

## 5.3 Helix deviations

Helix deviation is the difference in dimension on Pitch cylinder measurement range between Actual tooth trace curved line and Theoretical curved line as defined in JIS B 1702.

For gear accuracy, only Helix deviation is classified by Facewidth and not by module or Pitch diameter. The Measuring stylus measures the Spur gear in axial direction. For Helical gear, gear is rotating while measuring pointer follows helix angle for measuring in axial direction.

Refer to Fig. 9, shows the measurement of Helix deviation for Helical gear.

In JIS B1702, 2 (two) regulation methods of measurement are as follows.

1) **Tooth trace creation method:** Refer to Fig. 9, measuring method by rotating gear on measurement stylus and either the measuring pointer or gear shifts in axial direction in the range of Theoretical tooth trace effective distance at Pitch cylinder.

2) **Operation method:** Coordinate of Tooth profile is measured digitally and compared with theoretical value of Involute tooth profile to calculate the deviation.

In addition, standard lead model can be used for comparison measurement method.

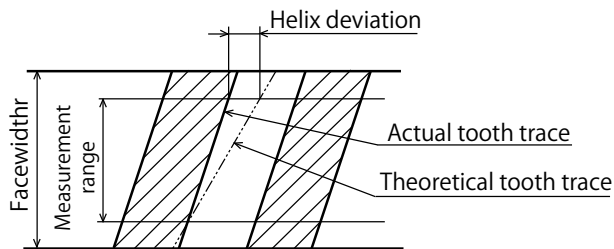


Fig. 6 Helix deviation

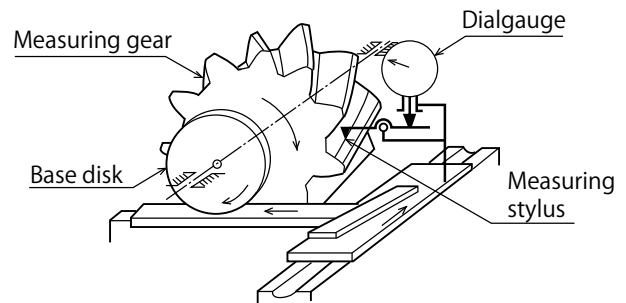


Fig. 9 Measurement for Helix deviation

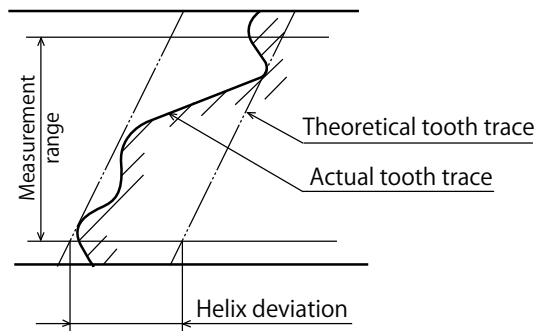


Fig. 7 Helix deviation (Wavy tooth)

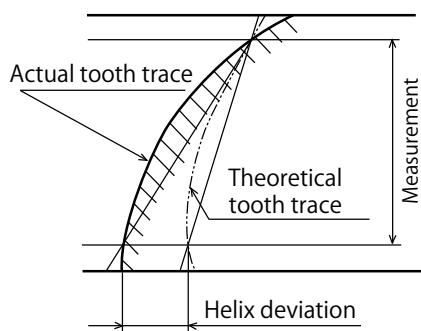


Fig. 8 Helix deviation (Crowned tooth)

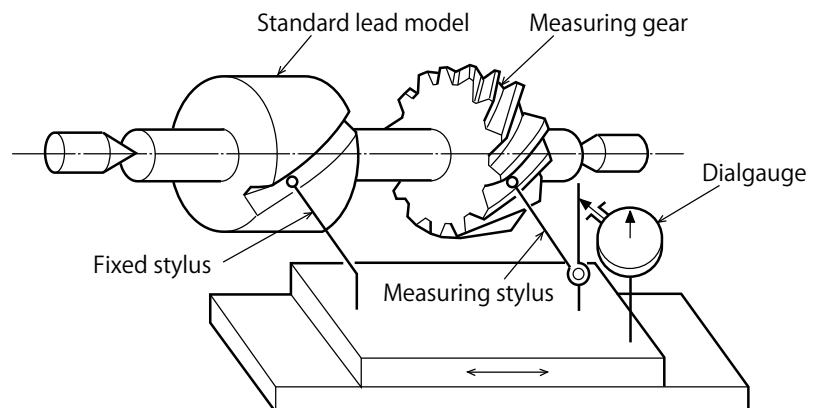


Fig. 10 Comparison measurement mechanism