CLAIMS

1) Device (200) for measuring the torque or force exerted by a drilling machine (100) during a rotation, driving or lifting of a tool; said measuring device (200) being characterized in that it comprises:

- engaging means (201, 206, 208, 211) with a drilling battery (102a) or with a shaft (110) of at least a drilling equipment (102) or rotary of said machine (100); said engaging means (201, 206, 208, 211) being susceptible of symmetrically or axial-symmetrically locking said drilling battery (102a) or said shaft preventing the rotation and/or the axial displacement in a position in correspondence to said tool and in that to said engaging means (201, 206, 208, 211) is associated at least a transducer means (203, 210) for the detection of at least a maximum torque or of at least a maximum force exerted by said machine (100); and

- in that it is fixedly constrained to said drilling battery (102) or to said shaft (110).

2) Measuring device according to claim 1, susceptible of detecting said torque or said maximum force with a static ending block of said drilling battery (102) or of said shaft (110).

3) Measuring device according to claim 2, comprising also elastic means (211, 215, 250) realizing said static ending block after a rotation and/or an axial displacement corresponding to a force or torque action equal or contrary to said exerted force or

torque.

4) Measuring device according to claim 1, wherein said engaging means comprise a couple of arms (202a, 202b) radially extending from said central element; each of the arms having a first end constrained to said central element and a second end opposed with respect to said first end; on at least an arm (202a) of said couple of arms (202a, 202b) is coupled said transducer means (203, 210) for the detection of the torque or maximum force.

5) Device according to claim 4, wherein each arm of said couple of arms (202a, 202b) has a respective transducer means (203) coupled to it.

6) Measuring device according to claim 4, comprising a couple of supporting elements (205a, 205b) of said at least a transducer means (203) for the detection of the maximum torque.

7) Measuring device according to claim 4, characterized in that it is configured to measure said at least maximum torque on a lever arm selected among a plurality of lever arms of different length, and in that said arms (202a, 202b) comprise each one a plurality of holes (202c) upon which is selectively constrainable said at least a transducer means (203) for the detection of the maximum torque.

8) Measuring device according to claim 4, wherein said at least a transducer means (203) for the detection of the maximum force is configured to measure at least a force along a direction orthogonal to a

rotation axis of said shaft or drilling battery (102a).

9) Measuring device according to claim 4, wherein said at least a transducer means (203) for the detection of the maximum force is configured to measure at least a force along a direction parallel to a rotation axis of said shaft or drilling battery.

10) Measuring device according to claim 9, comprising also a gear transmission box (209) interposed between said drilling battery or said shaft and said transducer means (210).

11) Measuring device according to claim 1, wherein said transducer means (203) is a load cell.

12) Measuring device according to claim 1, wherein said transducer means (210) is a torque measurer or torque meter.

13) Measuring device according to any of the preceding claims, comprising a display instrumental means (500), susceptible of representing and/or storing a plurality of torque or force values detected by said at least a transducer means (203); said plurality of torque or force values comprising a maximum torque or force value.

14) Measuring device according to claims 5 and 13, wherein said display instrumental means (500) represents a torque or force value mediated between two values measured by respective transducer means (203).

15) Measuring device according to claims 3 and 13, wherein said display instrumental means (500) represents a torque or force value trend linked to the

elastic rotation of the device.

16) Measuring device according to claim 2 comprising also a linear actuating element (310) contrasting with a torque transmitted by the machine (100) and wherein the torque progressive variation is determined by the change of the inner pressure of the cylinder.

17) Measuring device according to claims 13 and 16, wherein said linear actuating element is a cylinder and wherein the trend of pressure values of said cylinder determines the resisting torque which is compared to the one registered by said display instrumental means (500) in order to verify the correctness of its measurement.

18) Measuring device according to claim 1, wherein said torque is measured in a retroaction configuration on itself, that is on the frame of the rotary 102 or on the antenna 101.

