Claims

1. Fastening element (100) for a porous material, in particular for balsa wood, comprising

a fastening head (1) configured to receive a torque in both rotational directions around a main axis (10),

a shank (2) extending from the fastening head (1) and ending in a tip (3) at the end facing away from the fastening head,

wherein the shank (2) has an outer thread (4) along at least a section of its extension in a direction of the main axis, for screwing the fastening element (100) into the material,

wherein the ratio of the outer diameter (D) of the outer thread (4) along at least a section of its extension in a direction of the main axis (10) and the core diameter (d) of the outer thread (4) is $D/d > 2.5$,

wherein the outer thread (4) has a first thread flank (41) facing the fastening head and a second thread flank (42) facing away from the fastening head,

wherein the outer thread (4) extends until the tip (45) and wherein in particular the outer diameter (D) of the outer thread (4) decreases towards the tip (45),

wherein the thread profile of the second thread flank (42) has a kink (43) such that a first angle (a1) between the first thread flank (41) and a first section (421) of the second thread flank (42) is larger between the kink (43) and a thread base (44) than a second angle (a2) between the first thread flank (41) and a second section (422) of the second thread flank (42) between the kink (43) and a thread tip (45).

2. Fastening element (100) according to claim 1, wherein the outer thread (4) is a self-tapping thread, for forming the material when screwing the fastening element (100) into the material.

3. Fastening element (100) according to any one of the preceding claims, wherein the core diameter (d) of the outer thread (4) remains the same along the total length of the outer thread (4).

4. Fastening element (100) according to any one of the preceding claims,
wherein an angle between the first thread flank and the thread base is constant along the whole thread profile of the first thread flank.

5. Fastening element (100) according to any one of the preceding claims,
wherein the first angle (a1) is between 45° and 65°, in particular between 55° and 60° and/or
wherein the second angle (a2) is between 20° and 40°, in particular between 30° and 35°.

6. Fastening element (100) according to any one of the preceding claims, with $D/d > 2.8$.

7. Fastening element (100) according to any one of the preceding claims,
wherein the outer diameter (D) of the outer thread (4) is between 4 mm and 5 mm and/or
wherein the core diameter (d) of the outer thread (4) is between 1 mm and 2 mm.

8. Fastening element (100) according to any one of the preceding claims, wherein the thread pitch is between 1.5 mm and 2 mm.

9. Fastening element (100) according to any one of the preceding claims, wherein a length of the shank (2) from an end facing the fastening head (1) to the tip (3) is between 10 mm and 25 mm.

10. Fastening element (100) according to any one of the preceding claims, comprising steel, aluminium, fiber-reinforced plastic, or a combination thereof.

11. Fastening element (100) according to any one of the preceding claims, wherein the reception of the torque of the fastening head (1) is formed as a hexalobular socket.

12. Fastening element (100) according to any one of the preceding claims, wherein a diameter of the fastening head (1) is larger than the outer diameter (D) of the outer thread (4).

13. Fastening element (100) according to any one of the preceding claims, wherein the ratio of the outer diameter D and the thread pitch s is $2 < D/s < 3$, in particular is $D/s = 2.5$.

14. Use of the fastening element (100) according to any one of the preceding claims for screwing into the porous material.

15. Use according to claim 14, wherein the porous material is balsa wood, foamed plastic, or aluminium foam.

16. Use according to claim 14, wherein the porous material has a density ρ of $\rho < 1$ g/cm^3.