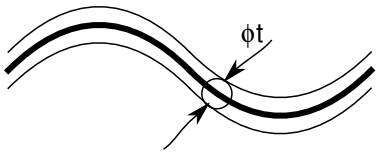
PROCEDURE TO DETERMINE THE PROFILE ERROR OF AN INVOLUTE GEAR

1. The profile tolerance of any line: The tolerance zone is limited by two lines enveloping cirlcles of diameter t, the centres of which are situated on a line having the true geometric form.



2. The profile error of a gear tooth is the deviation of the actual tooth from the theoretical profile in the designed reference plane of rotation. While checking the profile, do not consider tip relief and undercutting, portions of the tooth surface below the active profile.

3. Match the theoretical profile with the observed profile and determine the profile error.

4. If the accuracy class of the gear is specified, the observed profile should be within the profile tolerance zone, as given by the table below.

5. If k is given by $k = m + 0.1\sqrt{D}$, where m is the module and D the pitch circle dia in mm,

Accuracy class or Grade of the gear	6	7	8	9	10	11	12
Profile tolerance in microns	6.3+ 0.63k	8.0+ 1.0k	10.0+ 1.6k	16.0+ 2.5k	25.0+ 4.0k	40.0+ 6.3k	63.0+ 10.0k
For m=1.5, D=42	7.65	10.1	13.4	21.4	33.6	53.5	84.5