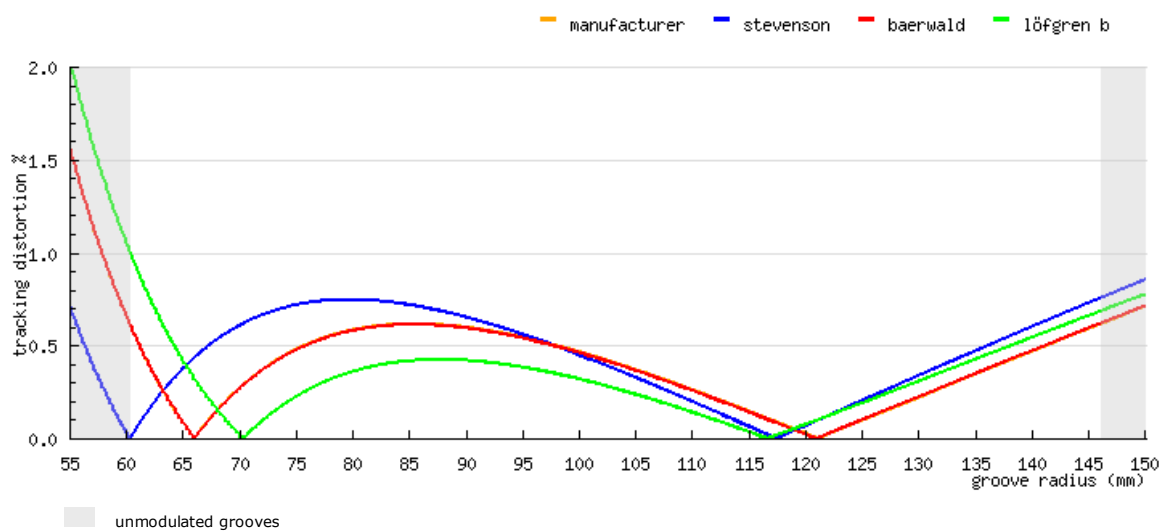


## Tonearm Alignment

Enter the published data for your tonearm to compare it's alignment to optimized alignment geometries. Comparisons can be made against IEC or DIN standard minimum and maximum groove radii.

parameter	Original	Stevenson	Baerwald	Löfgren B
<b>pivot to spindle</b> (mm)	222	222	222	222
<b>effective length</b> (mm)	239.31	237.418	239.296	239.749
<b>overhang</b> (mm)	17.31	15.418	17.296	17.749
<b>offset angle</b> °	23	21.983	22.986	22.94
<b>linear offset</b> (mm)	93.506	88.873	93.445	93.445
<b>inner groove</b> (mm)	60.325	60.325	60.325	60.325
<b>outer groove</b> (mm)	146.05	146.05	146.05	146.05
<b>inner null point</b> (mm)	65.973	60.325	65.998	70.285
<b>outer null point</b> (mm)	121.039	117.421	120.891	116.604
<b>maximum distortion</b> %	0.617	0.756	0.619	0.996
<b>average rms distortion</b> %	0.405	0.495	0.403	0.362

plot of tracking distortion



**Note**

- Figures for inner and outer groove radii relate to the limits of modulated grooves i.e. those with recorded sound
- Distortion figures are calculated from samples of tracking error in the modulated groove area

