



The Secret of the Uhing Drive Nut

The numerous useful inventions for drive technology Joachim Uhing KG presented in its history caused surprise and bewilderment among mechanical engineering experts again and again. Observers are often puzzled by the underlying mechanism of our products and ask themselves: How does this work? Wolfgang Weber, the Marketing Head, explains how an Uhing drive nut can be successful although it lacks one technical property.

By developing the drive nut, Uhing conceived a non-positive linear feed element that has become a success as a drive element in measuring machines although it does not have an accuracy of its own. Many engineers and operators of the Uhing drive nut are wondering: How come this technology works reliably in spite of this?

“The secret is its lack of play, a feature that is fundamentally inherent to the construction of the drive nut”, explains Wolfgang Weber, the Uhing Marketing Head. Drive nuts have three or four rolling rings being alternately pushed against the surface of a plain shaft by spring force. These rings connect to the shaft by friction. Skewing the rolling rings results in their rolling off on the surface of the rotating shaft at their pitch angle, thus generating a linear movement.. This results in drive nut and shaft acting like nut and threaded spindle, but without any threads.

An interesting side effect: The spring force required to produce the frictional connection reduces the theoretically existing play to zero automatically so it will not have any detrimental effect. This is why the drive nut instantly translates the smallest back and forth rotation of the shaft into a movement to the left or right because there is no system-inherent play to overcome.

The pitch of the drive nut varies in relation to the actual shaft diameter which is never constant over the entire stroke because the feed distance per shaft revolution depends on the shaft diameter and the pitch angle of the rolling rings. This is why there is no innate accuracy. For this reason, the actual position of the drive nut must be monitored with a precise length scale in the measuring machines, which is a standard equipment of such machines anyway.

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“A release option operated manually or pneumatically is of an additional advantage, in particular for tool adjustment devices,” points out Wolfgang Weber. “Once the drive nut has been uncoupled from the shaft, literally meaning the shaft has been released, the tool or measuring instrument is quickly moved by hand. This prevents damages to delicate components during test sample exchange, and measuring as such is speeded up.” It hardly needs to be mentioned that the Uhing drive nut is running very quietly and requires only little maintenance.