IN THE CLAIMS

1. (currently amended) A wing unit, in particular a spar box, for forming ~~on~~ an aerodynamically active surface of an aircraft, in particular airfoils, horizontal tail units, or rudder units of a plane, comprising:

an upper shell and a lower shell, the upper shell and the lower shell forming the ~~aerodyanically~~ aerodynamically active surface ~~and at least one actuating member,~~ ;

at least two ribs;

at least two actuating members; and

at least two spars;

wherein in a region between the upper shell and the lower shell the at least ~~one~~ two actuating members ~~is~~ are arranged for modifying the surface geometry of the aerodynamically active surface ~~and/~~or the mechanical properties of the wing unit, or both the surface geometry of the aerodynamically active surface and the mechanical properties of the wing unit~~.~~;

wherein between the at least two ribs, the at least two actuating members are arranged crosswise for forming a tension shear; and

wherein the at least two actuating members are arranged substantially in parallel to the at least two spars.

2. (currently amended) The wing unit according to claim 1, wherein the at least ~~one~~ two actuating members ~~is~~ are adapted in such a way that a surface geometry of an aerodynamically active surface is changeable by using a control and regulation device, depending on loading states prevailing in the wing unit.

3. (currently amended) The wing unit according to claim 1, wherein the at least ~~one~~ two actuating members ~~is~~ are adapted in such a way that a bending/torsion coupling of the

wing unit is changeable by a control and regulation device, depending on the loading states prevailing in the wing unit.

4. (currently amended) The wing unit according to claim 1, ~~further comprising:~~wherein at least one spar is arranged between the upper shell and the lower shell.

5. (currently amended) The wing unit according to claim 1, ~~further comprising:~~wherein at least one rib is arranged between the upper shell and the lower shell.

6. (currently amended) The wing unit according to claim 4, wherein the at least one spar is shear flexible in the region of at least one of the at least ~~one~~ two actuating members.

7. (currently amended) The wing unit according to claim 5, wherein the at least one rib is transverse force flexible in the region of at least one of the at least ~~one~~ two actuating members.

8. (currently amended) The wing unit according to claim 1, wherein a dimension of the at least ~~one~~ two actuating members is variable by a control and regulation device.

9. (currently amended) The wing unit according to claim 1, further comprising~~:~~ two ribs~~,~~ and a spar, wherein the two ribs are arranged between the upper shell and the lower shell, wherein the spar is arranged between the upper shell and the lower shell, wherein between the two ribs at least one of the at least ~~one~~ two actuating members is arranged, and wherein at least one of the at least ~~one~~ two actuating members is arranged substantially in parallel to the spar.

10-11. (cancelled)

12. (withdrawn) The wing unit according to claim 1, further comprising: a rib, wherein the rib is arranged between the upper shell and the lower shell, wherein that at least one actuating member is arranged substantially parallel to the rib in the region between the upper shell and the lower shell.

13. (withdrawn) The wing unit according to claim 1, further comprising: at least two actuating members; and at least one rib; wherein the rib is arranged between the upper shell and the lower shell; and wherein the at least two actuating members are arranged crosswise to each other substantially in parallel to the at least one rib for forming a tension shear field.

14. (currently amended) The wing unit according to claim 1, wherein at least one of the at least ~~one~~ two actuating members is rod-shaped.

15. (currently amended) The wing unit according to claim 1, wherein at least one of the at least ~~one~~ two actuating members comprise~~s~~ at least one actuator, wherein the at least one actuator is adapted to vary a length of the at least one actuating member.

16. (currently amended) The wing unit according to claim 15, wherein the at least one actuator is formed with at least one piezoelectric element~~,~~ selected from the group consisting of~~in~~ particular piezoelectric stacks, piezoelectric plates, and piezoelectric filaments ~~and/or~~ with at least one shape memory element, wherein the at least one piezoelectric element is adapted in such a way that it is operateable through control signals generated by a control and regulation device.

17. (currently amended) The wing unit according to claim 16, wherein the control signals for the at least one

actuator are electrical voltages ~~and/~~or electrical currents, or both electrical voltages and electrical currents.

18. (currently amended) The wing unit according to claim 1, wherein at least one of the at least ~~one~~ two actuating members comprises at least one sensor, wherein the at least one sensor is adapted to detect loading states in the at least one actuating member ~~and/~~or a length variation of the at least one actuating member, or both loading states in the at least one actuating member and a length variation of the at least one actuating member.

19. (currently amended) The wing unit according to claim 1, further comprising~~: a plurality of spars; a plurality of ribs; and~~ at least one sensor, wherein the at least one sensor is arranged in a region of the upper shell, the lower shell, ~~the plurality of~~at least one of the at least two spars, as well as ~~the plurality of~~at least one of the at least two ribs, wherein the at least one sensor is adapted to detect at least one loading state ~~and/~~or at least one length variation, or both at least one loading state and at least one length variation in the region of the upper shell, the lower shell, ~~of~~ or at least one of the ~~plurality of~~at least two spars, as well as of at least one of the ~~plurality of~~at least two ribs.

