Claims

1. Screw (10) having a screw center axis (M), comprising a drive (12) and a threaded shank (14), having a thread turn (16) which at least in parts extends along the shank in a helix of constant pitch and which forms a main thread (18) that has a mean thread radius (R_M) over its length, a thread radius (R) being the maximum orthogonal distance from the screw axis (M) to the profile contour (20) of the thread turn, the main thread (18) having a bearing area (T) and a forming area (F), with a forming profile contour (24) of a forming area radius (R_F) being obtained in the forming area (F) and a bearing profile contour (22) of a bearing area radius (R_T) being obtained in the bearing area (T), which forming profile contour (24) is defined by the projection of the thread turn along the helix over an axially extending region of a length three times the mean thread radius (R_M) starting from the free end (25) of the shank onto a sectional plane (H) of the helix, said forming area (F) terminating at the point of the helix at which the forming profile contour (24) nearest the drive extends radially outwards at a range of 85% of the mean thread radius, said bearing profile contour (22) being defined by the projection of the thread turn along the helix onto a second sectional plane (H) of the helix in a region which starts at a distance of 2/3 times the mean thread radius (R_M) from the forming area end (FE) and terminates at 5/3 times the mean thread radius (R_M), and in that in the event of an overlap of the bearing profile contour (22) and the forming profile contour (24), at least in the region which extends radially outwards from 85% of the forming area radius (R_F), will lie completely within the forming profile contour (24), **characterized in** that a forming profile surface (26) which is delimited by the forming profile contour (24), measured in a range of 10% of the forming area radius (R_F) starting from the maximum orthogonal distance of the forming profile contour (24) from the screw center axis radially inwards, is larger than a bearing profile surface (28) which is delimited by the bearing profile contour (22), measured in a range of 10% of the forming area radius (R_F) starting

from the maximum orthogonal distance of the bearing profile contour (22) from the screw center axis radially inwards.

2. Screw according to claim 1, **characterized in** that the forming profile contour (24) and the bearing profile contour (22) have a flank angle (alpha) of less than 35°.

3. Screw according to claim 1 or 2, **characterized in** that the bearing area radius (R_T) is smaller by between 1% and 3% than the forming area radius (R_F).

4. Screw according to any one of claims 1 to 3 above, **characterized in** that the bearing profile contour (22) has a width (B_T) at 95% of the bearing area radius (R_T) which is smaller than the width (B_F) of the forming profile contour (24) at 95% of the forming area radius (R_F).

5. Screw according to claim 4, **characterized in** that the width (B_T) of the bearing profile contour (22) is at least 10%, in particular at least 20%, smaller than the width (B_F) of the forming profile contour (24).

6. Screw according to any one of the preceding claims, **characterized in** that the forming profile contour (24) and/or the bearing profile contour (22) is/are symmetrical.

7. Screw according to any one of the preceding claims, **characterized in** that the forming profile contour (24) does not increase further over a length of less than twice the pitch.

8. Screw according to any one of the preceding claims, **characterized in** that the ratio of the core diameter to twice the mean thread radius (R_M) is between 0.6 and 0.8.

9. Screw according to any one of the preceding claims, **characterized in** that in the region which extends radially within 85% of the forming area radius (R_F), the bearing profile contour (22) is at least partially outside the forming profile contour (24).

10. Screw according to any one of the preceding claims, **characterized in** that the core diameter in the forming area is less than or equal to the core diameter in the bearing area (T).

11. Screw according to any one of the preceding claims, **characterized in** that the shank has a tap flute (30) in the region of the free end (25) of the screw shank, which tap flute (30) comprises at least two tapping thread turns (32, 34) which have a radius that reaches at most 90% of the radius (R_F) of the forming region and which form a tap region (AB) in which the tapping thread turns (32, 34) have the same radius course and, in addition, in the tap region (AB) the thread radius of the main thread (18) is less than or equal to the thread radius of the tapping thread turns (32, 34).

12. Screw according to claim 11, **characterized in** that the main thread (18) in the tap region (AB) has the same thread radius (R) as the tap flute (32, 34).

13. Screw according to claim 11, **characterized in** that at least three tapping thread turns (32, 34) are provided, with the thread radius (R) of the main thread (18) in the tap region (AB) being less than that of the tap flute.

14. Screw according to any one of the claims 11 to 13 above, **characterized in** that the tapping thread turns (32, 34) start at the core, with their thread radius (R) continuously increasing in the direction of the bearing area (T).

15. Screw according to any one of claims 11 to 14 above, **characterized in** that the thread turns (16, 32, 34) of the same thread radius (R) are equally distributed circumferentially in the tap region (AB).

16. Screw according to any one of claims 11 to 15 above, **characterized in** that the core diameter of the free end of the screw is at least 20%, at least 30%, at least 40%, at least 50%, at least 60% of twice the forming area radius.

17. Screw according to any one of claims 11 to 16 above, **characterized in** that the thread turns (16, 32, 34) in the tap region (AB) all have their beginning in the same cross-sectional plane.

18. Screw according to any one of claims 11 to 17 above, **characterized in** that the thread turns (16, 32, 34) in the tap region (AB) all have the same profile contour.

19. Screw according to any one of claims 11 to 18 above, **characterized in** that the tap flute (30) directly adjoins the free shank end (25).

20. Screw according to any one of claims 11 to 19 above, **characterized in** that the tap flute (30) begins at a distance from the free shank end (25).

21. Screw according to any one of the claims 11 to 20 above, **characterized in** that the tap flute (30) and the main thread (18) are rolled threads.

22. Screw according to any one of claims 11 to 21 above, **characterized in** that the threads in the tap region (30) have a more obtuse flank angle than the main thread (18) outside the tap region (AB).

23. Screw according to any one of claims 11 to 22 above, **characterized in** that the tap flute (30) runs out abruptly.

24. Screw according to any one of the claims 11 to 23 above, **characterized in** that the tap flute (30) extends over a maximum of two turns.

25. Method for producing a screw connection, comprising a screw (10, 42) according to any one of claims 1 to 24 above, **characterized in** that the screw (42) is screwed into a pilot hole (44) made in a component (46) of plastic material, thus forming a counter thread into the plastic with the forming profile contour (50) in the forming area (F), after which the counter thread in the bearing area springs back again so as to prevent it from coming into contact with the thread in the bearing area (T) during the screw insertion process, and to ensure that the thread in the bearing area (T) will only be pressed against the counter thread when the screw is finally tightened in the component.

26. Method according to claim 25, **characterized in** that the radius of the pilot hole is 80% of the radius of the forming area.

27. Screw connection (40) comprising a screw (42) and a component (46) of a plastic material, which screw connection is produced using the method of claim 25 and/or claim 26.