Claims

1. A clamping fixture comprising a chuck (1) for chucking a clamping pallet (6), with centering members (3) arranged at the chuck (1) cooperating with further centering members (9) arranged at the clamping pallet (6) such that the clamping pallet (6) when chucked in the chuck (1) is oriented in the X and Y direction, the one centering members being formed by centering pins (3) devised to engage the other centering members configured as centering openings (9), **characterized in that** the clamping fixture comprises at least three centering openings (9) and a corresponding number of centering pins (3), each of the centering pins (3) featuring two conically tapered side faces (3a, 3b) and each centering opening (9) being defined by two side walls (9a, 9b) oriented parallel to each other configured such that the conically tapered side faces (3a, 3b) of each centering pin (3) come into contact therewith linely.

2. The clamping fixture as set forth in claim 1, characterized in that the clamping fixture comprises four centering openings (9) and a corresponding number of centering pins (3).

3. The clamping fixture as set forth in claim 1 or 2, characterized in that the centering openings (9) are machined in a one-piece centering plate (8), the latter being flexible compliant at least in the region of the centering openings (9) in the Z direction.

4. The clamping fixture as set forth in claim 3, characterized in that the centering plate (8) is secured by means of studs (12) to a base body (7) of the clamping pallet (6).

5. The clamping fixture as set forth in claim 4, characterized in that the studs (12) are provided with a thread and are screwed into the base body (7) of the clamping pallet (6) and that the front end (13) of each stud (12) forms a Z stop for abutting the chuck (1).

6. The clamping fixture as set forth in claim 3, characterized in that each centering opening (9) is defined sideways by a side walls (9a, 9b) flexible compliant in the Z direction.

7. The clamping fixture as set forth in any of the claims 3 to 6, characterized in that the centering plate (8) is made of a stainless sheet metal.

8. The clamping fixture as set forth in any of the claims 3 to 7, characterized in that the centering plate (8) is made of a softer material than that of the centering pins (3).

9. The clamping fixture as set forth in any of the claims 3 to 8, characterized in that the centering openings (9) are cut out from the centering plate (8) by precision stamping.

10. The clamping fixture as set forth in any of the claims 3 to 9, characterized in that the centering plate (8) is maximally 2 mm, particularly 0.8 to 1.5 mm thick.

11. The clamping fixture as set forth in any of the preceding claims, characterized in that the side faces (3a, 3b) of the centering pins (3) are machined, particularly ground with high precision.

12. The clamping fixture as set forth in any of the preceding claims, characterized in that the centering members (3, 9) are arranged uniformly distributed on a circle K1, K2,

13. The clamping fixture as set forth in any of the preceding claims, characterized in that the clamping pallet (6) is provided spaced away from its front end with a centering plate (8) provided with four centering openings (9), each centering opening (9) being enclosed on all sides by the centering plate (8).

14. The clamping fixture as set forth in claim 5, characterized in that the chuck (1) is provided with a base body (2) featuring flats (4) for abutting the studs 12.

15. The clamping fixture as set forth in any of the preceding claims, characterized in that the centering plate (8) is securing to a base body (7) of the clamping pallet (6) by means of four threaded studs (12), the front end (13) of each stud (12) forming a Z stop for abutting against the chuck (1).

16. A clamping pallet (6) for use in a clamping fixture configured as set forth in any of the claims 1 to 15.

17. The clamping pallet (6) as set forth in claim 16, characterized in that the clamping pallet (6) comprises a base body (7) to which a one-piece centering plate (8) configured with at least three centering openings (9) is secured such that it is flexible compliant in the Z direction in the region of the centering openings (9).

18. The clamping pallet (6) as set forth in claim 17, characterized in that the clamping pallet (6) is configured as a workpiece pallet.

19. A centering plate (8) for attachment to a base body (7) of a clamping pallet (6) for use in a clamping fixture as set forth in any of the claims 1 to 15, characterized in that the centering plate (8) is configured in one piece and comprises at least three centering openings (9) and that it features at least three drillings for securing to a base body (7) of a clamping pallet (6).

20. The centering plate (8) as set forth in claim 19, characterized in that the centering plate (8) is provided with four centering openings (9) arranged on a circle K2 each spaced away from the other by 90°, each centering opening (9) being defined sideways by two side walls (9a, 9b) oriented parallel to each other.

21. The centering plate (8) as set forth in claim 19 or 20, characterized in that machined in the centering plate (8) between each two adjacent centering openings (9) is a fastener drilling (16).

22. The centering plate (8) as set forth in any of the claims 19 to 21, characterized in that the centering openings (9) are produced by precision stamping.

