

## C L A I M S

1. A marine pipeline installation system for laying an offshore pipeline and/or installing a subsea riser, said system at least being adapted to carry out the reel lay method, wherein the system comprises:
- 5 one or more storage reels (8) for storage of pipeline (11) to be installed, a pipeline launch tower (20) adapted for launching the pipeline into the sea, a pipeline guide (27) at an elevated position for guiding said pipeline to a pipeline launch trajectory (30) along said tower,
- 10 one or more tensioners (40,50) supported by said tower, each tensioner comprising a tensioner frame (41,51) and multiple tracks supported by said tensioner frame, said tracks being adapted for engaging the pipeline and supporting at least part of the weight of the launched pipeline, the tensioner frame (41,51) being supported by said tower via an associated
- 15 support assembly,
- characterised in that,
- the support assembly (45,55) of at least one tensioner frame (20) supported by said tower (40,50), preferably of all tensioner frames, is a hinged support assembly adapted to allow for pivoting displacement of the tensioner frame about a vertical axis
- 20 with respect to the tower between an active position, wherein the pipeline launch trajectory (30) extends through the tensioner frame (41,51) between the tracks, so that the tracks can engage on a pipeline, and a retracted and non-operable position, and wherein the tower (20) is pivotable to adjust inclination of the tower.
- 25 2. A system according to claim 1, wherein in the retracted position of the tensioner frame a clear envelope is present around the pipeline launch ~~trajectory~~trajectory having a minimum distance to said tensioner of at least one metre, preferably at least 2 metres.
- 30 3. A system according to one or more of the preceding claims, further comprising a pipeline support device (70) arranged below said one or more tensioners and adapted to support the weight of the launched pipeline.

4. A system according to one or more of the preceding claims, further comprising one or more actuators (46,56), e.g. hydraulic cylinders, for displacing the tensioner frame between the active and retracted position.

5 ~~5. A system according to one or more of the preceding claims, wherein a tensioner frame is support by parallel bar linkage (45,55) on the tower (20).~~

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6. ~~A system according to one or more of the preceding claims, wherein the tower (20) has a docking station for receiving a tensioner frame (40,50) in its retracted position.~~

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7. ~~A system according to one or more of the preceding claims, wherein the tower (20) comprises two spaced apart main beams (23) interconnected by a number of cross beams (24,25,26), and wherein the one or more tensioners (40,50) in their retracted position are located at least partly between said main beams (23).~~

85. A system according to one or more of the preceding claims, further comprising a vessel (1), e.g. a monohull vessel, on which said tower is arranged.

20 96. A system according to claim 85, wherein said vessel has a moonpool (4) and the marine pipelaying system is adapted to lay pipeline (11) through said moonpool.

~~107.~~ A system according to one or more of the preceding claims, wherein at least one A&R sheave (82,87) is provided at a location above said one or more tensioners (40,50), and wherein an associated A&R winch and A&R wire are provided, said A&R sheave being arranged such that said A&R wire (81,86) can extend along said pipeline launch trajectory (30).

~~118.~~ A system according one or more of the preceding claims, further comprising a J-Lay installation, which J-Lay installation includes at least:

a pipe loader (130) for sequentially supplying pipe sections (140) to an elevated position aligned with the pipeline launch trajectory (30),

a pipe section alignment device (151) for aligning a pipe section (140) with the upper end of the previously launched pipeline (11),

a pipe section work station (152), e.g. adapted for connecting the pipe section to the launched pipeline.

5 ~~129.~~ A system according to claim ~~118,~~ wherein a pipeline workstation (160), e.g. a coating and/or NDT station, is provided below the lowermost tensioner (50), e.g. at a location independent from said tower.

10 ~~1310.~~ A system according to one or more the preceding claims, wherein the vessel includes a moonpool (4) and a pipeline work station (160) is adapted to be arranged in said moonpool.

~~1411.~~ Method for installing an offshore pipeline and/or subsea riser wherein use is made of a system according to one or more of the preceding claims.

15 ~~15.—Method for installing a subsea riser of the type wherein an essentially vertical riser part extends upward from the seabed to a submerged buoy, and a further catenary riser part extends from said buoy to a floating object, wherein use is made of a system according to one or more of the preceding claims which method comprises the steps of:~~

20 ~~retracting the upper tensioner;~~

~~bringing the J-lay equipment in its active position above the lower tensioner;~~

~~creating the vertical riser part using the J-Lay technique;~~

~~suspending the upper end of the vertical riser part by the pipeline support~~

~~device; retracting at least the lower tensioner, possibly both or all tensioners, to~~

25 ~~create a clear envelope after which the buoy is brought into said clear~~

~~envelope above the upper end of the launched vertical riser part;~~

~~connecting the buoy to said upper end;~~

~~lowering the assembly of the buoy and vertical riser part;~~

~~effecting reel lay using the system in order to create the catenary riser part~~

30 ~~from the buoy to the floating object.~~