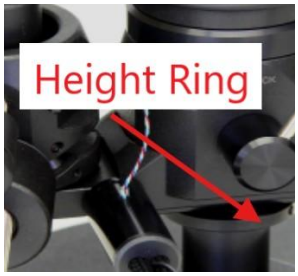
WAM Engineering Colossus Headshell Installation Instructions

The Colossus headshell for select Kuzma tonearms is designed to optimize the following parameters which affect playback quality:

1. Significant increase in effective mass which decreases the modulation of the pivot point of the cantilever[1]
2. Lowers the horizontal pivot of the tonearm to be slightly below record level, allowing a reduction of VTF
3. Damping chamber loaded with lossy material and special suspended material which significantly reduces headshell displacement above 2500Hz
4. Significantly increases the rigidity of the headshell system
5. Significant improvement in the mechanical coupling between cartridge and headshell

READ THE GENERAL INSTRUCTIONS AND THE INSTRUCTIONS RELATED TO YOUR SPECIFIC KUZMA ARM BELOW BEFORE PROCEEDING WITH INSTALLATION

General Instructions (all tonearms):



- You may have to remove the 5mm/10mm Height Ring from the arm pillar before starting this process as it may prohibit the arm from lowering a full 4mm. Loosen its set screw with a 1.5mm hex key.
- As you lower the tonearm, be careful not to allow the anti-skate armature to come into contact with the arm board and thus prevent the lowering of the tonearm.
- We HAVE seen instances where the cartridge body interferes with the full insertion of the headshell into the arm wand. This can happen particularly on cartridges that have longer bodies (e.g., Xquisite, Sumiko Palo Alto, Kiseki Purple Heart). As a result, please be cautious as you go about the mounting process that the cartridge body is not touching the arm wand at all. If this situation applies to you, a temporary solution (until we can get you a new headshell) is to place one of the stacking shims from the WallyReference between the corrective shim and the headshell in order to give the cartridge more clearance. Of course, you will have to raise the tonearm an equal height in order to accommodate for this. IN MOST CASES THIS WILL NOT BE AN ISSUE EVEN FOR THE LONGEST CARTRIDGES. This is because most cartridges require more than 3 degrees of SRA/VTA correction and this is usually enough for the cartridge rear to clear the arm wand. This corrective shim is included with the WAM Engineering Cartridge Analysis service.
- The 110g counterweight is to be used with all models. Use one of the white plastic spacers included with the 4Point and 4Point14 tonearm to separate the counterweight from the other counterweights on the threaded armature. Counterrotate the two counterweights so there is some tension between them. This assures they remain tensioned to each other and to the armature. 4Point9 tonearm owners use the plastic washer supplied with the Colossus.

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[1] *In our laboratory experiments, the Colossus displaced on average 62% less on the horizontal plane when measured from 10Hz to 10kHz (the upper limit of our accelerometer) when excited by a full spectrum pink noise track. This reduction in displacement is across nearly the entirety of the frequency limits analyzed.*

4Point and 4Point14 Tonearm specific:

- Unlock the "VTA lock" and turn the arm height adjustment mechanism **5 full revolutions clockwise** to affect a 4mm lowering in arm height. This is the vertical offset difference between the Kuzma headshell and the Colossus. AS YOUR LOWER THE ARM, BE SURE TO KEEP THE ANTI-SKATE ARMATURE FROM INTERFERING WITH THE ARMBOARD. If you have previously leveled your Kuzma headshell using the WallyReference at the proper height for your cartridge, this change in height will not cause any obstructions between the arm and the record and will maintain the SRA and VTA you had for your cartridge with the Kuzma headshell now on the Colossus headshell.
- Optimize the counterweights:
    - With cartridge and corrective shim installed on the Colossus (position in headshell not important) and the Colossus mounted at the end of the arm wand, unscrew the upper (small, fine adjust) counterweight so that about ¼" of thread remains visible at the end of the counterweight armature. This will increase the distance between this weight and the tonearm's pivot point.
    - Remove all counterweights from the lower counterweight armature.
    - Screw on the Colossus' 110g weight to the lower armature, followed by a plastic spacer (included with Kuzma tonearm) and then the largest of the Kuzma counterweights. Test to see if you can achieve your targeted VTF with this counterweight combination. Ideally, we want to use as few weights as possible to achieve your targeted VTF. Do not be concerned about maximizing the distance between the tonearm pivot and the counterweight.
    - If you do need to add a third counterweight, start with as small a weight as you can get away with and place it between the Colossus' counterweight and the large Kuzma counterweight.

4Point9 Tonearm specific:

- Before unlocking the arm height locking screw on the arm base, be sure to lower the "VTA screw" all the way down until it meets with the top surface of the arm base. Next, loosen the arm height locking screw on the arm base and then turn the arm height adjustment mechanism **9 full revolutions counterclockwise** to affect a 4mm lowering in arm height. This is the vertical offset difference between the Kuzma headshell and the Colossus. Lock down the arm collar set screw when target arm height is achieved. AS YOU LOWER THE ARM, BE SURE TO KEEP THE ANTI-SKATE ARMATURE FROM INTERFERING WITH THE ARMBOARD. Assuming you have previously leveled your headshell using the WallyReference, this change in height will not cause any obstructions between the arm and the record.