

C L A I M S

1. A torque device (1) for oil field use that includes a first torque device member (10) that has an operational axis (34) of rotation, and where a first torque actuator (42) is pivotally connected to the first torque device member (10) at a first radial distance (46) from a centre line (48) of the first torque device member (10),
~~wherein, characterized in that~~ a rod (50) or a second torque actuator (66) is pivotally connected to the first torque device member (10) at a second radial distance (54) extending in the opposite direction relative the first radial distance from the centre line (48), and where the first torque actuator (42) is pivotally connected to a first portion (56) of an actuator support (58), and where the rod (50), alternatively the second torque actuator (66), is pivotally connected to a second portion (60) of the actuator support (58), and where the actuator support (58) is radially movable relative the operational axis (34), but is restricted from rotating in a plane (XY) that is perpendicular to the operational axis (34),
characterized in
 - that the first torque device member (10) is connected to a second torque device member (68) that shares the operational axis (34);
 - ~~that~~ the actuator support (58) is connected to the second torque device member (68); and
 - that the actuator support (58) is pivotally connected to the second torque device member (68) about a pivot axis (77) that has a direction to let the actuator support (58) be pivotable to and from the operational axis (34).

2. A torque device (1) according to claim 1, c h a r -
 a c t e r i z e d i n that the first torque actuator
 (42) at the first portion (56) of the actuator support
 (58), and the rod (50), alternatively the second torque
 5 actuator (66), is pivotally connected to the second
 portion (60) of the actuator support (58) about an axis
 (78) that is joining the first portion (56) and the
 second portion (60).

~~3. A torque device (1) according to claim 1, c h a r -
 10 a c t e r i z e d i n that the first torque device
 member (10) is connected to a second torque device
 member (68) that shares the operational axis (34).~~

~~4. A torque device (1) according to claim 3, c h a r -
 15 a c t e r i z e d i n that the actuator support (58)
 is connected to the second torque device member (68).~~

~~5. A torque device (1) according to claim 4, c h a r -
 a c t e r i z e d i n that the actuator support (58)
 is pivotally connected to the second torque device
 member (68) about a pivot axis (77) that has a direction
 20 to let the actuator support (58) be pivotable to and
 from the operational axis (34).~~

~~6.~~3. A torque device (1) according to claim 1, c h a r -
 a c t e r i z e d i n that the first torque actuator
 (42) is connected to a torque device member body (12) of
 25 the first torque member (10) by a first actuator fixture
 (44).

~~7.~~4. A torque device (1) according to claim 1, c h a r -
 a c t e r i z e d i n that the rod (50), alternatively
 the second torque actuator (66), is connected to a
 30 torque device member body (12) of the first torque
 member 10 by a second actuator fixture (52).

~~8.5.~~ A torque device (1) according to claim 1, characterized in that the first portion 56 and the second portion (60) of the actuator support (58) are positioned at the same height along the operational axis (34).

~~6.~~ ~~9.~~ A torque device (1) according to claim 1, characterized in that the first torque actuator (42) at least over some of its working range is parallel with the rod (50), alternatively with the second torque actuator (66).

7. A torque device (1) according to any of the preceding claims, characterized in that the torque device (1) further is provided with one or more sensors (250, 252, 254, 255) for reflecting the stroke position on at least one torque actuator (42, 66).

8. A torque device (1) according to any of the preceding claims, characterized in that the torque device (1) further is provided with one or more force sensors (256, 258, 259) for giving a signal reflecting the a force exerted by at least on torque actuator (42, 66).

9. A torque device (1) according to claims 7 or 8, characterized in that the torque device (1) further comprises a torque control system (260) connected to said sensors (250, 252, 254, 256, 258, 259) and programmed to calculate torque or torque turn data.

10. A torque device (1) according to claim 9, characterized in that the torque control system (260) is equipped with memory (264) for storing said torque or torque turn data.

11. A torque device (1) according to any of the preceding claims, characterized in that the torque device (1) further comprises an apparatus (270) for reading the relative surface position of pipes (4, 6).

~~10.12.~~ Method of operation of a torque device (1) for oil field use that includes a first torque device member (10) that has an operational axis (34) of rotation, and where a first torque actuator (42) is pivotally connected to the first torque device member (10) at a first radial distance (46) from a centre line (48) of the first torque device member (10), ~~characterized in that~~ wherein the method further includes:

- connecting a rod (50) or a second torque actuator (66) to the first torque device member (10) at a second radial distance (54) that extends in the opposite direction relative the first radial distance from the centre line (48);

- pivotally connecting the first torque actuator (42) to a first portion (56) of an actuator support (58);

- pivotally connecting the rod (50), alternatively the second torque actuator (66), to a second portion (60) of the actuator support (58); and

- enabling the actuator support (58) to move radially relative the operational axis (34), but restricting the actuator support (58) from rotating in a plane (XY) that is perpendicular to the operational axis (34),

characterized in that the method further includes the following steps:

- connecting the first torque device member (10) to a second torque device member (68) that shares the operational axis (34);

- connecting the actuator support (58) to the second torque device member (68); and
 - pivotally connecting the actuator support (58) to the second torque device member (68) about a pivot axis (77) that has a direction to let the actuator support (58) be pivotable to and from the operational axis (34).

~~11.13.~~ Method of operation of a torque device (1) according to claim ~~12~~~~10~~, characterized in that the method further includes pivotally connecting the first torque actuator (42) at the first portion (56) of the actuator support (58), and the rod (50), alternatively the second torque actuator (66), at the second portion (60) of the actuator support (58) about an axis (78) that join the first portion (56) and the second portion (60).

~~12. Method of operation of a torque device (1) claim 10, characterized in that the method further includes connecting the first torque device member (10) to a second torque device member (68) that shares the operational axis (34).~~

~~13. Method of operation of a torque device (1) claim 10, characterized in that the method further includes connecting the actuator support (58) to the second torque device member (68).~~

~~14. Method of operation of a torque device (1) claim 13, characterized in that the method further includes pivotally connecting the actuator support (58) to the second torque device member (68) about a pivot axis (77) that has a direction to let the actuator support (58) be pivotable to and from the operational axis (34).~~

14. ~~15.~~ Method of operation of a torque device (1) according to claim ~~12~~10, characterized in that the method further includes positioning the first portion 56 and the second portion (60) of the actuator support (58) at the same height along the operational axis (34).

15. Method of operation of a torque device (1) according to any of the claims 12-14, characterized in that the method further comprises the step of compensating for change in moment arm (266), upon rotating the first torque device member (10), by changing the force on the torque actuator (42, 66).