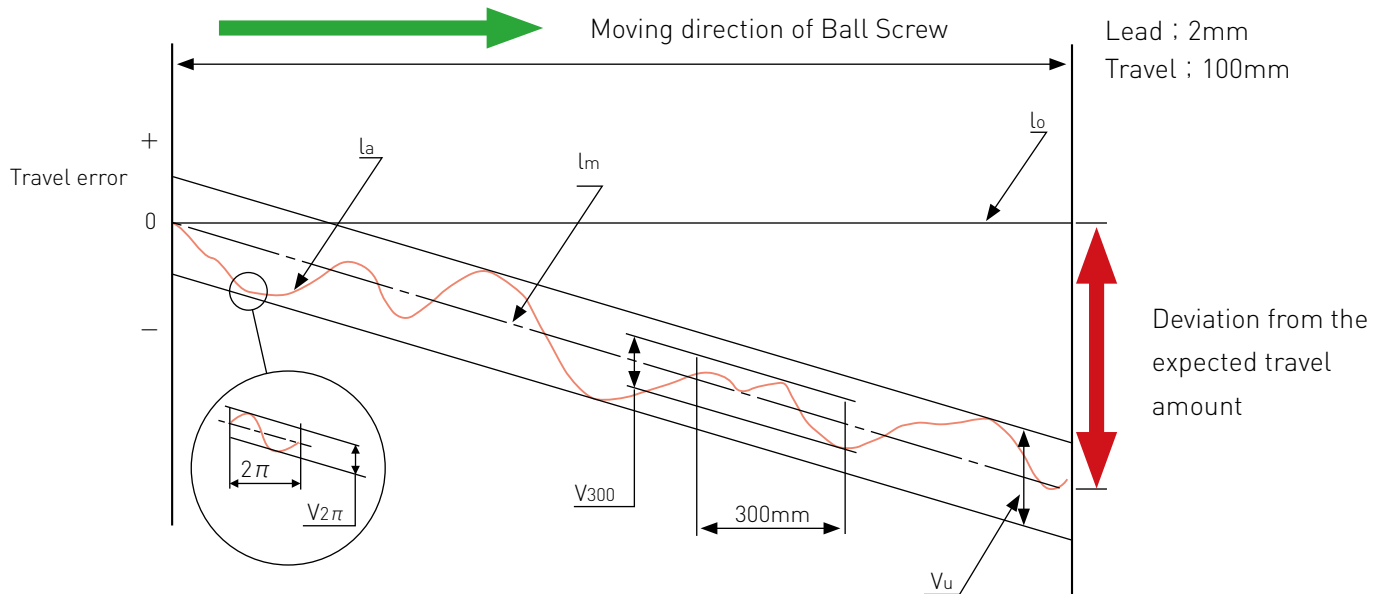


Q&A

Question: Tell us about the Lead accuracy of Ball Screws.

The chart below is called a Lead error diagram (officially Travel deviation diagram), which can be often seen in the drawing or catalogue.



Only showing this diagram will be difficult for beginners, so we will explain with concrete example.

Now, let's assume that there is a Ball Screw with 2mm of Lead and 100 mm of travel. This Ball Screw is expected to move 100mm after 50 revolutions. But to be exact, is it really 100.000mm of travel amount? All of the mechanical components have processing error, so actual travel amount might be 99.980mm or 100.025mm.

The difference between 99.980 or 100.025 and expected travel amount (100.000mm) is called Actual mean travel deviation. This deviation is prescribed in JIS (Japan Industrial Standard) as tolerances on actual mean travel deviation depending on its accuracy grade and travel amount (effective screw length). Actual travel cannot be linear, but it is supposed to express straight line obtained by the method of the least-square from the travel curve over the effective length. Also Travel variations are prescribed over the effective length, arbitrary 300mm and one revolution, which are the difference between maximum and minimum of actual travel curve.

Variations also vary depending on the accuracy grade and travel amount (effective length). You can see tolerances for each item in KSS Master Catalogue (Vol.10.0) .

Some error exist even though high accuracy Ball Screw!!!