

CLAIMS

1. A lifting device (1) for lifting a tubular pile (2), comprising a hoisting member (3) including a centreline (CL), a plurality of engagement elements (5) which are
5 moveably mounted to the hoisting member (3) at angular distance with respect to each other about the centreline (CL) and actuators (7) for moving the respective engagement elements (5) with respect to the hoisting member (3), wherein
10 the engagement elements (5) are moveable in longitudinal direction of the centreline (CL) along respective guides (6) of the hoisting member (3), which guides (6) are inclined with respect to the centreline (CL) such that the engagement elements (5) move in radial direction of the centreline (CL)
15 when being moved in longitudinal direction of the centreline (CL), wherein the actuators (7) are functionally interconnected such that under operating conditions the actuators (7) move the engagements elements (5) simultaneously until a first one of the actuators (7) reaches a counterforce
20 which is higher than a counterforce of a second one of the actuators (7), after which the second one of the actuators (7) is moved further.

2. A lifting device (1) according to claim 1,
wherein the actuators comprise hydraulic cylinders (7)
25 including respective pressure chambers (8), which communicate with each other.

3. A lifting device (1) according to claim 1 or 2,
wherein each of the engagement elements (5) has a wedge shape including an outer side which is directed away from the
30 hoisting member (3) and which extends substantially parallel to the centreline (CL).

4. A lifting device (1) according to one of the preceding claims, wherein a flange (10) is mounted to the hoisting member (3) for contacting an upper end of a monopile (2) when at least a portion of the lifting device (1) including the engagement elements (5) is inserted in the monopile (2).

5. A lifting device (1) according to one of the preceding claims, wherein each of the engagement elements (5) is provided with a resilient cover at a side of the engagement element (5) which faces away from the hoisting member (3).

6. A method of lifting a tubular pile (2) by means of a lifting device (1) which is provided with a hoisting member (3) including a centreline (CL), a plurality of engagement elements (5) which are moveably mounted to the hoisting member (3) at angular distance with respect to each other about the centreline (CL), wherein the engagement elements (5) are moveable in longitudinal direction of the centreline (CL) along respective guides (6) of the hoisting member (3), which guides (6) are inclined with respect to the centreline (CL) such that the engagement elements (5) move in radial direction of the centreline (CL) when being moved in longitudinal direction of the centreline (CL), wherein the method comprises the steps of inserting the lifting device (1) into the tubular pile (2), moving the engagement elements (5) simultaneously in a direction in which they also move towards an inner wall of the tubular pile (2), stopping the movement of a first one of the engagement elements (5) when it generates a counterforce which is higher than a counterforce of a second one of the engagement elements (5), whereas the second one of the engagement elements (5) is moved further.

7. A method according to claim 6, wherein the second one of the engagement elements (5) is stopped when its counterforce achieves a predetermined level.