

# Turntables Cartridges Tonearms Accessories



Over 35 years of analog progress



Kuzma Stabi XL DC Turntable, 4Point Tonearm, CAR 60 Cartridge

[www.kuzma.si](http://www.kuzma.si)





# Turntables



MODEL	STABI S	STABI SD	STABI REF	STABI R	STABI M	STABI XL DC
Mass (kg)	13	15,5	40	36	60	77
Platter mass (kg)	4.8	4.8	8	8	12	22
Platter material	aluminium	aluminium	aluminium & acrylic	aluminium & acrylic	aluminium & acrylic	aluminium & acrylic
Bearing type	pointed shaft	pointed shaft	ruby ball – inverted	ruby ball – inverted	ruby ball – inverted	ruby ball – inverted
Shaft diameter (mm)	10	10	16	16	16	28
Chassis / Levelling	brass / no	brass / no	aluminium & acrylic / yes	aluminium / yes	aluminium / yes	brass / no
Turntable levelling	no	no	no	yes	yes	no
Motor (pcs)	1 AC	1 AC	2 AC	1 DC	1 DC	1 DC
Belt	rubber	rubber	rubber	special	special	special
External power supply	optional	optional	yes	built-in	yes	yes
Speed (rpm)	33; 45	33; 45	33; 45	33; 45	33; 45; 78	33; 45; 78
Armboard	no (optional)	no (optional)	yes	yes	yes	yes
VTA adjustment	yes	yes	no	no (optional)	no	yes: VTA tower
No. of tonearms	1 (+1 optional)	2	1	1 (+3 optional)	1	1 (+2 optional)
Suspension	no	no	yes (2.2 Hz)	no	special	no
Dimension (mm)	400 x 300 x 170	400 x 400 x 170	500 x 400 x 200	480 x 380 x 150	600 x 500 x 280	450 x 450 x 300
Finish	brass or black	brass or black	black	black	black	brass or black
Clamp	optional	optional	yes	optional	yes	yes
Mat	yes	yes	yes	yes	yes	yes
Lid	yes	no	no	no	yes	no
Accessories	oil; allen keys	oil; allen keys	oil; allen keys	oil; allen keys	oil; allen keys	oil; allen keys
Options	SD kit; 12 inch kit; armboards; power supply (adjustable 33, 45, 78 rpm); clamp; supporting platforms; different finishes	SD kit; 12 inch kit; armboards; power supply (adjustable 33, 45, 78 rpm); clamp; supporting platforms; different finishes	armboards	armboards; second tonearm wing; smaller tonearm holder; VTA tower; clamp; wooden frame...; different finishes	armboards; different finishes	tonearm towers (14 kg); armboards; different finishes



# Tonearms



MODEL	STOGI S	STOGI S 12	STOGI S 12 VTA	STOGI	STOGI REF	STOGI REF 313	STOGI REF 313 VTA	4POINT	4POINT 9	4POINT 14	AIR LINE
Effective length (mm)	229	304.8	304.8	229	229	313	313	280	229	356	184
Arm mount distance (mm)	212	291	212	212	212	300	212	212	212	291	212
Distance from spindle to horizontal bearing (mm)	212	291	291	212	212	300	300	264	212	342	irelevant
Bearing type	unipivot	unipivot	unipivot	ball bearings	ball bearings	ball bearings	ball bearings	4 pivot	4 pivot	4 pivot	air bearing
Effective mass (g)	11	12	12	12	13	13	13	18	13	19	vert.: 13; horiz.: 80
Total mass (g)	690	810	1750	870	800	980	2010	2050	920	2150	2270
Offset angle (°)	23	17.8	17.8	23	23	17.4	17.4	19.5	23	15,2	0
VTA adjustment	yes	yes	VTA tower	yes	yes	yes	VTA tower	VTA tower	yes	VTA tower	VTA tower
Azimuth	yes	yes	yes	yes	worm drive	worm drive	worm drive	worm drive	worm drive	worm drive	worm drive
Tube	straight	straight	straight	straight	conical	conical	conical	conical	conical	conical	conical
Bias	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	–
Max. std. cartridge weight (g)	15	15	15	15	15	15	15	35	35	35	25
Optional light and heavy counterweight	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Damping	yes	yes	yes	no	no	no	no	separate vert. & hor.	no	separate vert. & hor.	yes
Detachable headshell	no	no	no	no	no	yes	yes	yes (+ 1 spare)	yes	yes (+ 1 spare)	no
Arm mount	Kuzma & Stogi	Kuzma & Stogi	Kuzma & Stogi	Kuzma & Stogi	Kuzma & Stogi	Kuzma & Stogi	Kuzma	Kuzma	Kuzma	Kuzma	Kuzma
Standard wiring (RCA)	copper	copper	copper	copper	copper	copper	copper	silver	silver	silver	silver
Accessories	protractors; allen keys; cartridge mounting screws	protractors; allen keys; cartridge mounting screws	protractors; allen keys; cartridge mounting screws	protractors; allen keys; cartridge mounting screws	protractors; allen keys; cartridge mounting screws	protractors; allen keys; cartridge mounting screws; headshells	protractors; allen keys; cartridge mounting screws; headshells	protractors; allen keys; cartridge mounting screws; headshells	protractors; allen keys; cartridge mounting screws; headshells	protractors; allen keys; cartridge mounting screws; headshells	protractors; allen keys; cartridge mounting screws
Options	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring	XLR, 5 pin; various wiring



