audio-technica

PHONO CARTRIDGES

2017 catalogue

Audio-Technica Machida, Japan, opened January 2016

The newly constructed global headquarters and research centre of the Audio-Technica Corporation, housing 250 employees & engineers. Affectionately known as “Moby Dick” by staff due to its resemblance to the white whale.

audio-technica

a message from the president

Dear Customer,

I am proud to present the 2017 edition of our full-line phono cartridge and analogue record-related accessories catalogue.

This edition is very special because you will discover one new product and one new cartridge range which, for me, are the symbols of what we want Audio-Technica to be for our customers.

On Page 9 you will discover the AT-ART1000 Direct Power Stereo Moving coil cartridge, a very high-end product with a unique design that currently no other company in the world has been able to implement successfully.

We believe the sonic qualities of AT-ART1000 will be difficult to surpass in the future.

While on Page 24 you will find our new line of VM Series Moving Magnet cartridges, a range of 9 distinct products which are all part of the same compatible system; our VM series is a symbol of the continuity, consistency and reliability of Audio-Technica's cartridge offering.

When it comes to refurbishing or upgrading an Audio-Technica phono cartridge, we do not like the idea of inviting you to simply buy a new one while having to throw away your old model, as customer loyalty is very important to Audio-Technica; therefore I am pleased to announce that the styli of the new VM series are fully compatible with a long list of more than 30 Audio-Technica models sold over the past 40 years.

If you need to purchase a complete new phono cartridge, I believe that you will find what you need in our new VM series, giving you a wide range of options; and if you already own a VM-compatible Audio-Technica cartridge, even one that you may have inherited from your parents, you can use any of the 7 new styli to refurbish or upgrade the former cartridge.

I would like to thank you personally for your interest in our product line.

Kazuo Matsushita
President
Audio-Technica Corporation

History

1962

AT-1, AT-3

Audio-Technica's first products, the AT-1 and the AT-3 stereo cartridges.

1967

AT35X

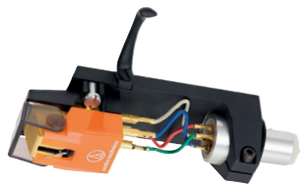
An early model of the AT35X, the origin of the VM cartridge, which received patents worldwide.

1978

AT25

The AT25, an integral structured body housing a VM cartridge. Features the newly developed toroidal power system.

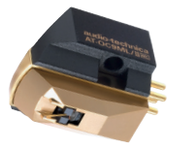
1979



AT120E/G

Launch of the AT100 series VM cartridges. Audio-Technica improves performance with low-loss para-toroidal power system by using developed for the AT25.

1987



AT-OC9

The AT-OC9, launched in 1987, was the original cartridge model from which the AT-OC9ML/II and AT-OC9/III evolved.

2012

AT50ANV

50th anniversary model AT50ANV, the first non-magnetic core MC cartridge.

2016

ART1000

The AT-ART1000 ("ART" for Audio-Technica Reference Transducer) is Audio-Technica's new flagship phono cartridge, handmade in Japan.

2017

VM Series

VM cartridge series renewed. Lineup provides ample selections to meet your needs.

Index

Choosing the right cartridge

The ultimate performance potential of any record playing system is defined by the capabilities of its phono cartridge. Tonal balance, response range, clarity on musical peaks, stereo separation and imaging, along with freedom from noise and distortion are all affected at the outset. The selection of this first component is critical to the full enjoyment of the rest of your system.

Your choice of cartridge can also strongly affect the life of your records. With vinyl records becoming more and more difficult to replace, it's an important point to keep in mind when selecting a cartridge or upgrading your system.

Since Audio-Technica has long been recognized as a world leader in phonograph cartridge design and production, we offer a wide range of models designed to match turntable/tonearm requirements, performance levels and budget considerations. This brochure is intended to help make your decision easier by giving you as much information as possible. It will also give you specific "numbers" for all of our cartridges, with additional detailed information on our Audiophile Series. But no matter which model you select, we're confident you'll find your Audio-Technica cartridge to be outstanding value in every respect.

Choosing your cartridge format

Audio-Technica cartridges can be:
– P-mount (plug-in),
– half-inch mount (1/2")

- P-mount cartridges have four terminals at the back that simply plug in to the end of the tonearm. The cartridge is then secured to the tonearm with a single screw.
- Half-inch mount cartridges also have four terminals at the back, but they have larger pins that connect to four individual wires at the end of the tonearm. The cartridge is secured to the tonearm's headshell with two screws, spaced 1/2" apart.

Cartridges such as AT311EP and AT300P were originally P-mount design, though they can be used as 1/2" cartridges using the supplied half-inch adapter bracket P20020. These are called Universal mount models and are therefore compatible with both P-mount and half-inch mount tonearms.

The specifications (pages 34 - 35 - 36 and 37)

The most important specifications include frequency response, channel separation, channel balance and output level.

These "numbers" are an attempt to describe how your cartridge will perform, and how well it will meet your needs. Frequency response is a measure of the range of sounds that the cartridge will reproduce uniformly.

This "flatness" of response ensures that no frequencies are given over- or under-emphasis. And uniform response is a hallmark of Audio-Technica Vector Aligned cartridges, with even the least expensive units providing smooth reproduction within their stated ranges.

Channel separation is another key specification. It is the measure of how well one channel "ignores" the other stereo channel, so that you don't hear signals from the right channel in your left-side speaker. It's measured in dB, and the higher the number, the higher the separation. Separation is especially important at the higher frequencies, a region where Audio-Technica cartridges are particularly outstanding.

Channel balance is a measure of both production quality and good basic design. Both sides of a stereo cartridge should have equal loudness when equally recorded levels are present.

Output level is important in matching your cartridge to the electronics. Too low a level can result in noise, too high a level can over-drive a preamp into distortion. However, the output levels of all A-T Dual Magnet cartridges will work well with virtually any magnetic phono input.
There are a number of other measurements of phono cartridge performance, but in the final analysis, the most important characteristics to you will probably be how well the cartridge performs audibly, how it interfaces with your other system components, and how carefully it preserves your record library for future use.

Is tracking force important?

Yes, but not to the exclusion of other characteristics. Each cartridge (regardless of its manufactorer) operates best in a particular range of tonearm tracking forces. It is important that this range is within the capabilities of your turntable if optimum performance is to be achieved. Keep in mind also that record wear goes up as pressure on the record surface increases. Tracking too light can cause as much (or more) damage as tracking too heavyly.

Understanding styli shapes, shank shapes and constructions

Four main series of cartridges :
Excellence, Moving Coil, VM Series and Moving Magnet entry models.

Five different diamond stylus shapes :
Special Line Contact, Shibata, MicroLine®, Elliptical and Conical.

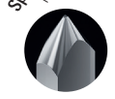
Four different stylus constructions :
Nude Rectangular Shank, Nude Square Shank, Nude Round Shank and Bounded Round Shank.
The Special Line Contact stylus, offers the optimum tip design for high frequency response with minimum abrasion, providing low distortion and low record wear.
The Shibata stylus was originaly developed to play four channels vinyl records (quadraphonic) for this purpose it was necessary to playback up to 45 kHz. The Shibata shape provides a long line of contact with groove walls, minimizing record wear and playback high frequency material with minimal distortion.
The MicroLine® stylus almost exactly duplicates the shape of the cutting stylus used to produce the original master disc. This enables it to track portions of the groove other styli cannot reach, resulting in extremely accurate tracking of high frequency passages and ruler-flat frequency response within the audible range.
The Elliptical stylus has two radii, the front radius being wider than the side radius. This allows the stylus to ride in the center of the groove, like the conical, while the smaller side radius can more accurately track higher frequencies.
Elliptical styli are available in two sizes - 0.2 x 0.7 mil[1] and 0.3 x 0.7 mil- with the first number indicating the side radius. The smaller the side radius, the better the sound quality will be.
The Conical stylus is the simplest, least expensive and most widely used stylus. Its spherical tip, which has a typical radius of 0.6 mil, normally touches the center of the record groove walls. The conical design works best in moderate to lower priced, and older record players with a tonearm imposing higher tracking forces, or tonearm not featuring cartridge tilt adjustment.
Typical radius of conical stylus for 78rpm records is 2.5 or 3 mil (pages 21 & 28), four times bigger than LP record conical styli.

Stylus shank construction : Nude or Bonded Styli
Nude styli, shaped from whole diamonds, are more costly than bonded styli, with their diamond tips "bonded" to metal shanks before finishing. But because of their lower mass, nude styli track more accurately. Also, since our nude styli are grain-oriented, with their longest-wearing faces touching the record surface, they last longer.

Stylus shank form factor : Rectangular and Square Shanks or Round Shank
Rectangular and square shanks nude styli cost even more than round shank nude styli to make, but mounting them in laser-cut square holes in the cantilever locks them precisely in correct alignment with record grooves.

Which cartridge is best? Moving coil or moving magnet?

Many serious audiophiles prefer moving coil designs, citing clarity and transparency of tone, better defined transients, precise stereo imaging and lower distortion as the reason for their preference.
Please note that moving coil cartridges require preamps with special compatible inputs (MC phono inputs). The output level of MC cartridges is between 0.2mV to 0.5mV, therefore MM phono inputs designed for cartridges delivering around from 3mV to 5mV cannot accomodate moving coil cartridges.
Moving magnet cartridges are more robust.
Moving magnet cartridges stylus assembly are field replaceable.