CLAIMS

1. A clamping fixture comprising a clamping pallet (6) and a chuck (1) for chucking the clamping pallet (6), with centering members (3) arranged at the chuck (1) cooperating with further centering members (9) arranged at the clamping pallet (6) such that the clamping pallet (6) when chucked in the chuck (1) is oriented in the X and Y direction, said centering members being formed by centering pins (3) devised to engage said further centering members configured as centering openings (9), wherein the clamping fixture comprises at least three centering openings (9) and a corresponding number of centering pins (3), each of the centering pins (3) featuring two conically tapered side faces (3a, 3b) and each centering opening (9) being defined by two side walls (9a, 9b) oriented parallel to each other configured such that the conically tapered side faces (3a, 3b) of each centering pin (3) come into line contact therewith,

wherein the centering openings (9) are machined in a one-piece centering plate (8), the latter being flexibly compliant at least in the region of the centering openings (9) in the Z direction;

wherein the centering openings (9) are cut out from the one-piece centering plate (8) by precision stamping.

2. The clamping fixture as set forth in claim 1, wherein in that the clamping fixture comprises four centering openings (9) and a corresponding number of centering pins (3).

3. The clamping fixture as set forth in claim 1, wherein the centering plate (8) is secured by means of studs (12) to a base body (7) of the clamping pallet (6).

4. The clamping fixture as set forth in claim 3, wherein the studs (12) are provided with a thread and are screwed into the base body (7) of the clamping pallet (6) and that the front end (13) of each stud (12) forms a Z stop for abutting the chuck (1).

5. The clamping fixture as set forth in claim 1, wherein each centering opening (9) is defined sideways by a side walls (9a, 9b) flexible compliant in the Z direction.

6. The clamping fixture as set forth in any of the claims 1 to 5, wherein the centering plate (8) is made of a stainless sheet metal.

7. The clamping fixture as set forth in any of the claims 1 to 6, wherein the centering plate (8) is made of a softer material than that of the centering pins (3).

8. The clamping fixture as set forth in any of the claims 1 to 7, wherein the centering plate (8) is maximally 2 mm, particularly 0.8 to 1.5 mm thick.

9. The clamping fixture as set forth in any of the preceding claims, wherein the side faces (3a, 3b) of the centering pins (3) are machined, particularly ground with high precision.

10. The clamping fixture as set forth in any of the preceding claims, wherein the centering members (3, 9) are arranged uniformly distributed on a circle K1, K2,

11. The clamping fixture as set forth in any of the preceding claims, wherein the clamping pallet (6) is provided spaced away from its front end with a centering plate (8) provided with four centering openings (9), each centering opening (9) being enclosed on all sides by the centering plate (8).

12. The clamping fixture as set forth in claim 4, wherein the chuck (1) is provided with a base body (2) featuring flats (4) for abutting the studs 12.

13. The clamping fixture as set forth in any of the preceding claims, wherein the centering plate (8) is securing to a base body (7) of the clamping pallet (6) by means of four threaded studs (12), the front end (13) of each stud (12) forming a Z stop for abutting against the chuck (1).

14. A clamping pallet (6) for use in a clamping fixture, wherein the clamping pallet comprises at least three centering openings, each centering opening being defined by two side walls oriented parallel to each other configured such that, in use, conically tapered side faces of corresponding centering pins arranged at a chuck come into line contact therewith;

wherein the clamping pallet (6) comprises a base body (7) to which a one-piece centering plate (8) configured with at least three centering openings (9) is secured such that it is flexibly compliant in the Z direction in the region of the centering openings (9);

wherein the centering openings are cut out from the one-piece centering plate by precision stamping.

15. The clamping pallet (6) as set forth in claim 14, wherein the clamping pallet (6) is configured as a workpiece pallet.

16. A method of making a clamping fixture, the clamping fixture comprising a chuck (1) for chucking a clamping pallet (6), with centering members (3) arranged at the chuck (1) cooperating with further centering members (9) arranged at the clamping pallet (6) such that the clamping pallet (6) when chucked in the chuck (1) is oriented in the X and Y direction, said centering members being formed by centering pins (3) devised to engage said further centering members configured as centering openings (9), wherein the clamping fixture comprises at least three centering openings (9) and a corresponding number of centering pins (3), each of the centering pins (3) featuring two conically tapered side faces (3a, 3b) and each centering opening (9) being defined by two side walls (9a, 9b) oriented parallel to each other configured such that the conically tapered side faces (3a, 3b) of each centering pin (3) come into line contact therewith;

wherein the method comprises the step of machining the centering openings (9) in a one-piece centering plate, the latter being flexibly compliant at least in the region of the centering openings in the said direction, wherein the centering openings are cut out from the one-piece centering plate by precision stamping.

17. A method of making a clamping pallet for use in a clamping fixture, wherein the clamping pallet comprises at least three centering openings, each centering opening being defined by two side walls oriented parallel to each other configured such that, in use, conically tapered side faces of corresponding centering pins arranged at a chuck come into line contact therewith, wherein the clamping pallet (6) comprises a base body (7) to which a one-piece centering plate (8) configured with at least three centering openings (9) is secured such that it is flexibly compliant in the Z direction in the region of the centering openings (9);

wherein the method comprises the step of cutting out the centering openings from the one-piece centering plate by precision stamping.