CLAIMS

1. A lifting tool (1) for lifting an element of an offshore structure, such as a transition piece (2) of an offshore wind turbine, comprising a frame (8), a plurality of engagement members (6) for engaging an element (2) to be lifted, which engagement members (6) are mounted to the frame (8) at an angular distance from each other about a centreline of the frame (8), a hoisting member (9) to be connected to a hoisting cable of a crane, and located within a virtual cylinder on which the engagement members (6) lie, wherein the lifting tool (1) comprises at least three linear actuators (10), wherein the hoisting member (9) and the frame (8) are interconnected rigidly through the at least three linear actuators (10) which are arranged such that the hoisting member (9) is movable with respect to the frame (8) in a plurality of radial directions with respect to the centreline, independently from the engagement members (6).

2. A lifting tool (1) according to claim 1, wherein the actuators (10) are coupled to the frame (8) at the engagement members (6).

3. A lifting tool (1) according to claim 1 or 2, wherein the hoisting member (9) is located above the frame (8) under operating conditions of the lifting tool (1).

4. A lifting tool (1) according to any one of the preceding claims, wherein the hoisting member (9) and the frame (8) are interconnected through three linear actuators (10) which are positioned at equiangular distance about the hoisting member (9) when the hoisting member (9) is located at the centreline.

5. A lifting tool (1) according to claim 4, wherein each of the linear actuators (10) is pivotally mounted to the hoisting member (9) through a first pivot (11) and

pivotally mounted to the frame (8) through a second pivot (12).

6. A lifting tool (1) according to claim 5, wherein each of the linear actuators (10) extends substantially perpendicular to the centreline, wherein the first pivot (11) and the second pivot (12) have respective pivot axes which extend substantially parallel to the centreline.

7. A lifting tool (1) according to claim 4 or 5, wherein the linear actuators form a tripod.

8. A lifting tool (1) according to any one of the preceding claims, wherein the linear actuators comprise hydraulic cylinders (10).

9. A lifting tool (1) according to any one of the preceding claims, wherein the engagement members (6) are provided with respective supporting elements including upwardly directed supporting surfaces (16) for engaging cooperating lifting plates (7) of an element(2) to be lifted, wherein the frame (8) is provided with a driving device (13) for rotating the lifting tool (1) with respect to an element (2) to be lifted so as to move the supporting elements to a position below the lifting plates (7).

10. A lifting tool (1) according to claim 9, wherein the driving device is formed by a drivable driving wheel (13) which is movable in radial direction of the centreline.

11. A lifting tool (1) according to claim 9 or 10, wherein the supporting elements are directed to the centreline of the frame (8).

12. A lifting tool (1) according to any one of the preceding claims, wherein the lifting tool (1) is provided with an alignment apparatus which comprises a camera (21) that is positioned such that a view line (22) of the camera (21) extends in the same direction as the centreline of the frame

(8), and a control device for receiving and processing a signal from the camera, which is configured such that, when a transition piece (2) is to be mounted to a monopile by the lifting tool (1) and the transition piece (2) approaches the monopile, the control device determines at least two circumferential images (26, 27) of the monopile along its length on the basis of the camera signal, for example an upper edge and a lower edge of the monopile, and generates respective imaginary circumferential images (24, 25) having fixed positions at different locations along the view line (22) of the camera (21) and shows the images (24–27) to an operator via a user interface.

13. A lifting tool (1) according to any one of the preceding claims, wherein the element (2) to be lifted is a tubular element (3) which comprises a removable protection lid (5) for closing the tubular element (3).