Claims

1. Screw-in tool (1), which contains a tool head (3) and a tool shank (4) with an outer thread (5) and a supporting region situated between the tool head (3) and the outer thread (5), characterized in that the supporting region is formed by two conical bearing faces (6, 8) with different cone angles, whereas the cones which underlie the two conical bearing faces (6, 8) forming the double cone point in the same direction.

2. Screw-in tool according to Claim 1, characterized in that the two conical bearing faces (6, 8) are directly adjacent to one another.

3. Screw-in tool according to Claim 1 or 2, characterized in that the supporting region is formed by a first conical bearing face (6), which is adjacent to the tool head (3), at a cone angle of 140° to 179°, and a second conical bearing face (8), at a cone angle of 1° to 90°.

4. Screw-in tool according to Claim 3, characterized in that the first conical bearing face (6) has a cone angle of 170° and the second conical bearing face, a cone angle of 10°.

5. Screw-in tool according to one of Claims 1-4, characterized in that the diameter of the first conical bearing face (6) is enlarged, or preferably diminished, in the screwing direction of the screw-in tool.

6. Screw-in tool according to one of Claims 1-5, characterized in that another supporting region (11) is provided on the tool shank (4).

7. Screw-in tool according to Claim 6, characterized in that the other supporting region (11) is designed spherical, cylindrical, or conical.

8. Screw-in tool according to one of Claims 1-7, characterized in that the outer thread (5) contains a thread depth that declines toward the free end (10) of the tool shank (4).

9. Screw-in tool according to one of Claims 1-8, characterized in that the outer thread (5) is designed as a trapezoidal, round, flat, or conical thread.

10. Screw-in tool according to one of Claims 1-9, characterized in that a gripper groove (13) for the clamping of the screw-in tool (1) is provided on the tool shank (4).

11. Tool holder (2) for a screw-in tool (1), which contains a holder opening (16) with an inner thread (17) and a supporting region situated between a front side of the tool holder (2) and the inner thread (17), characterized in that the supporting region is formed by two conical contact surfaces (7, 9) with different cone angles, whereas the cones which underlie the two conical contact surfaces (7, 8) forming the double cone point in the same direction.

12. Tool holder according to Claim 11, characterized in that the two conical contact surfaces (7, 9) are directly adjacent to one another.

13. Tool holder according to Claim 11 or 12, characterized in that the supporting region is formed by a first conical contact surface (7), adjacent to the front side of the tool holder (2), at a cone angle of 140° to 179°, and a second conical contact surface (9), at a cone angle of 1° to 90°.

14. Tool holder according to Claim 13, characterized in that the first conical contact surface (7) has a cone angle of 170° and the second conical contact surface (9), a cone angle of 10°.

15. Tool holder according to one of Claims 11-14, characterized in that the diameter of the first conical contact surface (7) is enlarged, or preferably diminished, in the screwing direction of the screw-in tool (1).

16. Tool holder according to one of Claims 11-15, characterized in that an inner bearing surface is provided at an inner end of the holder opening (16).

17. Tool holder according to Claim 16, characterized in that the inner bearing surface is designed as a cylindrical, spherical, or conical bearing face (24).

18. Tool holder according to one of Claims 11-17, characterized in that the inner thread (17) contains a thread depth that declines toward the inner end of the holder opening (16).

19. Tool holder according to one of Claims 11-18, characterized in that the inner thread (17) is designed as a trapezoidal, round, flat, or conical thread.

20. Tool holder according to one of Claims 11-19, characterized in that it contains a threaded insert (25) for the holder of the screw-in tool (1).

21. Tool holder according to one of Claims 11-20, characterized in that a sleeve (22) is situated on its outside for the deflection of a cooling liquid, guided outward through radial boreholes (20), via at least one opening (26), in the direction of the screw-in tool (1).

22. Tool holder with a screw-in tool (1) and a tool holder (2), characterized in that the screw-in tool (1) is designed according to one of Claims 1-10 and the tool holder (2), according to one of Claims 11-21.

23. Tool arrangement according to Claim 22, characterized in that the second supporting region (11) of the screw-in tool (1) has an excess in comparison to the bearing surface (24) of the tool holder (2), and thus, during the assembly of the screw-in tool (1) and the tool holder (2), there is a pressing between the screw-in tool (1) and the tool holder (2).