# Parts







# Cartridges



MODEL		CAR-20	CAR-20H	CAR-30	CAR-40	CAR-50	CAR-60
Type		Moving coil	High output MC	Moving coil	Moving coil	Moving coil	Moving coil
Coil Wire		STD copper	STD copper	5N copper	4N silver	4N silver	4N silver
Cantilever Material		Aluminium	Aluminium	Boron	Boron	Sapphire	Diamond
Stylus		Synthetic elliptical	Synthetic elliptical	Microridge	Microridge	Microridge	Microridge
Typical figures	Frequency Response	10 Hz - 33 kHz	10 Hz - 33 kHz	10 Hz - 35 kHz	10 Hz - 40 kHz	10 Hz - 45 kHz	10 Hz - 45 kHz
	Output Voltage (3.54 cm/1 kHz)	0.3 mV	2 mV	0.3 mV	0.3 mV	0.3 mV	0.3 mV
	Channel Balance (1 kHz)	<1 dB	<1.5 dB	<1 dB	<1 dB	<0.5 dB	<0.5 dB
	Channel Separation (1 kHz)	>23 dB	>21 dB	>25 dB	>28 dB	>30 dB	>30 dB
	Tracking Force	2.0 gr	2.0 gr	2.0 gr	2.0 gr	2.0 gr	2.0 gr
	Compliance	$8 \times 10^{-6}$ cm/dyne	$8 \times 10^{-6}$ cm/dyne	$10 \times 10^{-6}$ cm/dyne	$10 \times 10^{-6}$ cm/dyne	$10 \times 10^{-6}$ cm/dyne	$10 \times 10^{-6}$ cm/dyne
	Trackability	>70 $\mu$ m/2.0 gr	>60 $\mu$ m/2.0 gr	>70 $\mu$ m/2.0 gr	>70 $\mu$ m/2.0 gr	>70 $\mu$ m/2.0 gr	>70 $\mu$ m/2.0 gr
	Internal Impedance	4 $\Omega$	130 $\Omega$	4 $\Omega$	6 $\Omega$	6 $\Omega$	6 $\Omega$
Load Impedance		<100 $\Omega$	47 k $\Omega$	<100 $\Omega$	<100 $\Omega$	<100 $\Omega$	<100 $\Omega$
Net Weight		17 gr	17 gr	17 gr	17 gr	17 gr	17 gr



# Accessories



## RD Ultrasonic kit

RD kit will allow you to submerge records in the ultrasonic cleaning bath and position them in a suitable drying position.



**Ebony clamp**



**Outer clamp**



**Headshell container single**



**Headshell container 4**



# Kuzma analogue products

**Kuzma turntables and tonearms have been praised worldwide by the audio community since 1983.**

*We firmly believe in solid construction with the use of quality materials, as well as precision in engineering and manufacturing for every part used in the construction of our turntables and tonearms. We aim to mimic the process that takes place when records are cut, so that our products extract the maximum music from the grooves of a vinyl record.*

*We use solid, non resonant materials such as aluminium, brass and acrylic, designed in forms and structures that emphasise rigidity, damping and insulation.*

*The best available parts and materials are used for bearings, shafts, wires, connectors and screws etc.*

*Our products incorporate many of our own original and innovative designs, such as special bearing constructions with selected bearing materials, diamond polished carbon steel shafts, a unique mat material, non resonant construction, damping suspension, special glue and hand made assemblies.*

*Most of our platters and chassis are constructed with multiple layers to minimize vibrations and emphasise damping and immunity to environmental disturbances.*

*Adjustments and control of parameters are of the utmost importance without compromising performance. Once set up, the turntable or tonearm should continue to function at an optimal level.*

## TURNTABLES

### Motors

We use 24 pole AC or 3 phase DC motors with low noise bearings. Precision made pulleys ensure the smooth transfer of rotation via the precision made belt to the subplatter. The result is a uniform drive of the platter at any given moment.

### Motor power supply

The power supply insulates motors from the mains supply and controls precise speed with pure signals, which minimise motor vibration and give uniform drive to the rotating platter.