CLAIMS

1) Device (200) for measuring the torque or force exerted by a drilling machine (100) during a rotation, driving or lifting of a tool; said measuring device (200) being characterized in that it comprises:

- engaging means (201, 206, 208, 211) for engaging a drilling battery (102a) or a shaft (110) of at least a drilling equipment (102) or rotary of said drilling machine (100) ; said engaging means (201, 206, 208, 211) being configured for symmetrically or axial-symmetrically locking said drilling battery (102a) or said shaft preventing the rotation and/or the axial displacement in a position in correspondence to said tool and in that to said engaging means (201, 206, 208, 211) is associated at least a transducer means (203, 210) for the detection of at least a maximum torque or of at least a maximum force exerted by said drilling machine (100); and

- in that said measuring device is configured to be fixedly constrained to said drilling battery (102) or to said shaft (110).

2) Measuring device according to claim 1, configured for detecting said torque or said maximum force with a static ending block of said drilling battery (102) or of said shaft (110).

3) Measuring device according to claim 2, comprising also elastic means (211, 215, 250) realizing said static ending block after a rotation and/or an axial displacement corresponding to a force or torque action equal or contrary to said exerted force or

torque.

4) Measuring device according to claim 1, wherein said engaging means comprise a couple of arms (202a, 202b) radially extending from said central element; each of the arms having a first end constrained to said central element and a second end opposed with respect to said first end; on at least an arm (202a) of said couple of arms (202a, 202b) is coupled said transducer means (203, 210) for the detection of the torque or maximum force.

5) Device according to claim 4, wherein each arm of said couple of arms (202a, 202b) has a respective transducer means (203) coupled to it.

6) Measuring device according to claim 4, comprising a couple of supporting elements (205a, 205b) of said at least a transducer means (203) for the detection of the maximum torque.

7) Measuring device according to claim 4, characterized in that it is configured to measure said at least maximum torque on a lever arm selected among a plurality of lever arms of different length, and in that said arms (202a, 202b) comprise each one a plurality of holes (202c) upon which is selectively constrainable said at least a transducer means (203) for the detection of the maximum torque.

8) Measuring device according to claim 4, wherein said at least a transducer means (203) for the detection of the maximum force is configured to measure at least a force along a direction orthogonal to a

rotation axis of said shaft or drilling battery (102a).

9) Measuring device according to claim 4, wherein said at least a transducer means (203) for the detection of the maximum force is configured to measure at least a force along a direction parallel to a rotation axis of said shaft or drilling battery.

10) Measuring device according to claim 9, comprising also a gear transmission box (209) interposed between said drilling battery or said shaft and said transducer means (210).

11) Measuring device according to claim 1, wherein said transducer means (203) is a load cell.

12) Measuring device according to claim 1, wherein said transducer means (210) is a torque measurer or torque meter.

13) Measuring device according to any of the preceding claims, comprising a display instrumental means (500), susceptible of representing and/or storing a plurality of torque or force values detected by said at least a transducer means (203); said plurality of torque or force values comprising a maximum torque or force value.

14) Measuring device according to claims 5 and 13, wherein said display instrumental means (500) represents a torque or force value mediated between two values measured by respective transducer means (203).

15) Measuring device according to claims 3 and 13, wherein said display instrumental means (500) represents a torque or force value trend linked to the

elastic rotation of the device.

16) Measuring device according to claim 2 comprising also a linear actuating element (310) contrasting with a torque transmitted by the machine (100) and wherein the torque progressive variation is determined by the change of the inner pressure of the cylinder.

17) Measuring device according to claims 13 and 16, wherein said linear actuating element is a cylinder and wherein the trend of pressure values of said cylinder determines the resisting torque which is compared to the one registered by said display instrumental means (500) in order to verify the correctness of its measurement.

18) Measuring device according to claim 1, wherein said torque is measured in a retroaction configuration on itself, that is on the frame of the rotary 102 or on the antenna 101.