

Spindle alignment position measuring system

Description: Adjust encoder settings on the gear unit with ZF gearbox or Weiss motor spindle.

Aids: Spindle alignment tools

When: After encoder replacement, motor replacement

Note: After encoder replacement (external or motor encoder)

Description:

Generally speaking, incremental measuring systems are used for spindles; unlike absolute measuring systems, they do not need to be calibrated. Nevertheless, the control system must be provided with the displacement between the measuring system's zero mark signal and the mechanical zero of the spindle. The spindle is usually operated with speed control, in which the position is not relevant. When changing tools or screw tapping, however, the position of the spindle is important. All spindle positions which are important to a tool change are based on the 0° position. Following a replacement of the spindle or encoder, this position must be reset. As a rule, a spindle alignment tool is used for this purpose.

Procedure for spindles with ZF gearbox:

1. Set password SUNRISE.
2. Set machine data *MD 34090 [0]* and *34090 [1]* of the axis to "0"
3. Turn machine off/on.
4. After starting up, enter and launch the following program in MDA
 - a. M3 S50
 - b. G4 F2
 - c. SPOS=0
 - d. M30
5. Notch in gripper track viewed from the front (WPC) top left.
6. Stop motors <Feed Stop>
7. Use aids to position the spindle at the mech. exact 0° position. See MS-MRA?????
8. Enter the position indicated by actual position measuring system 1 from the service display in *MD34090[0]* and the position indicated by actual position measuring system 2 in *MD 34090[1]*.
9. Turn machine off/on again.

Check the adjustment:

After start-up, type in and run the following program in MDA:

1. Start the following program in MDA
 - a. M3 S50
 - b. G4 F2
 - c. SPOS=0
 - d. M30
2. Check the position
3. Data backup
4. Delete password.

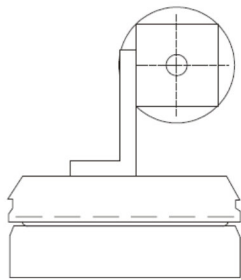
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Procedure for Weiss motor spindles:

Procedure:

1. Select "Commissioning " area.
Enter access level 2 password.
2. Set the reference point displacement of the motor spindle (C1) to 0°:
(set MD 34090[0] to 0°)
3. Machine off/on
4. Ensure that the spindles can move without collision.
5. Select "MDA" operating mode and start the following program:
M3 S50
G4 F2
SPOS[1]=0
The motor spindle moves to the reference point.
6. Insert the alignment disc in the motor spindle with manual tool pick-up.
7. Turn motor spindle to 0° by hand as shown in "measuring arrangement" sketch:
- Align alignment disc at try square.
Or:
- Mount dial gauge on pallet of rotary table,
scan the alignment disc in X or Y-direction using the dial gauge and
rotate the motor spindle to exactly 0°.
8. Read off the current value of the spindle on the machine's position display and enter in
MD34090[0]. Machine off/on
9. Repeat step 5. Spindle is calibrated when display 0.
10. If spindle position is not right, deduct previously entered
value from 360° and enter in MD34090[0].
Machine off/on!

Drawing of measurement setup:



11. Check the adjustment.