Claims

1. A holding device (5) for holding a soft-magnetic stacked transformer core (2) comprising layers having an amorphous and/or nanocrystalline structure made of a ferrous alloy, particularly of a FeSiB alloy, wherein the stacked transformer core (2) comprises at least two coil legs (3) running parallel to each other and two yokes (4) connected with opposite ends of the at least two coil legs (3), comprising

   - at least two holding units (6, 7) that can be arranged at one of the two yokes (4) so that the at least two holding units (6, 7) are arranged at opposite end regions of the stacked transformer core (2), and
   - at least one mechanical fixing means (8) acting on both of the holding units (6, 7), the holding units (6, 7) being nondestructively detachably connected with each other via the at least one mechanical fixing means (8), **characterized by**
   - at least one spacer (9, 33) clamped between said holding units (6, 7) and at least one spring element (21, 27, 30, 31, 32) arrangeable between at least one of the holding units (6, 7) and the stacked transformer core (2),
   - wherein the holding device (5) is constructed in such a way that the at least one spring element (21, 27, 30, 31, 32) is elastically deformed by an at least indirect contact with the stacked transformer core (2) caused when the stacked transformer core (2) is arranged at the holding device (5).

2. The holding device (5) according to claim 1, characterized in that at least one of the holding units (6, 7) comprises

   - at least two holding elements (10, 11) arrangeable at opposite yoke end regions of one of the two yokes (4),
   - at least one mechanical fixing means (12) acting on both of the holding elements (10, 11), the holding elements (10, 11) being nondestructively detachably connected with each other via the at least one mechanical fixing means (12),
   - at least one spacer (13) clamped between the at least two holding elements (10, 11), and the at least one spring element (21, 27, 30, 31) arrangeable between at least one of the holding elements (10, 11) and one of the two yokes (4),
   - wherein one of the holding units (6, 7) is constructed in such a way that the at least one spring element (21, 27, 30, 31) is elastically deformed by an at least indirect contact with the stacked transformer core (2) caused when the stacked transformer core (2) is arranged at the holding device (5).

3. The holding device (5) according to claim 1 or 2, characterized in that at least one spring element (30, 31) is U-shaped in such a way that the at least one spring element (30, 31) positively encompasses the stacked transformer core (2) along at least one section of one of the two yokes (4) in such a way that a connection region (35) arranged between the at least two coil legs (3) and one of the two yokes (4) is located between parallel legs (36) of the at least one spring element (30, 31).

4. The holding device (5) according to one of claims 1 to 3, characterized by at least one spring element (32) at least partly arrangeable between the at least one spacer (33) and the stacked transformer core (2), wherein the holding device (5) is constructed in such a way that the spring element (32) is elastically deformed by an at least indirect contact with the stacked transformer core (2) caused when the stacked transformer core (2) is arranged at the holding device (5).

5. The holding device (5) according to one of claims 1 to 4, characterized by at least one spacer (34) arrangeable between the at least two coil legs (3), at which the at least two coils legs (3) being laterally supported against each other.

6. The holding device (5) according to one of claims 1 to 5, characterized by at least two support elements (14) arrangeable on opposite sides of one of the coil legs (3) and being connected with both of the holding elements (6, 7).

7. The holding device (5) according to one of claims 1 to 6, characterized by

- at least four coil support elements (15) for axially supporting of coils (18, 19) being arranged on one of the coil legs (3), wherein two of the coil support elements (15) are arranged at one of the holding units (6, 7) and the other two of the coil support elements (15) are arranged at the other one of the holding units (6, 7), wherein the at least four of the coil support elements (15) are arrangeable in pairs on opposite sides of one of the coil legs (3), and
- at least one spring element (21, 27, 41) for each of the at least four coil support elements (15) arranged or arrangeable either between one of the holding units (6, 7) and one of the coil support elements (15) or between one of the coil support elements (15) and one of the coils (18, 19),

- wherein the holding device (5) is constructed in such a way that the at least one spring element (21, 27, 41) is elastically deformed by an at least indirect contact with at least one of the coils (18, 19) caused when the stacked transformer core (2) with the coils (18, 19) thereon is arranged at the holding device (5).

8. The holding device (5) according to one of claims 1 to 7, characterized in that a reset force that can be applied by the at least one spring element (21, 27, 30, 31, 32, 41) is separately adjustable.

9. A transformer (1, 29, 37), particularly three-phase transformer, comprising
- at least one soft-magnetic stacked transformer core (2) comprising layers having an amorphous and/or nanocrystalline structure made of a ferrous alloy, particularly of a FeSiB alloy, wherein the stacked transformer core (2) comprises at least two coil legs (3) running parallel to each other and two yokes (4) connected with opposite ends of the at least two coils legs (3), and
- at least one holding device (5) for holding the stacked transformer core (2), **characterized in that** the at least one holding device (5) is the holding device (5) according to one of claims 1 to 8.

10. The transformer (1, 29, 37) according to claim 9, characterized in that the at least two coil legs (3) and the two yokes (4) each are constituted by a stack of compound bodies firmly bonded to each other, wherein each compound body is constituted by cut-to-length compound segments of a ribbon-like multi-compound, the compound segments being firmly bonded to each other, wherein the multi-compound comprises at least two compound layers firmly bonded to each other, wherein each compound layer is constituted of a foil compound, wherein each foil compound comprises at least two ribbon-like soft-magnetic foils having an amorphous and/or nanocrystalline structure made of a ferrous alloy, particularly of a FeSiB alloy, wherein the foils are firmly bonded to each other.

11. The transformer (1, 29, 37) according to claim 10, characterized in that the compound layers each are constituted of a longitudinally separated foil compound, wherein one foil compound is longitudinally separated with respect to a cross-section width of the respective compound body at a different place than the other foil compound arranged adjacent to said foil compound.