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XR20-W tracking modes within RotaryXL

Overview

An explanation of the different tracking mode settings within Renishaw RotaryXL.

During a test, axis movement is controlled by the part program, visiting each target in the run sequence and dwelling at each target position for a sufficient duration for the software to measure the error.

The XR20-W has two distinctive methods of moving between these target points;

- Using either the 'auto feedrate detection' (default) which calculates the feedrate during the overrun or a user defined 'manual feedrate' to counter rotate the axis under test once a target point has been captured.
- 'Positional tracking' of the movement of the axis under test by monitoring the signal strength of the laser.

The modes available under the 'test' tab in the tracking menu are described below.

Auto feedrate detection (default)

The XR20-W system can determine the velocity of the machine under test automatically during the machine overrun move at the beginning of the test. To allow the feedrate to be automatically determined an overrun move of at least 10 degrees should be specified. The maximum feedrate of this mode is 10 rpm.

If, during this move, the software is unable to determine the velocity of the machine it will display a warning message and the following steps should be tried;

- Ensure the overrun feedrate is equal to the feedrate used during the test
- Increase the angle of the overrun move to allow the machine to reach the programmed feedrate
- Decrease the programmed machine feedrate by modifying the part program
- Manually enter the feedrate into the software using the mode below

Manual feedrate

This mode allows the user to manually define the feedrate that has been used in the part program. This feature is especially useful in a situation where there has been difficulty in automatically calculating the feedrate during the over run. The maximum feedrate of this mode is 10 rpm.

Position tracking

This setting allows the user to perform data capture in situations such as manual movement of the axis under test where the feedrate is not a constant. It works by monitoring the signal strength of the laser and indexing the optic in 10 degree steps to optimise the signal.

The dwell period in this mode should be approximately 4 seconds if the default short-term averaging is used and the default measurement period of 1 second selected.

This mode should be used if the user is experiencing problems with either of the above tracking modes during more conventional test conditions.

Positional tracking has a maximum feedrate of 3 rpm.

Application note

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