Claims

1. Screw-in tool (1), which contains a tool head (3) and a tool shank (4) with an outer thread (5) and a supporting region situated between the tool head (3) and the outer thread (5), characterized in that the supporting region is formed by two conical bearing faces (6, 8) with different cone angles, whereas the cones which underlie the two conical bearing faces (6, 8) forming the double cone point in the same direction.

2. Screw-in tool according to Claim 1, characterized in that the two conical bearing faces (6, 8) are directly adjacent to one another.

3. Screw-in tool according to Claim 1 or 2, characterized in that the supporting region is formed by a first conical bearing face (6), which is adjacent to the tool head (3), at a cone angle of 140° to 179°, and a second conical bearing face (8), at a cone angle of 1° to 90°.

4. Screw-in tool according to Claim 3, characterized in that the first conical bearing face (6) has a cone angle of 170° and the second conical bearing face, a cone angle of 10°.

5. Screw-in tool according to one of Claims 1-4, characterized in that another supporting region (11) is provided on the tool shank (4).

6. Screw-in tool according to Claim 5, characterized in that the other supporting region (11) is designed spherical, cylindrical, or conical.

7. Screw-in tool according to one of Claims 1-6, characterized in that the outer thread (5) contains a thread depth that declines toward the free end (10) of the tool shank (4).

8. Screw-in tool according to one of Claims 1-7, characterized in that the outer thread (5) is designed as a trapezoidal, round, flat, or conical thread.

9. Screw-in tool according to one of Claims 1-8, characterized in that a gripper groove (13) for the clamping of the screw-in tool (1) is provided on the tool shank (4).

10. Tool holder (2) for a screw-in tool (1), which contains a holder opening (16) with an inner thread (17) and a supporting region situated between a front side of the tool holder (2) and the inner thread (17), characterized in that the supporting region is formed by two

conical contact surfaces (7, 9) with different cone angles, whereas the cones which underlie the two conical contact surfaces (7, 8) forming the double cone point in the same direction.

11. Tool holder according to Claim 10, characterized in that the two conical contact surfaces (7, 9) are directly adjacent to one another.

12. Tool holder according to Claim 10 or 11, characterized in that the supporting region is formed by a first conical contact surface (7), adjacent to the front side of the tool holder (2), at a cone angle of 140° to 179°, and a second conical contact surface (9), at a cone angle of 1° to 90°.

13. Tool holder according to Claim 12, characterized in that the first conical contact surface (7) has a cone angle of 170° and the second conical contact surface (9), a cone angle of 10°.

14. Tool holder according to one of Claims 10-13, characterized in that the diameter of the first conical contact surface (7) is enlarged, or preferably diminished, in the screwing direction of the screw-in tool (1).

15. Tool holder according to one of Claims 10-14, characterized in that an inner bearing surface is provided at an inner end of the holder opening (16).

16. Tool holder according to Claim 15, characterized in that the inner bearing surface is designed as a cylindrical, spherical, or conical bearing face (24).

17. Tool holder according to one of Claims 10-16, characterized in that the inner thread (17) contains a thread depth that declines toward the inner end of the holder opening (16).

18. Tool holder according to one of Claims 10-17, characterized in that the inner thread (17) is designed as a trapezoidal, round, flat, or conical thread.

19. Tool holder according to one of Claims 10-18, characterized in that it contains a threaded insert (25) for the holder of the screw-in tool (1).

20. Tool holder according to one of Claims 10-19, characterized in that a sleeve (22) is situated on its outside for the deflection of a cooling liquid, guided outward through radial boreholes (20), via at least one opening (26), in the direction of the screw-in tool (1).

21. Tool holder with a screw-in tool (1) and a tool holder (2), characterized in that the screw-in tool (1) is designed according to one of Claims 1-9 and the tool holder (2), according to one of Claims 10-20.

22. Tool arrangement according to Claim 21, characterized in that the second supporting region (11) of the screw-in tool (1) has an excess in comparison to the bearing surface (24) of the tool holder (2), and thus, during the assembly of the screw-in tool (1) and the tool holder (2), there is a pressing between the screw-in tool (1) and the tool holder (2).