

CLAIMS

1. Test bench including:

- A first and a second spindle (3, 4) facing each other and spaced apart to mount a pair of splined components

5 - A torque generating device (5) comprising an input element (6) and an output element (7) connected by means of a mechanism for adjusting the relative angular position between the input and the output element

10 - A first transmission (8) to rotationally connect the first spindle to the input element (6)

- A second transmission (9) to rotationally connect the second spindle to the output element (7)

- A PTO adapted to connect a rotary motor (2) to apply a power directly or indirectly to one of said first and second spindles; wherein

15 the transmissions (8, 9) are arranged so as to obtain in use a torque recirculation through the device (5) and the pair of splined components along a first branch (10) having a first axis (A) and comprising the spindles (3, 4) and a second branch (11) having a second axis (B) and connectable to the rotary motor (2) and spaced from the first branch;

20 at least one of the spindles (3, 4) is movable transversely to the first branch (10) to impose a position error in use on the splined components; and

the at least one of the spindles (3, 4) is connected to a flexible joint (15, 16) to provide the movement of the spindle with respect to the first axis (A).

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2. Test bench according to claim 1, wherein the spindles (3, 4) are

movable in the same direction and / or independently of each other with respect to the first axis (A) along at least one guide (20).

3. Test bench according to claim 2, comprising a table (25) on which the spindles are mounted on a common table (25) movable on said at least one guide (20).
4. Test bench according to any one of the preceding claims, wherein the transmissions (8, 9) have a transmission ratio that is not unitary and preferably multiplies the angular speed of the motor (2).
5. Test bench according to claim 4, wherein the device (5) is arranged in use on the second branch (11) at a lower speed.
6. Test bench according to any one of the preceding claims, wherein the transmissions (8, 9) are synchronous.
7. Test bench according to any of the previous claims, comprising at least one position sensor for said spindles (3, 4) and / or a load cell arranged on at least one spindle to measure the loads due to the position error.
8. Test bench according to any one of the preceding claims, comprising a torque sensor for generating a signal representative of the load applied by the torque generating device (5).
9. A test method for a bench according to claim 7, comprising the steps of:
 - Clamping the components to be tested on the spindles (3, 4)
 - Applying a load via the torque generating device
 - Recording load cell data while the components are rotating around the first axis (A).
10. Test method for a bench according to claim 7, comprising the steps of:
 - Clamping the components to be tested on the spindles (3, 4)

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- Moving said at least one spindle (3; 4) to generate a misalignment
- Recording load cell data while the components are rotating around the first axis (A) without a load applied via the torque generating device.