

# SMARTstylus

The **SMARTstylus** is the 1st universal alignment tool concentrating on the alignment of the cartridge, stylus and cantilever.

It will enable you to fine tune your cartridge's geometrical set-up better than you could ever before and - much faster.

The **SMARTstylus** is a handy device to enable the user to set the desired **SRA** (stylus rake angle) and **VTA** (vertical tracking angle) very fast and most efficient.

It is a **helping tool** - it is not a substitute for fine-tuning by ear.

**Important note:** Estimating angles, relative positions and parallel lines towards each other is foremost a matter of visibility. Further the ability to securely judge geometric positions differs widely between individuals.

This is not a matter of qualification, but a fact of human life and the different talents people have. Please take this into account.

**Further please note:** Due to the small dimensions involved in SRA setting, the visual determination is only an approximate. Nevertheless it will give you a firm and fairly close to optimum point to start with.

All fine-tuning regarding SRA or VTA in a given cartridge is ultimately a matter of listening.

**Assembling the SMARTstylus** Please take the SMARTstylus and its small acrylic crossbar from the hard case. The crossbar will fit - with its center cutout - into the cut-out at the lower right of the SMARTstylus. This is all needed to assemble the SMARTstylus.

The purpose of the crossbar is to prevent the SMARTstylus from accidentally tilting / falling over while positioned on the turntable and working with.

The crossbar *won't* fit tight. A tight fit would result pretty soon in a broken crossbar.

**Measuring the SRA** The SRA refers to the angle between the vertical line through the stylus' body and the record's surface.



If you align your stylus to  $92^\circ$ , you will find this a position which will give you a very close to optimum angle of your contact area with most (but not all) modern cartridges and most modern cut records.

The approximation or measurement of SRA can be done while the stylus is in the groove - i.e. on

the record - as well as on the plain surface of the turntable's platter.

We do recommend doing it on the turntable's plain platter because of better visibility of the stylus' whole body.

The angle and situation is so close to the situation in the groove, that we believe the better visibility is a major factor compared to the fraction of degree difference because of the record's thickness.

Please do lower your cartridge onto the turntable's platter. Choose a position about half way between outer rim and center of your turntable's platter.

Make sure that the measurement is done with the desired tracking force already applied.

Now position the SMARTstylus approximately in parallel and fairly close to the cartridge's body.

Take care that the stylus is viewable just underneath the "92°" marking line.

The marking line stops about 1.2 mm before the rim of the SMARTstylus. The 1.2 mm "free space" shall be occupied by your cartridge's stylus.

Look at your stylus while viewing through the SMARTstylus.

Your stylus displays a clear vertical line which you can bring into relation to the 92° marking line. By estimating the relation towards the 92°-line - in line, slightly off to the right/left - you can align your stylus by lowering /lifting your tonearm's basis.

If you are working with your cartridge mounted in an AXIOM tonearm or Arche headshell, you can of course alter your stylus' angle without altering tonearm height. Just by working with the built-in SRA/VTA mechanism.

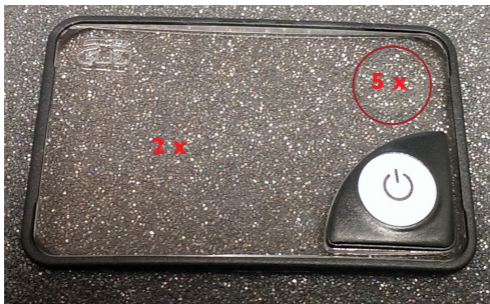
**The card loupe** To increase the visibility and thus your determination of position and angle, please do use the card loupe provided with the SMARTstylus.

It offers 2 options:

- 2x magnification by the large rectangular field.
- 5x magnification by the small circular loupe point

By moving the loupe back and forth between your eye and the SMARTstylus, you can adopt to your individual diopters and personal visibility.

You will find a certain distance where the visibility is maximum sharp. Try both.



**Setting the VTA** VTA is a different animal than SRA and requires a different setting for precise measurement.

While the SRA is an angle depending on the position of the stylus in the record's groove, the VTA refers to the angle between the record's surface as the long leg (long cathetus) of a right angle triangle, the actual suspension bracket of the cantilever inside the cartridge as one end of the hypotenuse (and this point with a vertical line down to the record's surface being the short leg) and the stylus tip the other end of the hypotenuse.

Thus the cantilever is NOT parallel or in-line with

the desired VTA.

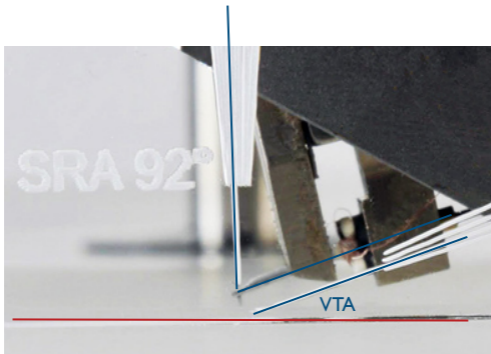
While the cantilever may be used as a mere helping line, the VTA is to be determined from the tip of your stylus towards the suspension point in the cartridge in relation to the record's surface.

Thus it gives better readings if the VTA is measured while the stylus is in the groove.

The VTA-related engraving on the SMARTractor is done such, that it takes into account that the stylus is actual sitting in the groove.

So please put a record on your turntable before measuring VTA. Now position the SMARTstylus again in the same way as before for checking the SRA. In other words: the stylus shall again be positioned at the end of the 92°-marking line.

Estimate the angle of your cantilever relative to the record's surface by comparing to the 18° marking line. You will find it relatively easy to estimate the VTA angle.

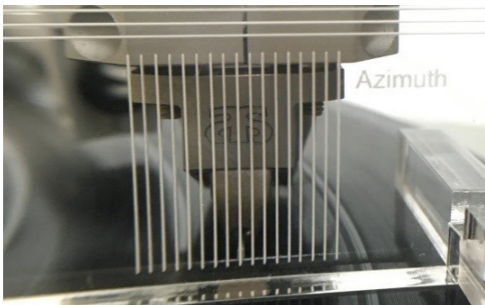


**Modern records** will need a “higher” VTA - up to  $21^\circ$  and more.

**Older records** from the late 1950ies and 1960ies sometimes require a VTA set lower than  $17^\circ$ .

**Setting Azimuth** Do again lower the cartridge onto the record. Please position the SMARTstylus in front of your cartridge. The parallel vertical lines will help to check the vertical position of the cartridge's outer lines. - This is only an estimate -





Do not rely on the cartridge bodies outer lines in vertical ensuring perfect azimuth of your stylus. This can ultimately only be determined by ear with suitable recordings.

However a cartridge with its outer lines not being vertical - i.e. displaying an off-set to either side - will definitely NOT feature a perfect azimuth in the stylus.

Checking the azimuth with these helping lines again eases perfect alignment as you will start your fine-tuning already being at least very close to the optimum.

## **Parallelism of the tonearm wand**

The long horizontal lines on the SMARTstylus will help you setting the wand of your tonearm parallel to the record. Setting the tonearm's wand parallel to the record is not essential.

However it is very advisable - especially for full static balanced tonearms - to keep the arm wand parallel to the record's surface for optimum performance and stability of set parameters.

We hope you enjoy working with your SMARTstylus and using its functionality and features. Enjoy the resulting increase in performance from your analog set-up.

**Most important -  
enjoy the music and the sound!**

**General note:** Technical data and specifications are subject to change without prior notice.

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