	Point Contact Styli						Line ContactStyli		
	Conical Styli Nude Square Shank 	**Conical Styli** Bonded Round Shank 	**Conical SP Styli** Bonded Round Shank 	**Elliptical Styli** Nude Round Shank 	**Elliptical Styli** Nude Square Shank 	**Elliptical Styli** Bonded Round Shank 	**MicroLine® Styli** Nude Square Shank 	**Shibata Styli** Nude Square Shank 	**Special Line Contact Styli** Nude Rectangular Shank 
Excellence Serie									**AT-ART1000** (page 9)
Moving Coil	**AT33MONO** (page 18)	**AT-MONO3/LP** (page 18)	**AT-MONO3/SP** (page 19)		**AT33EV** (page 14) **AT-F7** (page 17)	**AT-F2** (page 17)	**AT-OC9ML/II** (page 10) **AT33PTG/II** (page 14)	**AT33Sa** (page 14)	**AT-OC9/III** (page 10) **AT-ART9** (page 13) **AT-ART7** (page 13)
VM Series		**VM510CB** (page 27) **VM610MONO** (page 28)	**VM670SP** (page 28)	**VM530EN** (page 27)		**VM520EB** (page 27)	**VM740ML** (page 26) **VM540ML** (page 26)	**VM750SH** (page 26)	**VM760SLC** (page 26)
Moving Magnet "entry models"		**AT91 - AT91R** (page 31) **AT3482P** (page 32) **AT300P** (page 32) **AT3600L** (page 31)				**AT95E** (page 31) **AT95Ex** (page 31) **AT311EP** (page 32)			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Excellence Series cartridge

AT-ART1000

Direct power stereo MC cartridge

5 200,00 € [2]
Including VAT
EAN 4961310136390

Nude Rectangular Shank
Special Line Contact

Audio-Technica's new reference AT-ART1000 Direct Power Stereo Moving Coil Cartridge has been developed and engineered as part of the company's "Excellence" programme to deliver the highest listening experience for audiophiles. AT-ART1000 Audio-Technica's is the most advanced and sophisticated cartridge to-date.

Special Line Contact Stylus

The AT-ART1000 features a special line contact diamond tip stylus and a solid boron cantilever. This high-performance stylus / cantilever combination enables the maximum pick-up of "information" from even the most complex vinyl record grooves.
For the Direct Power System to flourish effectively, a lightweight solid boron has been specially selected for superior strength and subtle control of movement.

Direct Power System

To ensure the best possible listening experience when playing analogue records, Audio-Technica have engineered and developed our Direct Power System. Considered by some as simply a theoretical idea, we have succeeded in making this a reality in the AT-ART1000 cartridge by combining our unique analogue technology with the most advanced construction materials available today.
Our Direct Power System places the moving coil directly on top of the stylus tip to ensure that audio quality is not compromised with the negative effects introduced by the cantilever's length and material.
With the coils in such close proximity, the stylus tip allows the cartridge to vividly render the most subtle sonic details with unsurpassed transient response.

Non-magnetic core coil with 3 ohm impedance

To create the non-magnetic core coil, a 20 µm diameter PCOCC wire wound eight turns to a diameter of 0.9 mm is used. Despite being a non-magnetic core type, an output voltage of 0.2 mV is obtained by placing a 3 ohms coil in the minuscule 0.6 mm gap of a powerful magnetic circuit.

Titanium Body

The structure that supports the specialized magnetic circuit and suspension system is constructed from titanium. Known for its lightweight, strong and anti-resonant acoustic properties, this material requires sophisticated machining and is only employed in Audio-Technica's top of the range cartridge models. The titanium also works in tandem with the cartridge's polymer cover and aluminum housing to minimize vibrations that can colour the sound quality.

Cartridge Rebuild Programme[1] see page 21.

To protect against damage to the cantilever and wear to the stylus tip of this product, we offer our Cartridge Rebuild Programme, a paid service. This service offers a replacement of the whole motor unit (stylus tip, cantilever, coils and rubber dampers).

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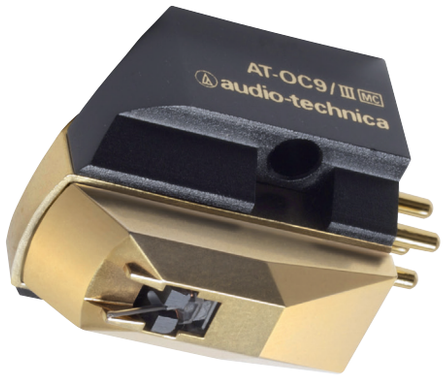
[1] For more information on how you can apply for this rebuild programme, contact your local Audio-Technica service centre (locations can be found at: www.at-globalsupport.com) or the excellence retailer from where you purchased your AT-ART1000.
For terms and conditions, please visit www.excellence.audio-technica.com.

[2] Please note, as part of the Audio-Technica Excellence programme the AT-ART1000 Direct Power Stereo MC Cartridge is only available from selected Audio-Technica Excellence retailers.

Moving coil cartridges / AT-OC9 Series

The AT-OC9, launched in 1987, was the original cartridge model from which the AT-OC9ML/II and AT-OC9/III evolved. Over the years, the AT-OC series has undergone a number of model changes and it has continued to be a bestseller for over twenty years. While drawing on the basic design of the AT-OC9ML/II which received high critical acclaim, a fresh approach for the AT-OC9/III was taken causing us to review the stylus tip, cantilever, magnetic circuit parts, damper and other aspects in order to track down and embody the highest sound quality.



AT-OC9/III

Dual moving coil stereo cartridge
with special line contact stylus

549,00 €
Including VAT
EAN 4961310106843

Nude Rectangular Shank
Special Line Contact

Flagship model embodying the highest sound quality ever in the series

- **Special line contact stylus and solid boron cantilever with a 0.26 mm diameter**
  The cartridge features a special line contact stylus with a 1.5 x 0,28 mil curvature radius at the stylus tip. This not only ensures that the music signals engraved in the analogue records will be read out completely but also it gives expression to the highest dynamic compliance of the series.
- **Neodymium magnet and permendur yoke have drastically increased the magnetic energy**
  The magnet is a neodymium magnet with a maximum energy product, while a permendur yoke is used with a high saturation flux density and excellent magnetic materials. Together, they further boost the magnetic field concentrated in the coil gap area.
- **PCOCC used for coils and terminal pins**
  PCOCC does not give rise to crystalline interfacing in the transmission direction so audiophiles can enjoy pure transmissions.
- **Dual moving coil with high separation and wide response**
  Our unique moving coil type cartridge has a basic structure where one cylindrical coil is used for the left channel and another is used for the right channel. This structure by which power is generated independently for the left and right channels physically provides outstanding separation characteristics. The AT-OC9ML/III adopts a reverse V-shaped formation for the two left and right coils to reduce the vibration mass as seen from the stylus tip and minimize the unnecessary movement of the coils to further diminish the distortion.
- **Rugged body dedicated to achieving a design with increased rigidity**
  Using a precision-crafted sturdy aluminium alloy as the base, the body's structure is made of hard resin to keep parasitic resonance down to a minimum. This minimizes undesirable vibration while the bottom of the body is plated to achieve greater rigidity and an improved signal-to-noise ratio.

AT-OC9ML/II

Dual moving MicroCoil™
stereo phono cartridge

489,00 €
Including VAT
EAN 4961310063894

Nude Square Shank
MicroLine®

The AT-OC9ML/II Dual Moving MicroCoil™ cartridge is a significant achievement in precision manufacturing, with tolerances held to mere thousandths of an inch. Stringent quality control assures that these tolerances, as well as performance criteria, are maintained by every AT-OC9ML/II cartridge. In addition, the AT-OC9ML/II features:

- Dual-coil system for maximum channel separation.
- High-flux samarium cobalt magnet for improved electrical generation.
- PCOCC coil windings for low-loss "transparent" signal transmission.
- Gold-plated solid boron cantilever.
- MicroLine® stylus.


AT-OC9/III MC
audio-technica


audio-technica
AT-ART7

Moving coil cartridges / ART Series

AT-ART9

Magnetic core
MC type stereo cartridge

1 090,00 €
Including VAT
EAN 4961310122713

Nude Rectangular Shank
Special Line Contact

• Flagship magnetic core MC type cartridge with very high quality magnetic circuit.
The AT-ART9 inherits the basic magnetic design from the AT50ANV, which was developed as our 50th anniversary model. Also, it reproduces the highest-quality sound using the vibration system from the AT-OC9/III.

• Neodymium magnet and permendur yoke drastically increase the magnetic energy
A neodymium magnet is employed with a maximum energy product BHmax of 50 [kJ/m^3] whilst a permendur yoke is used with a high saturation flux density and excellent magnetic materials.

• Hybrid body that reduces unnecessary parasitic resonance
The housing is made of machined aluminium materials and the cover is made of hard plastic materials. This disperses parasitic resonance and results in clear sound quality.

• Machined aluminium base
The base that supports the magnetic circuit and vibration system is made of machined aluminium material. This enables it to serve as a solid base to support stable playback capability.

• High-separation, wide-response dual moving coil
The basic structure is an original MC type, with separate cylindrical coils to the left and right channels. Since power is generated independently in each of the left and right channels, this structure offers truly superior separation. If the signal from the opposite channel escapes, this can cause intermodulation distortion and have a decisive impact on audio quality and how the stereo sound spreads. The structure of this product ensures a clear and smooth sound. Additionally, the two coils have a reverse-V shape which reduce effective moving mass as seen from the stylus tip, limiting unnecessary movement of the coil and further eliminating distortion.

• Special line contact stylus and solid boron cantilever with a 0.26 mm diameter
The stylus tip is a special line contact type with a 40 µm × 7 µm curvature radius (used in the AT50ANV) and a solid boron cantilever with a 0.26 mm diameter. This allows accurate transfer of music signals read by the stylus tip to the magnetic coil.

AT-ART7

Non-magnetic core
MC type stereo cartridge

1 190,00 €
Including VAT
EAN 4961310118488

Nude Rectangular Shank
Special Line Contact

• Non-magnetic core MC type cartridge based on commemorative model AT50ANV.
This product keeps the basic design of non-magnetic core MC type cartridge AT50ANV and changes the coil winding frame from a pure titanium armature to a newly developed liquid crystal polymer armature by an injection molding. This product also succeeds in reducing the weight of the vibration system and provides the extremely natural and clear sound quality with the ability to express three-dimensional sound fields inherent to non-magnetic core types. In addition, this product enables an output voltage of 0.12mV, a relatively high output level for a non-magnetic core system.

