

N.B. The information below is my best shot based on my personal experience. This article may be corrected or updated at any time so if you find a mistake or a better way of doing any of this please let me know.

Note also this method will is not suitable for adjusting blade tracking. It will only give the average of the pitches of the two blades.

Modern electronic pitch gauges are excellent but not very practical for small helicopters or tail rotors.

One method of measuring pitch on small rotors is to turn the blades sideways, measure the distance between the tips and calculating, or using a value someone else has calculated.



I was looking at a video about setting up the OMP M1 above which gave pitches as tip to tip measurements in millimetres and thought there should be a simpler way. I drew the geometry in a CAD system and eventually came up with a gauge for the M1 which has a blade length of 125mm. This reads pitch directly in degrees when printed at 1:1 scale.



I realised that I could re-scale it for any helicopter by adjusting for the blade length. (Blade length is the distance from the centre of the bolt hole at the root to the tip.)

Examples of these which can be printed to scale can be found at this link:

[OMP M1 M2 Pitch Gauges To Scale \(PDF\)](#)

(This and the following links are also on the 50K or Bust web site.)

There is also a spreadsheet in either Microsoft (.xls) or OpenOffice (.ods) on these links:

[Pitch Gauge Microsoft Spreadsheet \(.xls\)](#)

[Pitch Gauge OpenOffice Spreadsheet \(.ods\)](#)

To use them replace the “blade length” value with the blade length of your helicopter and use the results to draw your own gauge.

Quick Pitch Calculation

The spreadsheets above use an exact geometric formula. I also stumbled on a simple formula which gives a very good approximation. This could be done on the field with a ruler and phone calculator:

To set a pitch:

Distance between tips = Blade length x Pitch angle / 29

To measure a pitch:

Pitch angle = Distance between tips x 29 / Blade length

I'm sure some people can do these in their heads without a calculator. Not me!
