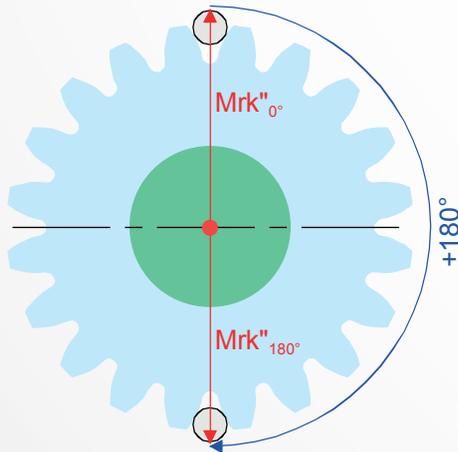


## FRENCO Double Flank Gear Test

# Calculating the Dimension over Balls DOB''

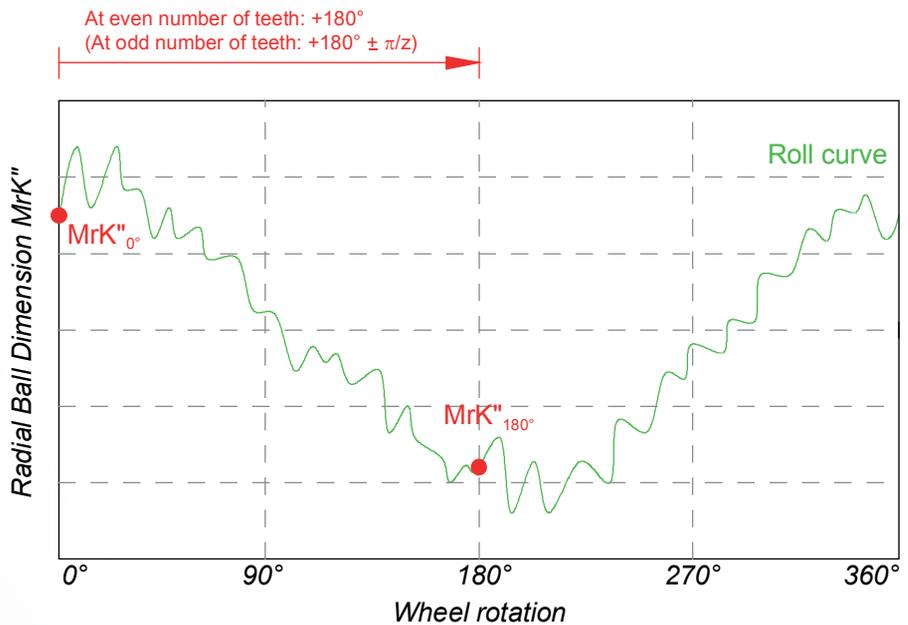
For the double flank gear test, the variations in centre distance during one full rotation are detected and displayed as a roll curve.

The roll curve comes up to the radial changing of the specimen compared to a master gear, almost free from errors. Adjusting the gear tester with known centre distances (setting masters) the absolute value is known and can be converted to the radial ball dimension of the specimen.



To receive an estimate of the dimension over balls DOB'' all opposed radial ball dimensions Mrk'' (+180° at even number of teeth) are added.

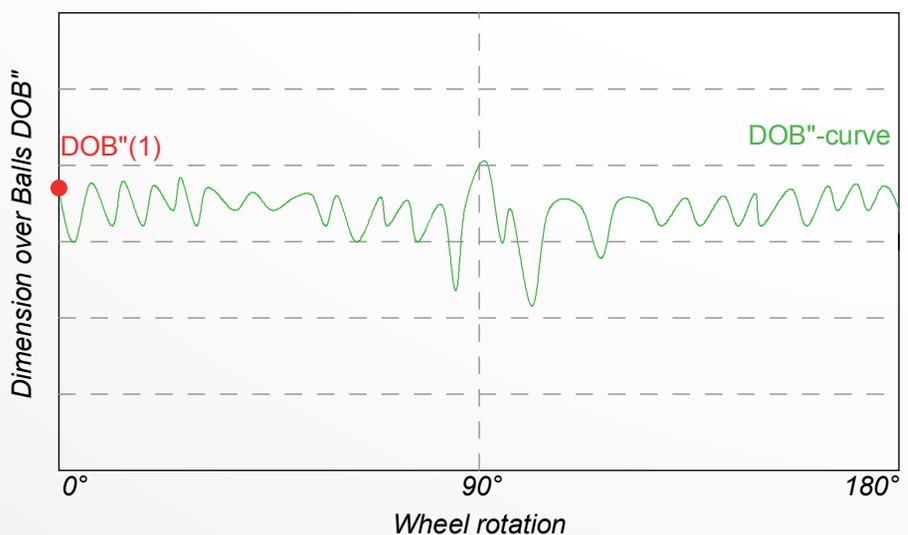
Similar to a real measurement, an eccentricity does not affect this value.