20. (currently amended) The wing unit according to claim 19, wherein the at least one sensor is formed with at least one piezoelectric element, in particular piezoelectric stacks, piezoelectric plates, piezoelectric filaments, or strain gauges~~, or the like~~.

21. (currently amended) The wing unit according to claim 2 further comprising a control and regulation device associated with at least one of the at least two actuating members to

change the surface geometry at the aerodynamically active surface depending on loading status prevailing in the wing unit.

22. (currently amended) The wing unit according to claim 21 further comprising a bending/torsion coupling associated with at least one of the at least two actuating members.

23. (new) A wing unit, in particular a spar box, for forming aerodynamically active surfaces of an aircraft, in particular airfoils, horizontal tail units, or rudder units of a plane, comprising:

an upper shell and a lower shell, the upper shell and the lower shell forming the aerodynamically active surface;

a first rib having a lower rib foot and an upper rib foot;

a second rib having a lower rib foot and an upper rib foot; and

at least two actuating members;

wherein the at least two actuating members are arranged in a region between the upper shell and the lower shell for modifying the surface geometry of the aerodynamically active surface or the mechanical properties of the wing unit or both the surface geometry of the aerodynamically active surface and the mechanical properties of the wing unit;

wherein the at least two actuating members are arranged crosswise;

wherein one of the at least two actuating members is arranged between the lower rib foot of the first rib and the upper rib foot of the second rib; and

wherein the other one of the at least two actuating members is arranged between the upper rib foot of the first rib and the lower rib foot of the second rib.

24. (new) The wing unit according to claim 23, wherein the at least two actuating members are adapted in such a way that a surface geometry of an aerodynamically active surface is changeable by using a control and regulation device, depending on loading states prevailing in the wing unit.

25. (new) The wing unit according to claim 24 further comprising a control and regulation device associated with at least one of the at least two actuating members to change the surface geometry at the aerodynamically active surface depending on loading status prevailing in the wing unit.

26. (new) The wing unit according to claim 25 further comprising a bending/torsion coupling associated with at least one of the at least two actuating members.

27. (new) The wing unit according to claim 23, wherein the at least two actuating members are adapted in such a way that a bending/torsion coupling of the wing unit is changeable by a control and regulation device, depending on the loading states prevailing in the wing unit.

28. (new) The wing unit according to claim 23, wherein at least one spar is arranged between the upper shell and the lower shell.

29. (new) The wing unit according to claim 23, wherein at least one rib is arranged between the upper shell and the lower shell.

30. (new) The wing unit according to claim 28, wherein the at least one spar is shear flexible in the region of at least one of the at least two actuating members.

31. (new) The wing unit according to claim 29, wherein the at least one rib is transverse force flexible in the region of at least one of the at least two actuating members.

32. (new) The wing unit according to claim 23, wherein a dimension of the at least two actuating members is variable by a control and regulation device.

33. (new) The wing unit according to claim 23, further comprising two ribs and a spar, wherein the two ribs are arranged between the upper shell and the lower shell, wherein the spar is arranged between the upper shell and the lower shell, wherein between the two ribs at least one of the at least two actuating members is arranged, and wherein at least one of the at least two actuating members is arranged substantially in parallel to the spar.

34. (new) The wing unit according to claim 23, wherein at least one of the first or second ribs is arranged between the upper shell and the lower shell, and wherein at least one of the at least two actuating members is arranged substantially parallel to the at least one rib in the region between the upper shell and the lower shell.

35. (new) The wing unit according to claim 23, wherein at least one of the first or second ribs is arranged between the upper shell and the lower shell, and wherein the at least two actuating members are arranged crosswise to each other substantially in parallel to the at least one rib for forming a tension shear field.

36. (new) The wing unit according to claim 23, wherein at least one of the at least two actuating members is rod-shaped.

37. (new) The wing unit according to claim 23, wherein at least one of the at least two actuating members comprise at least one actuator, wherein the at least one actuator is adapted to vary a length of the at least one actuating member.

38. (new) The wing unit according to claim 37, wherein the at least one actuator is formed with at least one piezoelectric element selected from the group consisting of particular piezoelectric stacks, piezoelectric plates, and piezoelectric filaments with at least one shape memory element, wherein the at least one piezoelectric element is adapted in such a way that it is operateable through control signals generated by a control and regulation device.

39. (new) The wing unit according to claim 38, wherein the control signals for the at least one actuator are electrical voltages or electrical currents, or both electrical voltages and electrical currents.

40. (new) The wing unit according to claim 23, wherein at least one of the at least two actuating members comprises at least one sensor, wherein the at least one sensor is adapted to detect loading states in the at least one actuating member or a length variation of the at least one actuating member, or both loading states in the at least one actuating member and a length variation of the at least one actuating member.