• Liquid crystal polymer armature
Liquid crystal polymer used for the coil winding frame not only has an extreme mechanical strength but also a unique property which increases the mechanical strength as the product becomes thinner.

• Newly designed magnetic circuit that maximizes magnetic energy
The magnetic circuit of this product uses a large-sized neodymium magnet with approximately twice the volume of conventional Audio-Technica ferrite core MC types. The permendur magnetic circuit parts located around the magnet have also been newly designed to maximize the strength of the intensive magnetic field in the coil gap. This magnetic circuit increases the output voltage, and also enhances playback capability in the medium-to-low-frequency range that is said to be a weak point of conventional non-magnetic core MC types. This provides a very accurate frequency response.

• Special line contact stylus and solid boron cantilever with a 0.26 mm diameter
The stylus tip is a special line contact type with a 1.5 x 0.28 mil curvature radius (used in the AT50ANV) and a solid boron cantilever with a 0.26 mm diameter.

• Machined aluminium base
The base that supports the magnetic circuit and vibration system is made of machined aluminium material. This enables it to serve as a solid base to support stable playback capability.

• Hybrid body that reduces unnecessary parasitic resonance
The housing is made of machined aluminium materials and the cover is made of hard plastic materials. This disperses parasitic resonance and results in clear sound quality.

Moving coil cartridges / AT33 Series

AT33Sa

Dual moving coil stereo cartridge with Shibata stylus

799,00 €
Including VAT
EAN 4961301289 68

Nude Square Shank
Shibata

- **MC cartridge with Shibata stylus**
  The AT33Sa is the first Audio-Technica MC cartridge model to feature a Shibata stylus. In addition to its superior high-range performance as a line-contact stylus, the Shibata stylus produces mid and bass sound that is strong and rich.
  The Shibata stylus is mounted on a boron cantilever with a double damper to greatly improve sound quality.

- **Advanced tapered boron cantilever and reduced weight**
  The AT33Sa uses a tapered boron cantilever. Tapering the cantilever and revising the number of coil rotations reduce the weight, giving the cartridge better high range performance and wide range reproduction.

- **Neodymium magnet with dramatically enhanced magnetic energy and permendur yoke**
  The model uses a neodymium magnet with maximum energy product BHmax of 50 [kJ/m3] and a permendur yoke with high saturation flux density and outstanding magnetic properties, which further enhances the concentrated magnetic field of the coil gap.

- **High-separation, wide response dual moving coil**
  The basic structure is an original MC type, with separate cylindrical coils to the left and right channels. Since power is generated independently in each of the left and right channels, this structure offers truly superior separation. If the signal from the opposite channel escapes, this can cause intermodulation distortion and have a decisive impact on audio quality and how the stereo sound spreads. The structure of this product ensures a clear and smooth sound. Additionally, the two coils have a reverse-V shape which reduces effective moving mass as seen from the stylus tip, limiting unnecessary movement of the coil and further eliminating distortion.

- **A tough body designed to be rigid**
  The product's housing is made of precision-cast hard aluminum alloy. Hard synthetic resin sandwiching in the structure on the top and bottom suppresses parasitic resonance. This minimizes unnecessary noise while enhancing rigidity and the signal-to-ratio.

AT33PTG/II

Dual moving coil stereo cartridge with Micro linear stylus

549,00 €
Including VAT
EAN 4961310111182

Nude Square Shank
MicroLine®

- **Advanced nude tapered boron and weight reduction**
  This model succeeds in thinning down and shortening the cantilever, compared to the AT33PTG. The coil impedance is also refined from 17W to 10W. We realized significant weight reduction of the vibration system and successfully improved the basic performance and sound quality of the cartridge.

- **High performance and long-life Micro linear stylus**
  Micro linear (ML) is a specially polished line contact stylus. This has a better high range performance than the conical or elliptical stylus due to its small curvature radius and realizes low distortion and expanding high range reproduction even when playing at the inner circumference of records. And the constancy of the line contact shape is one of its main features with an average product lifetime of around 1,000 hours.

AT33EV

Dual moving coil stereo cartridge with Elliptical stylus

489,00 €
Including VAT
EAN 4961310103972

Nude Square Shank
Elliptical

- **Elliptical stylus chip and hard duralumin tapered pipe cantilever**
  The big advantage to the elliptical chip is its ability to richly reproduce sounds in the medium and low ranges. This elliptical chip is embedded into a hard duralumin tapered pipe cantilever. With its outstanding machine strength, the duralumin cantilever is tough enough for the job and produces natural sounds without distortion. The cantilever of this product, moreover, goes through a tapering process to harden it, making it faster to transmit sound than conventional duralumin cantilevers and producing unsurpassed response. Supporting this cantilever fulcrum with the traditional double damper disperses resonance, enables stable tracing and achieves linear frequency characteristics.

- **"Hanenite" vibration-controlling rubber minimizes unnecessary vibration**
  The vibration-controlling rubber "hanenite" is used in the housing interior and the cantilever fulcrum support to minimize unnecessary vibration. The body structure, designed to be rigid and suppress vibration, allows the outstanding basic performance of the dual moving coil to fully express itself.


AT33Sa MC
audio-technica


audio-technica
AT-F2 MC

Premium dual moving coil stereo cartridges

Common features of AT-F7 and AT-F2

The cartridges AT-F7 and AT-F2, with a high-quality sound comparable to more expensive models, provide outstanding value and performance, which delights those who appreciate the sound quality of analogue records.

- **Neodymium magnet for dramatically increased magnetic energy**
  The neodymium magnet provides maximum energy (BHmax of 50[kJ/m3]), while the pure iron yoke provides excellent properties. Together, they further boast the magnetic field concentrated in the coil gap area.

- **PCOCC used for coils**
  PCOCC does not give rise to crystalline resistance in the transmission direction, enabling audiophiles to enjoy pure transmissions.

- **Dual moving coil with high separation and wide response**
  Our unique moving coil type cartridge has a basic structure where one cylindrical coil is used for the left channel and another is used for the right channel. This structure by which power is generated independently for the left and right channels physically provides outstanding separation characteristics. The leakage of signals from one channel into the other exerts a decisive influence on the stereo expanse as well as on the sound quality. This is because this leakage is tantamount to creating irregular cross modulation. The reason why the dual moving coil system delivers such a clear and finely delineated sound quality is no doubt due to the system's naturally excellent separation. The AT-F7 and AT-F2 features a reverse V-shaped formation for the two left and right coils to reduce the vibration mass as seen from the stylus tip.

- **Durable construction dedicated to achieving increased rigidity**
  Using a precision-crafted sturdy aluminium alloy as the base, the body's structure is made of hard resin which minimizes parasitic resonance. This achieves greater rigidity and improves signal-to-noise ratio.

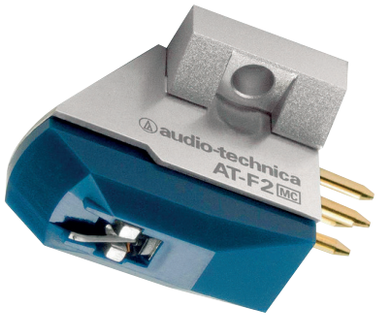
AT-F7
Dual moving coil cartridge

269,00 €
Including VAT
EAN 4961310106850

Nude Square Shank
Elliptical

- The AT-F7 is equipped with an elliptical stylus (curvature radius: 0.2 x 0.7 mil).
- High-rigidity VC mold combined with potassium titanate minimizes unnecessary vibration

  The VC structure that holds the coils in place is made of a hard resin, which is combined with potassium titanate for increased strength and rigidity. The result is less weight and an unprecedented reduction of unnecessary vibration.
- Diameter stainless suspension wire
  The AT-F7 uses 0.07 mm diameter stainless suspension wire, which serves an important role as a fulcrum point for audio signal transfer. This stainless wire is used for higher-quality MC-type cartridges. This stabilizes the fulcrum position and enables auditory lateralization to provide excellent expression of the high-frequency range.



AT-F2
Dual moving coil cartridge

199,00 €
Including VAT
EAN 4961310127213

Bonded Round Shank
Elliptical

- The AT-F2 is equipped with an elliptical stylus (curvature radius: 0.3 x 0.7 mil).

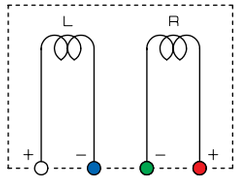
Moving coil phono cartridges for mono vinyl LP records

AT33MONO

High-end moving coil mono cartridge for mono vinyl LP (Long Play) records

329,00 €
Including VAT
EAN 4961310098964

Nude Square Shank
Conical



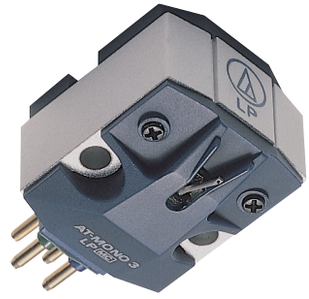
AT33MONO internal wiring
This schematics shows the internal wiring of AT33MONO featuring two horizontal voice coils each voice coils termination is available independently per the above diagram.

The AT33MONO is made specifically for use on mono LP.

The AT33MONO produces sound to a very high quality because it does not easily pick up unnecessary strain components from distorted or scratched records, producing audio that you couldn't possibly get from a stereo cartridge.

The AT33MONO also has appropriate compliance in the vertical direction to avoid damage to stereo records.

- Mono cartridge compatible with stereo playback systems.
- 0.65mil conical nude round shank stylus hard duralumin cantilever.
- Strong body stabilized by a rigid body set-up.
- "Hanenite" anti-vibration high-damping rubber eliminates unnecessary vibrations.
- High-quality brass fastening screw.
- Note: this model is not compatible with SP records due to the size of the diamond (0.6mil) designed for micro-groove 33.3 rpm and 45 rpm vinyl records.