**Comparison of alignment methods**

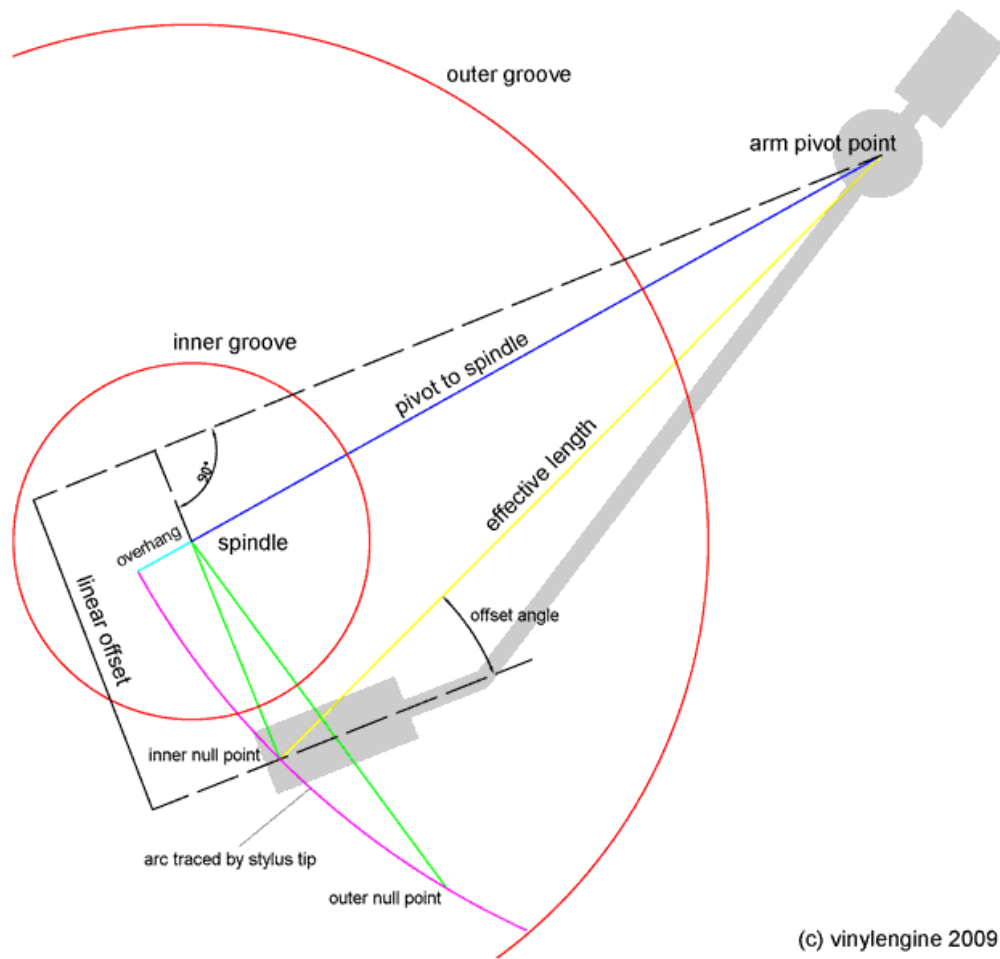
**Stevenson** - a variation on Löfgren geometry optimized for low distortion at the inner groove at the expense of increased distortion elsewhere. compared to Baerwald or Löfgren B you will get lower distortion for the last few mm of the record

**Baerwald** (identical to Löfgren A) - minimizes and equalizes distortion at the three weighted tracking error peaks resulting in moderate distortion between the inner and outer grooves

**Löfgren B** - minimizes distortion between the inner and outer grooves resulting in the lowest average RMS distortion at the expense of slightly higher distortion close to the inner and outer grooves

**Term definition**

Below is a simple illustration showing the relationship between the terms used on this page



Mounting distance - spindle centre to mounting hole centre (normally the same as pivot to spindle distance)

Pivot to spindle - spindle centre to horizontal pivot point of the arm

Effective length - stylus tip to horizontal pivot point of the arm

Overhang - stylus tip to spindle centre overhang

Offset angle - angle between cantilever and a line drawn between the stylus tip and the horizontal pivot point of the arm (not to be confused with headshell angle)

Inner / outer null point - the two points on the arc of travel at which the stylus is perfectly aligned to the groove i.e. null tracking error

Inner / outer groove - the limits of the modulated grooves specified by IEC as 60.325 and 146.05mm and DIN as 57.5 and 146.05mm