### Bearings

The carbon steel used for platter shafts is ground, lapped and finally diamond polished to give the finest low friction sliding structure. A unique damping, low friction and low vibration bearing material is used which minimises air slack and vibration inside the bearing. Vertical support is provided by a polished ruby ball immersed in an oil pool on top of the inverted shaft, in our top turntables.

### Platters

Our smallest model has damping rubber material inserted into the solid aluminium, to prevent any ringing resonance. Other platters are multilayered of aluminium and acrylic topped with a special mat of textile and rubber compound. An additional weight or screw down clamp further controls record vibration. Rotational tolerances of our platters are below 0.02 mm.

### Suspension

Most of our turntables are not suspended. Due to the design and construction of the chassis as well as the rigidity of individual parts, however, our turntables are not sensitive to outside disturbances. Solid aluminium, acrylic or brass is used to minimise internal and external vibration. Some turntables use a damped spring suspension system tuned to below 2.5 Hz to give extra insulation with no need for special turntable supports.

### Armboards

Pre-cut armboards are available for all our turntables, thus making it possible to mount any tonearm, though our tonearms remain the best value for money.

### VTA (vertical tracking angle) adjustments

Some of our turntables have a facility enabling adjustment of the tonearm's VTA even if the tonearm itself lacks this facility.

Our top of the range turntable model has a precise VTA adjustment built into the tonearm tower, which allows VTA adjustment of ANY tonearm, regardless of type, in the repeatable range of 0.01 mm, without any loss of rigidity in the assembly.

## TONEARMS

### Main structure

All parts are machined from solid aluminium or brass and are designed in such a way that, when assembled by screws or glue, structural rigidity is given to the tonearm. The effect on sound of even the smallest part is taken into consideration.

### Bearings

Unipivot is the simplest and yet very effective, very low friction, zero play type of bearing. Sliding and rolling surfaces inside the bearing cup are specially pressed to give the lowest starting friction, zero play and minimal vibration inside the cup or pivot point.

4Point bearings are constructed with two points in the vertical bearing and two points in the horizontal bearing, giving this tonearm a unique bearing configuration with lowest possible friction, zero play and stability of the tonearm in all directions, except those which need as much freedom as possible.

The ball bearings made by most worldwide manufacturers, while conforming to ABEC standards, are inadequate for our purposes due to dirt in grooves, on balls or in the bearing oil. We use the precise ball bearings which are used in gyroscopes. Each bearing is vacuum packed with its own serial number and we further individually test each bearing for noise and lubrication. Only then are they precisely mounted into tonearms, with zero play preloading.

Air bearings are bearings with the lowest possible friction and, if used as in precision machinery, they also have the highest rigidity in all directions. If an air bearing is used with low pressure, or has only a few holes which blow air out, then the tonearm will float. This will give low friction but any small force exerted on the cartridge during play, will cause tonearm instability and prevent the cartridge from accurately reading what is in the grooves.

We use a high air pressure porous graphite bearing which gives stable and precise positioning to an accuracy of below 0.001 mm. A force of even a few kg will not disturb the tonearm position.

### Tonearm tubes

Most of our tonearms incorporate tubes machined from solid blocks of aluminium, though the internal construction is more complex than it looks. Conical tubes have less vibration than straight tubes. In addition the inside wall is not all the same thickness and, being made from two parts glued together, gives more damping and rigidity to the whole tube and the walls themselves.

### Azimuth adjustments

Azimuth adjustment should be simple, easily repeatable and not adding any vibration or slack to the construction.

We use counterweight eccentricity to set up azimuth in a unipivot bearing tonearms, but precise azimuth adjustment is made by repeatable shifting of a screw inside the counterweight.

The conical tubes contain a built-in worm drive, which allows precise tube rotation without any slack when the tube is rotating back and forth. The worm drive is immersed in damping grease. Locking the tube gives rigidity to the whole assembly.

### VTA adjustment

The height of the tonearm can be adjusted in the arm-base. Our best tonearms incorporate a VTA tower, which allows for repeatable VTA adjustments of 0.01 mm, during play, in the range of 10 mm with zero play, so it is not even necessary to lock the VTA mechanism.

### Detachable headshell

The use of a standard detachable headshell for ease of cartridge replacement is always accompanied by mechanical and electrical compromise. We have, however, created our own unique hex shape, five point holding, fixing system, which holds the headshell in a precise and rigid position. This causes no structural weakness and is completely accurate. Electrical contacts are left intact as cartridge clips are unplugged from the cartridge.

### Cables

Any breaks or solder joints in wires running from the cartridge to the phono input, are a compromise. We create our own cables using thin wires obtained from reputable audio cable manufacturers. These wires run from the cartridge clips to phono plugs in one continuous length, inside the insulated and shielded tubes in a balanced configuration.

**Please find more information on our web site.**



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