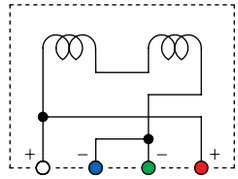


AT-MONO3/LP

High output moving coil mono cartridge for mono vinyl LP (Long Play) records

179,00 €
Including VAT
EAN 4961310008321

Bonded Conical Stylus
Round Shank



AT-MONO3/LP internal wiring
This schematic shows the internal wiring of AT-MONO3/LP featuring two horizontal voice coils wired in series, resulting electrically as a single mono voice coil. The mono signal is available from white-blue terminals, the same signal is also available from red-green terminals in order to feed both inputs of a stereo phono preamp.

Made specifically for mono recordings on vinyl records, the cartridge only generates signal with horizontal movement. However to produce a minimal wear on the groove, the AT-MONO3/LP also has an adapted vertical compliance.

- Carefully selected components and state of the art technology produce a high resolution cartridge.
- Straight pipe aluminium cantilever and low mass stylus guarantees a high tracking ability.
- The average usage time is 500 hours extending the life span of precious mono recordings.
- High purity PCOCC allows a more transparent signal transmission both high efficiency and high fidelity.
- To support the internal mechanism, the body is made of solid die-cast aluminium alloy, furthermore stiffness is achieved with the addition of rigid synthetic resin to hold the body.
- Note: this model is not compatible with 78rpm SP records due to the size of the diamond (0.6mil) designed for micro-groove 33.3 rpm records.

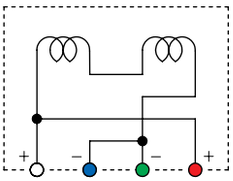
Moving coil phono cartridge for 78rpm mono Shellac SP record

AT-MONO3/SP

High output moving coil cartridge
for 78rpm mono Shellac SP
(Standard Play) records

179,00 €
Including VAT
EAN 4961310008338

3 mil Bonded Conical Stylus
Round Shank

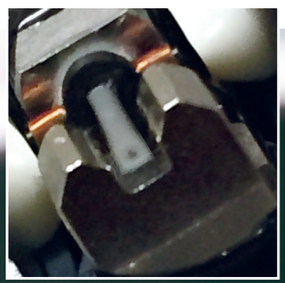


AT-MONO3/SP internal wiring
This schematic shows the internal wiring of AT-MONO3/SP featuring two horizontal voice coils wired in series, resulting electrically as a single mono voice coil. The mono signal is available from white-blue terminals, the same signal is also available from red-green terminals in order to feed both inputs of a stereo phono preamp.

The AT-MONO3/SP cartridge is designed to faithfully transcribe the performances recorded on 78rpm Shellac records.

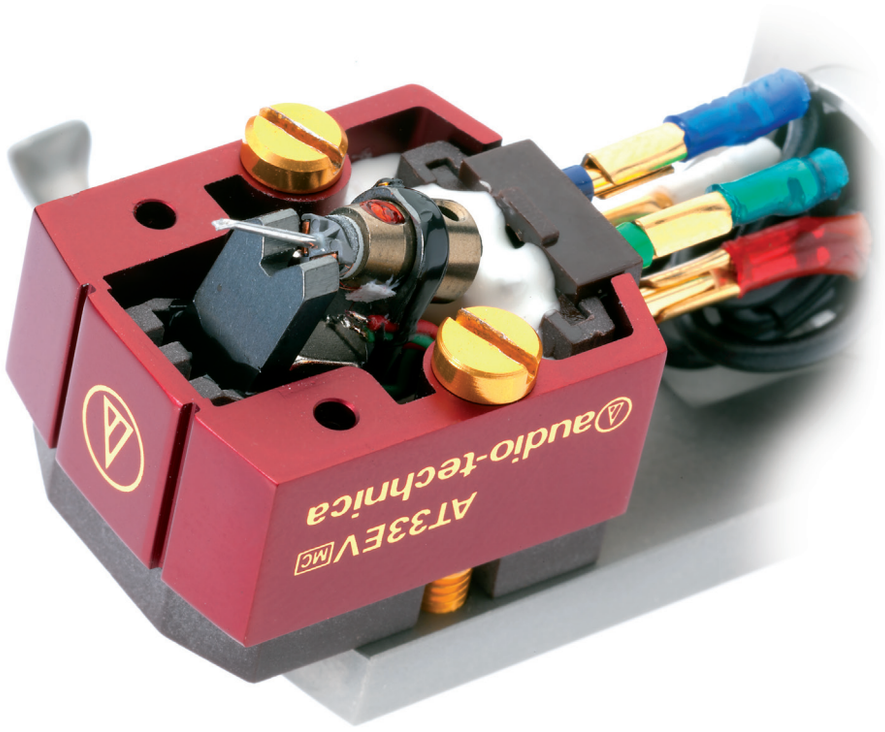
Made specifically for mono recordings, the cartridge only generates signal with horizontal movement. However to produce a minimal wear on the groove, the AT-MONO3/SP also has an adapted vertical compliance.

- Straight pipe aluminium cantilever and low mass stylus guarantees a high tracking ability.
- The average usage time is 500 hours extending the life span of precious mono recordings.
- High purity PCOCC allows a more transparent signal transmission offering a high efficiency and a high fidelity.
- To support the internal mechanism, the body is made of solid die-cast aluminium alloy, furthermore stiffness is achieved with the addition of rigid synthetic resin to hold the body.

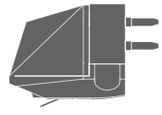


AT33MONO, **AT-MONO3/LP** and **AT-MONO3/SP** are true mono cartridges due to the horizontal configuration of the voice coils. The cartridge only generates electrical signal with horizontal movement due to the horizontal configuration of the coil.

Note: Moving Coil Cartridges Styli are not field replaceable



Moving Coil Cartridge



Authorized Service Center

audio-technica

Terms and conditions

The customer must return the old Audio-Technica moving coil cartridge to an Authorized Moving Coil Cartridge Service Centre along with proof of purchase.

The MC cartridge returned under the programme must be outside of its warranty period, and be in working order (with the exception of a worn stylus) with no mechanical damage on the cantilever.

This programme is available exclusively for customers in Europe.

(For customers with damaged or broken cartridges, please contact your local Authorized Moving Coil Cartridge Service Centre for assistance)

Moving coil cartridges replacement styli European programme

Due to the technical nature and highly skilled construction involved in moving coil cartridges, it is not possible to replace the stylus. Audio-Technica does not recommend having a moving coil cartridge re-tipped or repaired by any independent, unauthorized repair centre since the original performance and optimal specifications can only be obtained when the complete cartridge is assembled and thoroughly tested by our skilled engineers at Audio-Technica's specialist production facility in Japan.

Therefore Audio-Technica offers a comprehensive trade-in programme for its customers with moving coil cartridges with worn out styli.

Stylus replacement of ART1000 cartridge is achieve by sending back your own cartridge to Tokyo, Machida factory (see cartridge ART1000 rebuild programme price below and details on page 9).

ART1000 rebuild programme price

AT-ART1000/RB	ART1000 Cartridge rebuild programme	1 990,00 € inc. VAT

Moving coil cartridge trade-in programme prices

AT-ART9/RP	ART9 Cartridge replacement programme	659,00 € inc. VAT
AT-ART7/RP	ART7 Cartridge replacement programme	719,00 € inc. VAT
AT-OC9/III/RP	AT-OC9/III Cartridge replacement programme	329,00 € inc. VAT
AT-OC9ML/II/RP	AT-OC9ML/II Cartridge replacement programme	299,00 € inc. VAT
AT33EV/RP	AT33EV Cartridge replacement programme	299,00 € inc. VAT
AT33PTG/II/RP	AT33PTG/II/ Cartridge replacement programme	329,00 € inc. VAT
AT33Sa/RP	AT33Sa Cartridge replacement programme	479,00 € inc. VAT
AT-F7/RP	AT-F7 Cartridge replacement programme	169,00 € inc. VAT
AT-F2/RP	AT-F2 Cartridge replacement programme	119,00 € inc. VAT
AT-MONO3/LP/RP	AT-MONO3/LP Cartridge replacement programme	109,00 € inc. VAT
AT33MONO/RP	AT33MONO Cartridge replacement programme	199,00 € inc. VAT
AT-MONO3/SP/RP	AT-MONO3/SP Cartridge replacement programme	109,00 € inc. VAT

Limited edition moving coil cartridge trade-in programme

AT50ANV AT50ANV anniversary MC cartridge was a limited edition and case stylus replacement is necessary, the owner of AT50ANV will be able to trade in for model AT-ART7, offering very similar performance. (See AT-ART7 trade-in programme prices above.)

AT-OC9/III LTD AT-OC9/III LTD was a limited edition and in case stylus replacement is necessary, the owner of AT-OC9/III LTD will be able to trade in for the model AT-OC9/III, offering very close similar performance. (See AT-OC9/III trade-in programme prices above.)

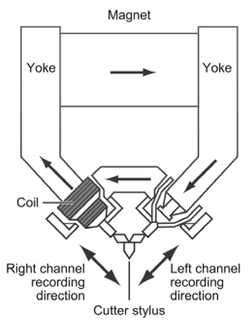
VM Series cartridges: features & mechanism

Analogous to the cutter head

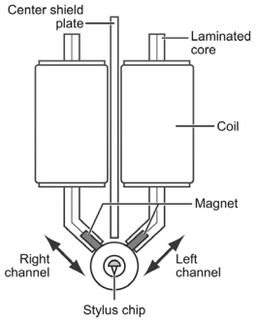
A cutter head carves out the record grooves. The modulations in the groove are "analogue" mechanical equivalents of the original audio signals. To "read" these modulations, Audio-Technica developed the internationally-patented Dual Magnet design which duplicates the structure of cutter head.

