaded rotational movement of said cardiac valve replacement or repair unit (600) during a cardiac cycle~~

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~~17. The~~

19. An implantable medical device ~~of claim 1,~~ including:

~~wherein said anchor unit (100) is a flexible~~ an anchor unit ~~(100) including an annuloplasty implant~~ configured to be permanently anchored at ~~an annulus of~~ a cardiac valve of a patient,

at least one locking unit ~~(300),~~ and

at least one coupling unit ~~(200)~~of fixed or adjustable length for connecting said anchor unit ~~(100)~~ to the said at least one locking unit ~~(300);~~

~~said~~; the coupling unit ~~(200) preferably includes at least one lockable arm, and including~~having a first end portion and a second end portion, said first end portion connectable to said anchor unit ~~(100),~~ and said second end portion including said at least one locking unit ~~(300), such that at least a part of a shape of said anchor unit (100) is fixed when said anchor unit (100),~~and the coupling unit ~~(200) and locking unit (300) are connected for stabilizing said anchor unit (100) at said~~is configured to extend from an annulus~~.~~ of the cardiac valve towards the apex of the heart.

~~18. The~~

20. An implantable medical device ~~of claim 1,~~ including:

~~said at least one locking unit (300) being for fixation of tissue of said cardiac valve, and~~

~~wherein said coupling unit (200) is connectable at said first end portion to said~~ an anchor unit ~~(100) and connectable remote of said first end portion to said tissue of said cardiac valve by said locking unit (300).~~

~~19. A system including:~~

~~an implantable medical device including an anchor unit (100)~~ configured to be permanently anchored at a cardiac valve of a patient, at least one locking unit ~~(300),~~ and at least one coupling unit ~~(200)~~of fixed or adjustable length for connecting ~~said~~the anchor unit ~~(100)~~ to the at least one locking unit ~~(300), said~~; the coupling unit ~~(200), preferably being at least one locking arm,~~ having a first end portion and a second end portion, ~~said~~the first end portion connectable to ~~said~~the anchor unit ~~(100),~~ and ~~said~~the second end portion including ~~said~~the locking unit ~~(300);~~; and

~~a driving unit (500), such as of a cardiac assist device, releasably or permanently connected to said at least one coupling unit (200), at said second end portion by said locking unit (300).~~

~~20. A system including:~~

~~an implantable medical device including an~~the anchor unit ~~(100) configured to be permanently anchored at a cardiac valve of a patient, at least one locking unit (300), and at least one coupling unit (200) for connecting said anchor unit (100) to at least one locking unit (300), said coupling unit (200), preferably being at least one locking arm, having a first end portion and a second end portion, said first end portion connectable to said anchor unit (100), and said second end portion including said locking unit (300); and~~

~~said anchor unit (100) being~~is connected to a further unit~~, such as a cardiac valve replacement (600) or repair unit (600),~~ via ~~said~~the at least one coupling unit ~~(200).~~.

~~21. A delivery system including a delivery catheter (130) including at least one coupling unit (200) of any of the previous claims 1-20 loaded in said catheter (130) for insertion into heart cavities such as a left or right atrium of a heart, wherein said coupling unit (200) is attached to an anchor unit (100) also loaded inside the delivery catheter (130) or attachable to a previously implanted anchor unit (100), and optionally a locking unit (300) and/or an extension unit (400).~~

~~22. An implantable medical device, including:~~

~~an annuloplasty implant configured to be permanently anchored at an annulus of a cardiac valve of a patient,~~

~~at least one locking unit (300) and at least one coupling unit (200) for connecting said anchor unit (100) to said at least one locking unit (300);~~

~~said coupling unit (200) preferably includes at least one lockable arm, and including a first end portion and a second end portion, said first end portion connectable to said anchor unit (100), and said second end portion including said locking unit (300), such that at least a part of a shape of said anchor unit (100) is fixed when said anchor unit (100), coupling unit (200) and locking unit (300) are connected for stabilizing said anchor unit (100) at said annulus.~~

~~23. An implantable medical device including:~~

an anchor unit (100) configured to be permanently anchored at a cardiac valve of a patient,

at least one locking unit (300) for fixation of tissue of said cardiac valve, and

at least one coupling unit (200) for connecting said anchor unit (100) to at least one locking unit (300);

said coupling unit (200) having a first end portion,

wherein said coupling unit (200) is connectable at said first end portion to said anchor unit (100) and connectable remote of said first end portion to said tissue of said cardiac valve by said locking unit (300).

24. A system including:

an implantable medical device including an anchor unit (100) configured to be permanently anchored at a cardiac valve of a patient, at least one locking unit (300), and at least one coupling unit (200) for connecting said anchor unit (100) to at least one locking unit (300), said coupling unit (200), preferably being at least one locking arm, having a first end portion and a second end portion, said first end portion connectable to said anchor unit (100), and said second end portion including said locking unit (300); and

a driving unit (500), such as of a cardiac assist device, releasably or permanently connected to said at least one coupling unit (200), at said second end portion by said locking unit (300).

25. A system including:

an implantable medical device including an anchor unit (100) configured to be permanently anchored at a cardiac valve of a patient, at least one locking unit (300), and at least one coupling unit (200) for connecting said anchor unit (100) to at least one locking unit (300), said coupling unit (200), preferably being at least one locking arm, having a first end portion and a second end portion, said first end portion connectable to said anchor unit (100), and said second end portion including said locking unit (300); and

said anchor unit (100) being connected to a further unit, such as a cardiac valve replacement (600) or repair unit (600), via said at least one coupling unit (200).

26. A medical procedure of implanting a medical device of any of claims 1-18, including providing a delivery system according to claim 21, navigating with the delivery catheter (130) to a delivery site adjacent to a cardiac valve of a patient, releasing an anchor unit (100)

~~and/or at least one coupling unit (200) at said delivery site, securing said coupling unit (200) by an attachment unit (250) to said anchor unit (100), advancing a locking unit (300) through said delivery catheter (130) to said coupling unit (200), and fixating said coupling unit (200) securely by said locking unit (300).~~

~~27. A method of improving function of a cardiac valve, including providing a medical device of any of claims 1-18 and with or by means of said medical device providing one or more of following actions a) to d)::~~

~~a) stabilizing a flexible anchor unit (100); in particular with a device of any of claims 2, 3, 17 and/or 22;~~

~~b) fixation of cardiac tissue to an anchor unit (100), in particular with a device of any of claims 4, 10, 18, and/or 23;~~

~~c) providing cardiac assist by connecting a cardiac assist device (500) to an anchor unit (100), in particular with a device of any of claims 5, 6, 19 or 24; and/or~~

~~d) connecting an anchor unit (100) to a cardiac valve replacement or repair unit (600), in particular with a device of claims 14, 15, 16, 20 and/or 25.~~