$$DOB''(z) = Mrk''_i + Mrk''_{i+180°}$$

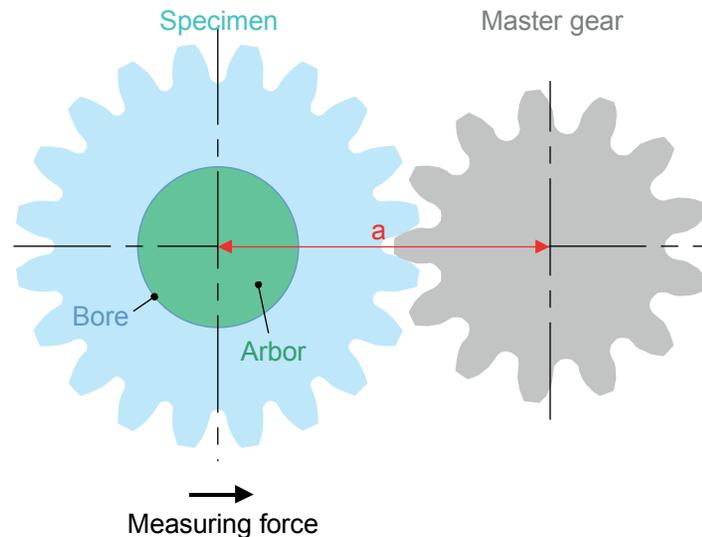
in example:

$$DOB''(1) = Mrk''_{0°} + Mrk''_{180°}$$

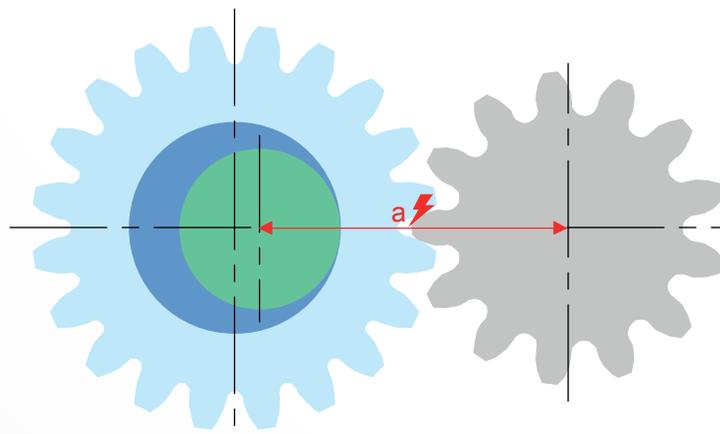


## Optimisation by determining the bore diameter

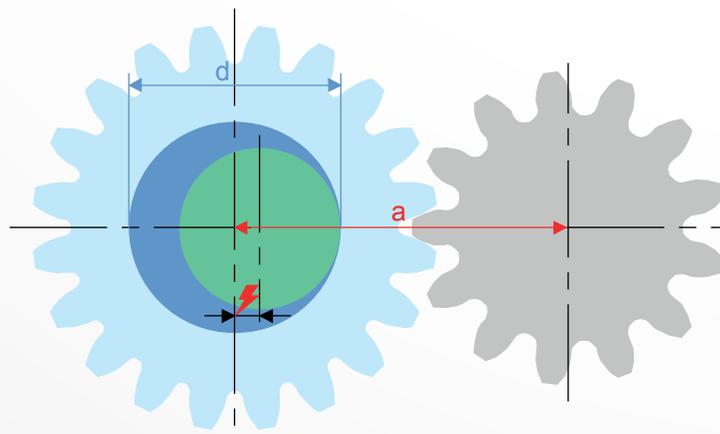
To provide best possible estimates of the dimension over balls, the bore diameter is required. It has an immediate effect on the dimension calculated from the centre distance.



When the bore diameter is too large the measuring force pushes the arbor against the side of the master gear and the absolute dimension will be incorrect.



Only if the bore diameter is known, - including the diameter of the arbor - the offset can be calculated and compensated by the software.



### FRESCO-procedure for a reliable DOB"-Calculation at a glance:

- Consideration of even/odd number of teeth
- Independence of eccentricity
- Determination of the bore diameter