Instead of using a single, large magnet, the two magnets are arranged in the shape of a "V". The two magnets are positioned precisely to match the positions of the left and right channels in the stereo groove walls. Consequently, the VM design (VM as V Mount, mounted in a shape of V) ensures outstanding channel separation, extended frequency response and superb tracking.

Basic structure of the cutter head



Basic structure of the VM cartridges



Para-toroidal generating system delivers substantial improvements

The new VM cartridges differ in their styli design, but all share the basic construction of their generating systems (Cartridge Engine).
On the Para-toroidal generating system, since leakage of magnetic flux in this continuous and unitised magnetic circuit is low, a superb linearity can be obtained. Permeability of the cores is also optimised through the use of laminated cores.

Centre shield plate between stereo channels

A permalloy centre shield plate enables the effective separation of left and right channels, suppressing electrical crosstalk to below 40dB. This is similar to the actual crosstalk value found in the grooves of the record itself.

6N-OFC Coil Wire

OFC - Oxygen Free Copper - is electronically refined to reduce the level of oxygen: 6N-OFC is more than 99.99997% pure oxygen free copper. This highly sophisticated coil wire material enables the cartridges to pick up an enormous amount of information from the vinyl grooves and provide high resolution audio with a powerful sound image.

Mono Body

For monaural operation, (unless a dedicated archiving phono-preamplifier is used), left and right channels should be connected. Mono body on which left and right terminals are connected internally improve signal-to-noise ratio, minimizing surface noise.

Para-toroidal coil construction of VM Series cartridges

With the VM type dual magnet system & high-performance para-toroidal generator coil system, Audio-Technica's VM stereo cartridges feature a unique structure. The structure greatly improves electro-magnetic performances compared with non para-toroidal construction such as in 90 Series cartridges.

Additionally, the VM series cartridges adopt a lossless para-toroidal generator coil system to their cartridge bodies that results in peak generating efficiency.

Stacking two cores makes further improvements to high frequency characteristics by separating the right-and-left channels from the center shield plate, resulting in reduced electrical cross talk.

Importance of tension wire construction and material

Suspension wire (tension wire) has an important role as a fulcrum point of the cantilever/stylus/magnets assembly.

Quality Audio-Technica MC cartridges use stainless suspension wire, providing a mechanical stabilization optimizing auditory lateralization to provide excellent expression of the high frequency range.

Audio-Technica VM Series cartridge models VM760SLC and VM750SH are designed with a stainless suspension wire featuring a unique design with selected materials. Other moving magnet Audio-Technica cartridge models are designed with a moulded integrated suspension system.

VM Series cartridges overview

700 Series

For superior sound with superfine fidelity.

VM760SLC

VM750SH

VM740ML

500 Series

VM540ML

Special Line Contact

Shibata

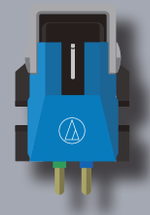
MicroLine®

Line Contact Styli

For more faithful reproduction of sound, with VM cartridge precision.

VM530EN

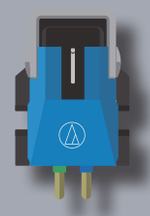
VM520EB



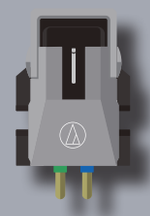
VM510CB

600 Series

For special models that bring out the best sound of mono LP records and 78rpm SP records.



VM610MONO



VM670SP

Elliptical Nude

Elliptical Bonded

Conical Bonded 0,6 mil

Conical Bonded 3 mil

Elliptical Styli

Conical Styli

VM cartridges / with line contact styli

VM760SLC

VM cartridge
with Special Line Contact Stylus

699,00 €
Including VAT
EAN 4961310137595

Nude Rectangular Shank
Special Line Contact

Using an ultra-lightweight stylus tip ground to a high level of precision, we have achieved a combination of low distortion rate with fuller frequency reproduction during playback. This stylus tip extracts every possible piece of information from the grooves on a record.

- Aluminium tapered cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Die-cast aluminium alloy housing reduces vibration and adds a natural electrical shield

VM750SH

VM cartridge with Shibata Stylus

429,00 €
Including VAT
EAN 4961310137588

Nude Square Shank
Shibata

Fitted with the Shibata stylus, which was developed for playing 4ch vinyl records that demand high-frequency reproduction capabilities during playback. Not only high-frequency, it is also ideal for reproducing rich mid and low frequencies.

- Aluminium tapered cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Die-cast aluminium alloy housing reduces vibration and adds a natural electrical shield

VM740ML

VM cartridge with MicroLine® Stylus

329,00 €
Including VAT
EAN 4961310137571

Nude Square Shank
MicroLine®

High-end model featuring a MicroLine® stylus in an aluminium die-cast alloy body. In addition to outstanding high-frequency reproduction, this model enables clear sound image localisation.

- Aluminium tapered cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Die-cast aluminium alloy housing reduces vibration and adds a natural electrical shield

VM540ML

VM cartridge with MicroLine® Stylus
500 Series body

259,00 €
Including VAT
EAN 4961310137564

Nude Square Shank
MicroLine®

Standard model with a MicroLine® stylus. Distortion is low even on the inner circumference of a record because the curvature radius of the stylus tip does not alter even if the stylus becomes worn.

- Aluminium tapered cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Durable low resonance polymer housing

VM540ML/H

VM540ML mounted on AT-HS10BK headshell

284,00 €
Including VAT
EAN 4961310137649

VM cartridges / with elliptical & conical styli

VM530EN

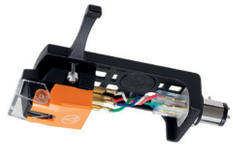
Dual moving magnet stereo cartridge

199,00 €
Including VAT
EAN 4961310137557

Nude Round Shank
Elliptical Nude

High-end elliptical stylus model equipped with a light-weighted nude elliptical stylus to reduce the execution mass of the vibration system. This enables fuller frequency reproduction.

- Aluminium cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Durable low resonance polymer housing



VM530EN/H

VM530ENmounted on AT-HS10BK headshell

224,00 €
Including VAT
EAN 4961310137632

VM520EB

Dual moving magnet stereo cartridge

129,00 €
Including VAT
EAN 4961310137540

Bonded Round Shank
Elliptical Bonded

Standard elliptical stylus model equipped with an elliptical bonded stylus. This reduces tracing distortion and allows for more accurate sound reproduction.

- Aluminium cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Durable low resonance polymer housing

VM520EB/H

VM520EB mounted on AT-HS10BK headshell

154,00 €
Including VAT
EAN 4961310137625

VM510CB

Dual moving magnet stereo cartridge

109,00 €
Including VAT
EAN 4961310137533

Bonded Round Shank
Conical Bonded

Entry-level VM cartridge model equipped with a conical bonded stylus. The round stylus is less likely to be affected by placement and boasts stable tracing performance.

- Aluminium cantilever
- Para-toroidal coils improve generating efficiency
- Centre shield plate between the left and right channels reduces crosstalk
- Durable low resonance polymer housing

VM cartridges / mono cartridges for Shellac & early mono LP's

VM670SP

For Shellac 78rpm mono
Standard Play Records

159,00 €
Including VAT
EAN 4961310137618

Bonded Round Shank
Conical (3 mil)

Model dedicated to 78 rpm records, whose conical stylus has a large curvature radius at the tip. The curvature radius is 3 mil, and suitable for playing 78 rpm records from a wide variety of eras.

- Aluminium cantilever
- Para-toroidal coils improve generating efficiency
- Mono body terminating left and right channels reduces surface noise
- Durable low resonance polymer housing

VM610MONO

For mono Vinyl Microgrove
Long Play Records

139,00 €
Including VAT
EAN 4961310137601

Bonded Round Shank
Conical

Mono LP model with a conical bonded stylus, dedicated to early monaural LP records. Specialised internal wiring allows for reduced surface noise.

- Aluminium cantilever
- Para-toroidal coils improve generating efficiency
- Mono body terminating left and right channels reduces surface noise
- Durable low resonance polymer housing

Replacement styli for VM cartridges

VMN60SLC

Replacement stylus for VM760SLC

570,00 €
Including VAT
EAN 4961310137700

Nude Rectangular
Shank
Special Line Contact

VMN70SP

Replacement stylus for VM670SP

94,00 €
Including VAT
EAN 4961310137717

Bonded Round Shank
Conical (3mil)

VMN50SH

Replacement stylus for VM750SH

300,00 €
Including VAT
EAN 4961310137694

Nude Square Shank
Shibata

VMN20EB

Replacement stylus for VM520EB

86,00 €
Including VAT
EAN 4961310137663

Bonded Round Shank
Elliptical

VMN40ML

Replacement stylus for VM740ML & VM540ML

216,00 €
Including VAT
EAN 4961310137687

Nude Square Shank
MicroLine®

VMN10CB

Replacement stylus for VM510CB & VM610MONO

66,00 €
Including VAT
EAN 4961310137656

Bonded Round Shank
Conical

VMN30EN

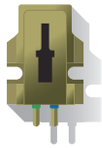
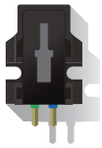
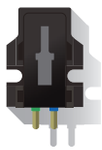
Replacement stylus for VM530EN

156,00 €
Including VAT
EAN 4961310137670

Nude Round Shank
Elliptical

Replacement & upgrade styli matrix

The cartridge becomes worn after an extended period of play[3], even the finest diamond stylus. Our VM cartridges can be used again for a long time only by replacing the stylus. Our renewed VM cartridges series is composed of 7 styli and 3 types of bodies. Not only is it not necessary to buy the cartridge itself, but you can also enjoy the experience of upgrading your stylus, or trying a new cartridge / stylus combination.

