Claims

1. A joint (10) for the transmission of torques and axial forces in conjunction with an eccentric rotary motion, wherein the joint (10) connects a coupling rod (18), a tool (20) and/or a drive and is provided with at least one casing, **characterised in that** the force transmission essentially takes place without the use of elastomers and the axial forces can be transmitted by a first joint part (12) and the torques by a second joint part (14), wherein the second joint part (14) forms the casing.

2. The joint (10) according to claim 1, **characterised in that** the first joint part (12) is a bending arm, a bolt or an additional joint and that the first joint part (12) is disposed in the centre of the second joint part (14).

3. The joint (10) according to claim 2, **characterised in that** the first joint part (12) is produced from a flexurally stiff material.

4. The joint (10) according to any one of claims 2 or 3, **characterised in that** the first joint part (12) has various geometrical design shapes.

5. The joint (10) according to any one of claims 2 to 4, **characterised in that** the first joint part (12) comprises a first part (24) and a second part (26).

6. The joint (10) according to claim 5, **characterised in that** the first joint part (24) and the second part (26) of the first joint part (12) are connected by a further joint (28).

7. The joint (10) according to claim 1, **characterised in that** the second joint part (14) is a torsionally stiff casing for the joint (10), preferably a bellows or a membrane, wherein the second joint part (14) can also be produced multi-layered.

8. The joint (10) according to claim 7, **characterised in that** the second joint part (14) is produced from a metal, a plastic or a composite material.

9. The joint according to any one of claims 7 or 8, **characterised in that** the outer intermediate spaces (15) of the second joint part (14) are protected against the penetration of foreign bodies.

10. The joint according to claim 10, **characterised in that** the outer intermediate spaces (15) of the second joint part (14) are filled with an elastomer (34).

11. The joint (10) according to any one of claims 1 to 10, **characterised in that** the tool (20) and/or the drive are connected to the joint (10) by means of a hydraulic clamping element (16).

12. The joint according to claim 11, **characterised in that** the hydraulic clamping element (16) represents a detachable, friction-locked and form-fit connection.

13. A method wherein a joint (10) according to any one of claims 1 to 12 is used, **characterised in that**
- the first joint part (12) is guided in a second joint part (14);
- axial forces are taken up and/or transmitted by the first joint part (12);
- the second joint part (14) is produced from a torsionally stiff material and that torques are transmitted by the second joint part (14) and
- no lubricants are used in the joint (10).

14. The method according to claim 13, **characterised in that** the tool (20) and/or the drive are connected threadless to the joint (10) by means of a hydraulic clamping element (16).

15. The method according to any one of claims 13 or 14, **characterised in that** the first joint part (12) is produced from various materials.

16. The method according to any one of claims 13 to 15, **characterised in that** the first joint part (12) comprises a first part (24) and a second part (26), and that the first part (24) and the second part (26) are connected by a further joint (28).

Claims

1. A joint (10) for the transmission of torques and axial forces in conjunction with an eccentric rotary motion, **characterised in that** the joint (10) connects a coupling rod (18), a tool (20) and/or a drive by means of a connecting element and is provided with at least one casing, wherein the force transmission essentially takes place without the use of elastomers and the axial forces can be transmitted by a first joint part (12) and the torques by a second joint part (14), wherein the second joint part (14) forms the casing.

2. The joint (10) according to claim 1, characterized in that the connecting element is a hydraulic clamping element (16).

3. The joint (10) according to claims 1 and 2, **characterised in that** the first joint part (12) is a bending arm, a bolt or an additional joint and that the first joint part (12) is disposed in the centre of the second joint part (14).

4. The joint (10) according to claim 3, **characterised in that** the first joint part (12) is produced from a flexurally stiff material.

5. The joint (10) according to any one of claims 3 or 4, **characterised in that** the first joint part (12) has various geometrical design shapes.

6. The joint (10) according to any one of claims 2 to 5, **characterised in that** the first joint part (12) comprises a first part (24) and a second part (26).

7. The joint (10) according to claim 6, **characterised in that** the first joint part (24) and the second part (26) of the first joint part (12) are connected by a further joint (28).

8. The joint (10) according to claims 1 and 2, **characterised in that** the second joint part (14) is a torsionally stiff casing for the joint (10), preferably a bellows or a membrane, wherein the second joint part (14) can also be produced multi-layered.

9. The joint (10) according to claim 8, **characterised in that** the second joint part (14) is produced from a metal, a plastic or a composite material.

10. The joint according to any one of claims 8 or 9 **characterised in that** the outer intermediate spaces (15) of the second joint part (14) are protected against the penetration of foreign bodies.

11. The joint according to claim 10, **characterised in that** the outer intermediate spaces (15) of the second joint part (14) are filled with an elastomer (34).

12. The joint according to claim 2, **characterised in that** the hydraulic clamping element (16) represents a detachable, friction-locked and form-fit connection.

13. A method wherein a joint (10) according to any one of claims 1 to 12 is used, **characterised in that**
- the first joint part (12) is guided in a second joint part (14);
- axial forces are taken up and/or transmitted by the first joint part (12);
- the second joint part (14) is produced from a torsionally stiff material and that torques are transmitted by the second joint part (14);
- no lubricants are used in the joint (10)
- wherein the tool (20) and/or the drive are connected threadless to the joint (10) by means of a connecting element.

14. The method according to claim 13, characterized in that the connecting element is a hydraulic clamping element (16).

15. The method according to any one of claims 13 or 14, **characterised in that** the first joint part (12) is produced from various materials.

16. The method according to any one of claims 13 to 15, **characterised in that** the first joint part (12) comprises a first part (24) and a second part (26), and that the first part (24) and the second part (26) are connected by a further joint (28).