Claims

1. Subsea drilling machine comprising:

   - a drill assembly comprising:

     - a riser pipe having a first end, a second end, and a length extending between said first and second ends; and

     - a drilling machine body coupled to the first end of said riser pipe, said drilling machine body comprising a drilling head;

   - a feed system configured for advancing said drill assembly in a first direction; and

   a spoil removal system;wherein said riser pipe is provided with at least one rack extending along at least a part of the length of the riser pipe;

   wherein said feed system comprises a motor coupled to a pinion, said pinion arranged for engaging with said rack for advancing said drill assembly in said first direction; and

   wherein said spoil removal system comprises a conduit extending through said drilling head and said riser pipe, and a spoil exhaust provided at the second end of said riser pipe.

2. The subsea drilling machine according to claim 1, wherein said at least one rack extends over substantially the entire length of the riser pipe.

3. The subsea drilling machine according to claim 1 or 2, wherein said riser pipe is provided with a plurality of said racks, said racks distributed along a circumference of said riser pipe, each rack extending along at least a part of the length of the riser pipe, and wherein said feed system comprises a corresponding plurality of pinions or sets of pinions, each pinion or set of pinions arranged for cooperating with one rack.

4. The subsea drilling machine according to any one of the preceding claims, wherein said feed system comprises a plurality of pinions for each rack.

5. The subsea drilling machine according to any one of the preceding claims, wherein said feed system is a vertical feed system and said first direction is a vertical direction.

6. The subsea drilling machine according to any one of the preceding claims, wherein said riser pipe comprises a plurality of riser pipe modules, each riser pipe module provided with at least one rack extending along its length;

said riser pipe modules coupled to one another such that the at least one rack of the different modules are substantially aligned with one another.

7. The subsea drilling machine according to any one of the preceding claims, wherein said feed system is coupled to a tube, said tube configured for coupling to a second entity such as a drilling machine receiving section of a template, and substantially fixating said feed system with respect to said second entity.

8. The subsea drilling machine according to claim 1, further comprising a pump arranged in said drilling machine body, said pump arranged for pumping said spoil from said drilling head to said spoil exhaust.

9. The subsea drilling machine according to any one of the preceding claims, wherein the drilling machine body further comprises a drilling head driving system for operating the drilling head.

10. The subsea drilling machine according to any one of the preceding claims, further comprising a control unit configured for controlling operation of one or more of the feed system, the drilling machine, and/or the spoil removal system.

11. The subsea drilling machine according to claim 10 when depending on claim 9, wherein the control unit is configured to control operation of the drilling head driving system when controlling operation of the drilling machine.

12. A method for drilling a hole in seabed, said method comprising the steps of:

- providing a drill assembly comprising a riser pipe and a drilling machine body coupled to a first end of said riser pipe, said drilling machine body comprising a drilling head;

- providing a feed system configured for advancing said drill assembly in a first direction;

- assembling said drill assembly with said feed system to form a drilling machine;

- arranging a template onto the seabed, said template comprising one or more drilling machine receiving sections;

- arranging said drilling machine in one of said drilling machine receiving sections;

- fixating said feed system with respect to said template;

- advancing said drill assembly into said seabed by operating said feed system, by substantially continuously moving said riser pipe with respect to said feed system, while operating said drilling head;

- retracting said drill assembly from said hole after having reached a final depth of said hole; and

removing spoil via a spoil return pipe arranged within said drilling machine body and said riser pipe, and discharging said spoil at spoil discharge arranged at a second end of said riser pipe.

13. The method according to claim 12, wherein said advancing said drill assembly is performed by a rotating pinion engaging with a rack extending along at least a part of a length of said riser pipe.

14. The method according to claim 12, wherein said advancing said drill assembly is performed by alternatingly operating a first feed subsystem and a second feed subsystem; wherein one of the first and second feed subsystems is operated to advance the drill assembly while the other one of the first and second feed subsystem is reset.

15. The method according to any one of claims 12 to 14, further comprising the step of:

- prior to said step of arranging said drilling machine in one of said drilling machine receiving sections, arranging a casing substantially around said drilling machine body.

16. The method according to claim 15, wherein said casing is advanced into the seabed together with said drill assembly.

17. The method according to claim 15 or 16, wherein during said step of advancing the drill assembly into the seabed, said drilling head protrudes ahead of the casing.

18. The method according to claim 15 or 16, wherein during said step of advancing the drill assembly into the seabed, said drilling head is arranged within said casing.

19. The method according to any one of claims 15 to 18, comprising, when the casing has been inserted into the seabed to a casing depth, further advancing said drilling head into said seabed.

20. The method according to any one of claims 12 to 19, wherein said retracting is performed by operating said feed system in reverse.