Cartridge Body	Product	 Special Line Contact Stylus **VMN60SLC**	 Shibata Stylus **VMN50SH**	 MicroLine® Stylus **VMN40ML**	 Elliptical Nude Stylus **VMN30EN**	 Elliptical Bonded Stylus **VMN20EB**	 Conical Bonded Stylus **VMN10CB**	 3mil Conical Bonded Stylus **VMN70SP**
 **VM700 Body**	**VM760SLC**	Standard Replacement	Becomes VM750SH	Becomes VM740ML	Compatible	Compatible	Compatible	Possible (1)
	VM750SH	Upgrade to VM760SLC	Standard Replacement	Becomes VM740ML	Compatible	Compatible	Compatible	Possible (1)
	VM740ML	Upgrade to VM760SLC	Upgrade to VM750SH	Standard Replacement	Compatible	Compatible	Compatible	Possible (1)
 **VM500 Body**	**VM540ML**	Compatible	Compatible	Standard Replacement	Becomes VM530EN	Becomes VM520EB	Becomes VM510CB	Possible (1)
	VM530EN	Compatible	Compatible	Upgrade to VM540ML	Standard Replacement	Becomes VM520EB	Becomes VM510CB	Possible (1)
	VM520EB	Compatible	Compatible	Upgrade to VM540ML	Upgrade to VM530EN	Standard Replacement	Becomes VM510CB	Possible (1)
	VM510CB	Compatible	Compatible	Upgrade to VM540ML	Upgrade to VM530EN	Upgrade to VM520EB	Standard Replacement	Possible (1)
 **VM600 Body**	**VM670SP**	Possible not recommended*(2)	Possible not recommended*(2)	Possible not recommended*(2)	Possible not recommended*(2)	Possible not recommended*(2)	Becomes VM610MONO	Standard Replacement
	VM610MONO	Possible not recommended*(2)	Possible not recommended*(2)	Possible not recommended*(2)	Possible not recommended*(2)	Possible not recommended*(2)	Standard Replacement	Becomes VM670SP

(1) Since SP records only have monaural modulation, combining an SP stylus with a stereo body would be recommended only when used with a dedicated archiving phono Preamplifier-equaliser. These incorporate various features to allow Mono reduction from Stereo inputs (Mono L+R, Mono L, Mono R, L&R Variable Mix). When an SP record is played with a standard Stereo Phono Preamplifier, it is recommended that a VM600 body is used for signal to noise ratio optimisation and to minimise record surface noise.

(2) For best results when playing vintage mono LPs, Audio-Technica recommends using the VMN510CB Conical stylus. A Special Line Contact, Shibata, MicroLine® or Elliptical type stylus can be considered if you are sure that the dimensional groove construction of the LP(s) can safely handle these stylus tip shapes.

(3) Lifetime of the replacement stylus is approx. 300 to 500 hours for Conical, 300 hours for Elliptical, 1000 hours for MicroLine®, and 800 hours for Shibata and Special Line Contact.

AT90 Series / conical & elliptical styli

The AT90 Series represents years of research and development aimed at producing high-performance cartridges at a reasonable price. Features include durable dual magnet design and round shank diamond stylus, capable of standing up to rigorous commercial use. Excellent channel separation and low distortion add to outstanding tonal quality. AT90 Series cartridges can be mounted on virtually any tonearm.

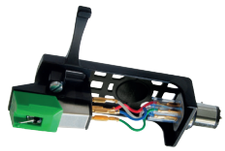
AT95E/BL

Elliptical stylus MM stereo cartridge

39,00 €
Including VAT
EAN 4961310016388

Bonded Round Shank
Elliptical

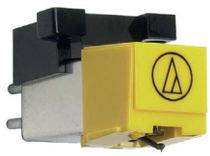
Replacement stylus:
ATN95E
Upgrade replacement:
ATN95Ex



AT95E/HSB

AT95E mounted on AT-HS10BK headshell

64,00 €
Including VAT
EAN 4961310134372



AT91/BL

Conical stylus MM stereo cartridge

24,00 €
Including VAT
EAN 4961310009885

Bonded Round Shank
Conical
Carbon cantilever

Replacement stylus:
ATN91
Upgrade replacement:
ATN91R

audio-technica cartridges exclusively available on turntables

The AT95Ex cartridge is not available from your Audio-Technica Dealer as a separate item. The AT95Ex cartridge is supplied as an exclusive moving magnet cartridge on the AT-LP5 turntable. ATN95Ex replacement stylus is available as an upgrade for the AT95E.

The AT91R cartridge is not available from your Audio-Technica Dealer as a separate item. The AT91R cartridge is supplied as an exclusive moving magnet cartridge on the AT-LP3 turntable. ATN91R replacement stylus is available as an upgrade for the AT91 or the AT3600L.

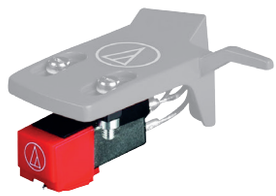
The AT3600L cartridge is not available from your Audio-Technica Dealer as a separate item. The AT3600L cartridge is supplied exclusively to turntable manufacturers.

AT95Ex

Elliptical stylus MM stereo cartridge
with improved transient response

Bonded Round Shank
Elliptical

Replacement stylus:
ATN95Ex



AT91R

Conical stylus MM stereo cartridge
with improved aluminium cantilever

Bonded Round Shank
Conical
Aluminium cantilever

Replacement stylus:
ATN91R

AT3600L

Entry model cartridge[1]

Bonded Round Shank
Conical
Carbon reinforced cantilever

Replacement stylus:
ATN3600L
Upgrade replacement:
ATN91 [2]

[1] The AT3600L cartridge is supplied as a budget model moving magnet cartridge on several turntables available on the market. For similar applications, our entry model AT91 provides improved performance. AT91 standard tracking force being 2g instead of 3.5g for AT3600L, using AT91 will improve the life of your vinyl records.

[2] The AT3600L can be upgraded in order to minimize record wear using replacement stylus ATN91 or ATN91R. The upgrade is only possible if your turntable tonearm features tracking force adjustment.

P-mount moving magnet plug-in cartridges

This selection of three cartridges allows owners of Technics™, Hitachi™, Pioneer™(3) and similar linear tracking turntables with T4P plug-in connectors to enjoy the high-fidelity sound that only Audio-Technica can offer.

Each is designed specifically for the linear format, while all feature Audio-Technica's unique dual moving magnet construction. The dual magnet system is combined with the para-toroidal coil construction to assure an excellent sonic clarity and wide channel separation. Special Alnico magnets are employed for a natural and uncoloured sonic performance.

The models AT300P and AT311EP include a universal mounting kit for use with other tonearms.

Conical stylus P-mount only moving magnet cartridge

AT3482P

P-mount MM cartrdige, conical stylus

24,00 €
Including VAT
EAN 4961310059569

Bonded Round Shank
Conical

- 0.6 mil conical stylus
- Carbon fiber cantilever
- Installation screw and nut supplied
- Bonded round shank diamond

Conical stylus P-mount moving magnet cartridge with universal 1/2" adaptor

AT300P includes P20020 adaptor P-mount to 1/2"

AT300P

U-mount MM cartridge, conical stylus

29,00 €
Including VAT
EAN 4961310059576

Bonded Round Shank
Conical

- 0.6 mil conical stylus
- Alloy tube cantilever
- Universal adaptor, installation screw and nut supplied
- Bonded round shank diamond

Elliptical stylus P-mount moving magnet cartridges with universal 1/2" adaptor

AT311EP

P-mount MM cartridge,
elliptical stylus with universal adaptor

39,00 €
Including VAT
EAN 4961310059583

Bonded Round Shank
Conical

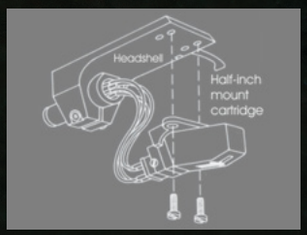
- 0.3 x 0.7 mil elliptical stylus
- Alloy tube cantilever
- Universal adaptor, installation screw and nut supplied
- Bonded round shank diamond

P-MOUNTING

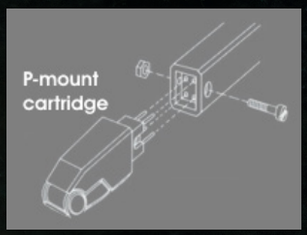
Audio-Technica P-mount cartridges can be mounted as follow:

– **Half-inch mount (1/2") using universal P20020 adaptor**

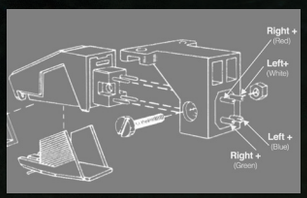
– **P-mount (plug-in)**



P-mount cartridge mounted on standard 1/2" headshell using P20020 U-mount adaptor.



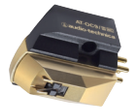
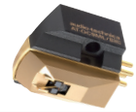
P-mount cartridge mounted on P-mount tonearm (screw and nut are supplied with all models).

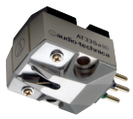


P-mount cartridge with P20020 adaptor.

- **Half-inch mount cartridge** also has four terminals at the back, but they are larger pins that connect to four individual wires at the end of the tonearm. The cartridge is secured to the tonearm's headshell with two screws, spaced 1/2" apart.
- **P-mount cartridge** has four terminals at the back that simply plug in to the end of the tonearm. The cartridge is then secured to the tonearm with a single screw.

Audiophile moving coil cartridges specifications

Model Number	**ART1000**	**AT-OC9/III**	**AT-OC9ML/II**	**AT-ART9**	**AT-ART7**
					
Type	Direct Power System	Dual Moving Coil	Dual Moving Coil	Dual Moving Coil	Non-magnetic Core Moving Coil
Body Material	Aluminium / titanium	Aluminium	Aluminium	Aluminium	Aluminium
Frequency Response	15 to 30,000 Hz	15 to 50,000 Hz	15 to 50,000 Hz	15 to 50,000 Hz	15 to 50,000 Hz
Channel Separation	30 dB (1 kHz)	30 dB (1 kHz)	31 dB (1 kHz)	30 dB (1 kHz)	30 dB (1 kHz)
Output Chanel Balance	0.5 dB (1 kHz)	0.5 dB (1 kHz)	1 dB (1 kHz)	0.5 dB (1 kHz)	0.5 dB (1 kHz)
Output Voltage	0.2 mV (at 1 kHz, 5 cm/sec)	0.4 mV (at 1 kHz, 5 cm/sec)	0.4 mV (at 1 kHz, 5 cm/sec)	0.5 mV (at 1 kHz, 5 cm/sec)	0.12 mV (at 1 kHz, 5 cm/sec)
Vertical Tracking Angle	21 degrees	23 degrees (see note n°1)	23 degrees	23 degrees	23 degrees
Vertical Tracking Force Range	Specified for each individual cartridge	1.8 to 2.2 g (standard 2.0 g)	1.25 to 1.75 g (standard 1.5 g)	1.6 to 2 g (standard 1.8 g)	1.6 to 2 g (standard 1.8 g)
Stylus Shape	Special Line contact	Special Line Contact	MicroLine®	Special Line Contact	Special Line Contact
Stylus Curvature Radius	1.5 x 0.28 mil	1.5 x 0.28 mil	2.2 x 0.12 mil	1.5 x 0.28 mil	1.5 x 0.28 mil
Stylus Construction	Nude rectangular shank	Nude rectangular shank	Nude square shank	Nude rectangular shank	Nude rectangular shank
Cantilever	0.26mm Ø solid boron	0.26 mm Ø solid boron	Gold plated nude tapered boron	0.26 mm Ø solid boron	0.26 mm Ø solid boron
Static Compliance	30 x 10^{-6} cm / dyne	35 x 10^{-6} cm / dyne	35 x 10^{-6} cm / dyne	35 x 10^{-6} cm / dyne	35 x 10^{-6} cm / dyne
Dynamic Compliance	12 x 10^{-6} cm / dyne (100 Hz)	18 x 10^{-6} cm / dyne (100 Hz)	9 x 10^{-6} cm / dyne (100 Hz)	18 x 10^{-6} cm / dyne (100 Hz)	10 x 10^{-6} cm / dyne (100 Hz)
Wire Used for Coil	20 µm Ø PCOCC	PCOCC (see note n°3)	PCOCC (see note n°3)	PCOCC (see note n°3)	PCOCC (see note n°3)
Terminal Pins	Brass	PCOCC (see note n°3)	PCOCC (see note n°3)	Brass	Brass
Recommended Load Impedance	Min 30 Ω (see note n°4)	Min 100 Ω (see note n°4))	Min 100 Ω (s ee note n°4)	Min 100 Ω (see note n°4)	Min 100 Ω (see note n°4)
Coil Impedance	3 Ω (1 kHz)	12 Ω (1 kHz)	12 Ω (1 kHz)	12 Ω (1 kHz)	12 Ω (1 kHz)
DC Resistance	3 Ω	12 Ω	12 Ω	12 Ω	12 Ω
Coil Inductance	1 µH (1 kHz)	25 µH (1 kHz)	25 µH(1 kHz)	25 µH (1 kHz)	8 µH (1 kHz)
Cartridge Weight	11 g	8.0 g	8.0 g	8.5 g	8.5 g
Dimensions	17.3 (H) x 17 (W) x 25.5 (L) mm	17.3 (H) x 16.8 (W) x 25.7 (L) mm	17.3 (H) x 16.8 (W) x 25.7 (L) mm	17.3 (H) x 17.0 (W) x 25.6 (L) mm	17.3 (H) x 17.0 (W) x 25.6 (L) mm
Mounting	1/2" centers	1/2" centers	1/2" centers	1/2" centers	1/2" centers
Replacement Stylus	(see page 9, note n°1)	(see note n°2)	(see note n°2)	(see note n°2)	(see note n°2)
Accessories Included	1 non-magnetic screw driver; 1 brush; 2 washers; 2 x 12 mm mounting screws; 2 Nuts; 2 x 18 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires	1 non-magnetic screw driver; 1 brush; 2 washers; 2 x 11 mm mounting screws; 2 Nuts; 2 x 16 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires (AT6101)	1 non magnetic screw driver; 1 brush; 2 washers; 2 Nuts; 2 x 11 mm mounting screws; 2 x 16 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires (AT6101)	1 non-magnetic screw driver; 1 brush; 2 washers; 2 x 12 mm mounting screws; 2 Nuts; 2 x 18 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires (AT6101)	1 non magnetic screw driver; 1 brush; 2 washers; 2 x 12 mm mounting screws; 2 Nuts; 2 x 18 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires (AT6101)

Model Number	**AT33Sa**	**AT33EV**	**AT33PTG/II**	**AT-F7**	**AT-F2**
					
Type	Dual Moving Coil	Dual Moving Coil	Dual Moving Coil	Dual Moving Coil	Dual Moving Coil
Body Material	Aluminium/Synthetic Resin	Aluminium/Synthetic Resin	Aluminium/Synthetic Resin	Aluminium/Synthetic Resin	Aluminium/Synthetic Resin
Frequency Response	15 to 50,000 Hz	15 to 50,000 Hz	15 to 50,000 Hz	15 to 50,000 Hz	15 to 30,000 Hz
Channel Separation	30 dB (1 kHz)	30 dB (1 kHz)	30 dB (1 kHz)	27 dB (1 kHz)	25 dB (1 kHz)
Output Chanel Balance	0.5 dB (1 kHz)	0.5 dB (1 kHz)	0.5 dB (1 kHz)	1.5 dB (1 kHz)	1.5 dB (1 kHz)
Output	0.4 mV (at 1 kHz, 5 cm/sec)	0.3 mV (at 1 kHz, 5 cm/sec)	0.3 mV (at 1 kHz, 5 cm/sec)	0.35 mV (at 1 kHz, 5 cm/sec)	0.32 mV (at 1 kHz, 5 cm/sec)
Vertical Tracking Angle	23 degrees	23 degrees	23 degrees	23 degrees	23 degrees
Vertical Tracking Force Range	1.8 to 2.2 g (standard 2.0 g)	1.8 to 2.2 g (standard 2.0 g)	1.8 to 2.2 g (standard 2.0 g)	1.8 to 2.2 g (standard 2.0 g)	1.8 to 2.2 g (standard 2.0 g)
Stylus Shape	Shibata	Elliptical	MicroLine®	Elliptical	Elliptical
Stylus Curvature Radius	2.7 x 0.26 mil	0.3 x 0.7 mil	2.2 x 0.12 mil	0.2 x 0.7 mil	0.3 x 0.7 mil
Stylus Construction	Nude square shank	Nude square shank	Nude square shank	Nude square shank	Bonded round shank
Cantilever	Gold plated nude tapered boron	Duralumin tapered pipe	Gold plated nude tapered boron	Aluminium pipe	Aluminium pipe
Static Compliance	40 x 10^{-6} cm / dyne	40 x 10^{-6} cm / dyne	40 x 10^{-6} cm / dyne	35 x 10^{-6} cm / dyne	35 x 10^{-6} cm / dyne
Dynamic Compliance	10 x 10^{-6} cm / dyne (100 Hz)	10 x 10^{-6} cm / dyne (100 Hz)	10 x 10^{-6} cm / dyne (100 Hz)	9 x 10^{-6} cm / dyne (100 Hz)	9 x 10^{-6} cm / dyne (100 Hz)
Wire Used for Coil	PCOCC (see note n°3)	PCOCC (see note n°3)	PCOCC (see note n°3)	PCOCC (see note n°3)	PCOCC (see note n°3)
Terminal Pins	Brass	Brass	Brass	Brass	Brass
Recommended Load Impedance	Min 100 Ω (see note n°4)	Min 100 Ω (see note n°4)	Min 100 Ω (see note n°4)	Min 100 Ω (see note n°4)	Min 100 Ω (see note n°4)
Coil Impedance	10 Ω (1 kHz)	10 Ω (1 kHz)	10 Ω (1 kHz)	12 Ω (1 kHz)	12 Ω (1 kHz)
DC Resistance	10 Ω	10 Ω	10 Ω	12 Ω	12 Ω
Coil Inductance	22 µH (1 kHz)	22 µH (1 kHz)	22 µH (1 kHz)	25 µH (1 kHz)	25 µH (1 kHz)
Cartridge Weight	6.9 g	6.9 g	6.9 g	5 g	5 g
Dimensions	16 (H) x 16.6 (W) x 26.5 (L) mm	16 (H) x 16.6 (W) x 26.5 (L) mm	16.0 (H) x 16.6 (W) x 26.5 (L) mm	17.3 (H) x 16.8 (W) x 25.4 (L) mm	17.3 (H) x 16.8 (W) x 25.4 (L) mm
Mounting	1/2" centers	1/2" centers	1/2" centers	1/2" centers	1/2" centers
Replacement Stylus	(see note n°2)	(see note n°2)	(see note n°2)	(see note n°2)	(see note n°2)
Accessories Included	1 non magnetic screw driver; 1 brush; 2 washers; 2 Nuts; 2 x 13 mm mounting screws; 2 x 19 mm mounting screws; 1 plastic protector;	1 non magnetic screw driver; 1 brush; 2 washers; 2 Nuts; 2 x 13 mm mounting screws; 2 x 19 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires (AT6101)	1 non magnetic screw driver; 1 brush; 2 washers; 2 Nuts; 2 x 13 mm mounting screws; 2 x 19 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires(AT6101)	1 non magnetic screw driver; 1 brush; 2 washers; 2 Nuts; 2 x 5 mm mounting screws; 2 x 9 mm mounting screws; 1 plastic protector; 1 set of PCOCC Lead Wires (AT6101)	2 washers; 2 Nuts; 2 x 5 mm mounting screws; 2 x 9 mm mounting screws; 1 plastic protector

(1) Vertical tracking angle of 20 degrees is IEC/DIN standard.

(2) When the stylus is to be replaced, replace the entire cartridge. Take the used cartridge to your Audio-Technica Authorized Service Center. The new cartridge, or any other model which is desired among the line-up of MC cartridges sold by Audio-Technica, are available at the stylus replacement price (contact an Audio-Technica Authorize Service Center).

(3) PCOCC = Pure Cooper by Ohno continuous casting process.

(4) When head amplifier connected.

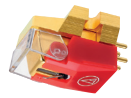
(5) The abbreviation mil is equal a thousandth of an inch - mil = 0,001 inch = 0,0254 mm = 25,4 µm

Moving coil cartridges specification for mono vintage records

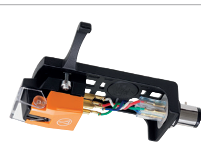
	for 78 rpm Shellac SP Records	for Mono Vinyl	for Mono Vinyl
Model Number	**AT-MONO3/SP**	**AT-MONO3/LP**	**AT33 MONO**
			
Type	Horizontal Mono Moving Coil (see note n°6)	Horizontal Mono Moving Coil (see note n°6)	Horizontal Mono Moving Coil
Body Material	Aluminium/Synthetic Resin	Aluminium/Synthetic Resin	Aluminium/Synthetic Resin
Frequency Response	20 to 15,000 Hz	20 to 20,000 Hz	20 to 20,000 Hz
Output Voltage	1.2 mV (at 1 kHz,12 cm/sec)	1.2 mV (at 1 kHz, 5.0 cm/sec)	0.35 mV (at 1 kHz, 5.0 cm/sec)
Vertical Tracking Angle	23 degrees	23 degrees	23 degrees (see note n°1)
Vertical Tracking Force Range	3 to 7 g (standard 5.0 g)	1.5 to 2.5 g (standard 2.0 g)	2.3 to 2.7 g (standard 2.5 g
Stylus Shape	Conical	Conical	Conical
Stylus Curvature Radius	2.5 mil (see note n°5)	0.6 mil (see note n°5)	0.65 mil (see note n°5)
Stylus Construction & Size	Bonded square shank	Bonded round shank	Nude square shank
Cantilever	Aluminium Pipe	Aluminium Pipe	Duralumin Pipe
Static Compliance	10×10^{-6} cm / dyne	20×10^{-6} cm / dyne	20×10^{-6} cm / dyne
Dynamic Compliance	3.5×10^{-6} cm / dyne (100 Hz)	7×10^{-6} cm / dyne (100 Hz)	6×10^{-6} cm / dyne (100 Hz)
Wire Used for Coil	PCOCC (see note n°3)	PCOCC (see note n°3)	PCOCC (see note n°3)
Recommended Load Impedance	400 Ω to 47,000 Ω (see note n°7)	400 Ω to 47,000 Ω (see note n°7)	Min 100 Ω (see note n°4)
Coil Impedance	40 Ω (1 kHz)	40 Ω (1 kHz)	10 Ω (1 kHz)
DC Resistance	40 Ω	40 Ω	10 Ω
Coil Inductance	190 μH (1 kHz)	190 μH (1 kHz)	28 μH (1 kHz)
Cartridge Weight	6.8 g	6.8 g	6.9 g
Dimensions	16.0 (H) x 16.6 (W) x 26.5 (L) mm	16.0 (H) x 16.6 (W) x 26.5 (L) mm	16.0 (H) x 16.6 (W) x 26.5 (L) mm
Mounting	1/2" centers	1/2" centers	1/2" centers
Replacement Stylus	(see note n°2)	(see note n°2)	(see note n°2)
Accessories Included	Non-magnetic screw driver; 1 brush; 2 washers; 2 x 20 mm mounting screws; 2 x 13 mm mounting screws; 2 x nuts; 1 plastic protector; 1 set of PCOCC lead wires AT6101	Non-magnetic screw driver; 1 brush; 2 washers; 2 x 20 mm mounting screws; 2 x 13 mm mounting screws; 2 x nuts; 1 plastic protector; 1 set of PCOCC lead wires AT6101	Non-magnetic screw driver; 1 brush; 2 washers; 2 x 19 mm mounting screws; 2 x 13 mm mounting screws; 1 plastic protector; 2 x nuts; 1 set of PCOCC lead wires AT6101

(1) Vertical tracking angle of 20 degree is IEC/DIN standard.
(2) When the stylus is to be replaced, replace the entire cartridge. Take the used cartridge to your Audio-Technica Authorized Service Center. The new cartridge, or any other model which is desired among the line-up of MC cartridges sold by Audio-Technica is available at the stylus replacement price (contact Audio-Technica Authorized Service Center).
(3) PCOCC = Pure Cooper by Ohno continuous casting process.
(4) When head amplifier connected.
(5) The abbreviation mil is equal a thousandth of an inch - mil = 0,001 inch = 0,0254 mm = 25,4 μm
(6) Due to high output voltage this moving coil cartridge can be used directly in MM phono inputs without the use of a step-up transformer.
(7) When connected to the MC input of a transformer-less phono pre-amp, choose a lower gain position due to the high output voltage (1.2 mV).

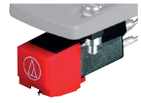
VM cartridges specifications

Model Number	VM760SLC	VM750SH	VM740ML	VM540ML	VM530EN
					
Type	VM Stereo	VM Stereo	VM Stereo	VM Stereo	VM Stereo
Frequency Response	20 to 30,000Hz	20 to 27,000Hz	20 to 27,000Hz	20 to 27,000Hz	20 to 25,000Hz
Output Voltage	4.0mV (1kHz, 5cm/sec.)	4.0mV (1kHz, 5cm/sec.)	4.0mV (1kHz, 5cm/sec.)	4.0mV (1kHz, 5cm/sec.)	4.5mV (1kHz, 5cm/sec.)
Channel Separation	30dB (1kHz)	30dB (1kHz)	28dB (1kHz)	28dB (1kHz)	27dB (1kHz)
Output Balance	1.0dB (1kHz)	1.0dB (1kHz)	1.0dB (1kHz)	1.0dB (1kHz)	1.5dB (1kHz)
Tracking Force	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)
Coil Impedance	2.7kΩ (1kHz)	2.7kΩ (1kHz)	2.7kΩ (1kHz)	2.7kΩ (1kHz)	2.7kΩ (1kHz)
DC Resistance	800Ω	800Ω	800Ω	800Ω	800Ω
Recommended Load Impedance	47kΩ	47kΩ	47kΩ	47kΩ	47kΩ
Recommended Load Capacitance	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF
Coil Inductance	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)
Static Compliance	40×10^{-6} cm/dyne	40×10^{-6} cm/dyne	40×10^{-6} cm/dyne	40×10^{-6} cm/dyne	35×10^{-6} cm/dyne
Dynamic Compliance	10×10^{-6} cm/dyne (100Hz)	10×10^{-6} cm/dyne (100Hz)	10×10^{-6} cm/dyne (100Hz)	10×10^{-6} cm/dyne (100Hz)	8×10^{-6} cm/dyne (100Hz)
Stylus Shape	Nude Special Line Contact	Nude Shibata	Nude MicroLine®	Nude MicroLine®	Nude Elliptical
Stylus Curvature Radius	1.5×0.28mil	2.7×0.26mil	2.2×0.12mil	2.2×0.12mil	0.3×0.7mil
Cantilever	Aluminium tapered pipe	Aluminium tapered pipe	Aluminium tapered pipe	Aluminium tapered pipe	Aluminium pipe
Vertical Tracking Angle	23°	23°	23°	23°	23°
Dimensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
Weight	8.0g	8.0g	8.0g	6.4g	6.4g
Replacement Stylus	VMN60SLC	VMN50SH	VMN40ML	VMN40ML	VMN30EN
Accessories	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set ×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set ×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set ×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set ×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 –

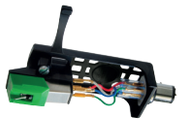
Model Number	VM520EB	VM510CB	VM670SP	VM610MONO
				
Type	VM Stereo	VM Stereo	VM Mono (for SP)	VM Mono (for LP)
Frequency Response	20 to 23,000Hz	20 to 20,000Hz	20 to 20,000Hz	20 to 20,000Hz
Output Voltage	4.5mV (1kHz, 5cm/sec.)	5.0mV (1kHz, 5cm/sec.)	3.0mV (1kHz, 5cm/sec.)	3.0mV (1kHz, 5cm/sec.)
Channel Separation	27dB (1kHz)	25dB (1kHz)	–	–
Output Balance	1.5dB (1kHz)	1.5dB (1kHz)	–	–
Tracking Force	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	4.5 to 5.5g (5.0g standard)	1.8 to 2.2g (2.0g standard)
Coil Impedance	2.7k ohms (1kHz)	2.7k ohms (1kHz)	1.4k ohms (1kHz)	1.4k ohms (1kHz)
DC Resistance	800Ω	800Ω	400Ω	400Ω
Recommended Load Impedance	47kΩ	47kΩ	47kΩ	47kΩ
Recommended Load Capacitance	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF
Coil Inductance	460mH (1kHz)	460mH (1kHz)	230mH (1kHz)	230mH (1kHz)
Static Compliance	35×10^{-6} cm/dyne	35×10^{-6} cm/dyne	15×10^{-6} cm/dyne	35×10^{-6} cm/dyne
Dynamic Compliance	8×10^{-6} cm/dyne (100Hz)	8×10^{-6} cm/dyne (100Hz)	2.0×10^{-6} cm/dyne (100Hz)	8×10^{-6} cm/dyne (100Hz)
Stylus Shape	Bonded Elliptical	Bonded Conical	Bonded Conical	Bonded Conical
Stylus Curvature Radius	0.3×0.7mil	0.6mil	3mil	0.6mil
Cantilever	Aluminium pipe	Aluminium pipe	Aluminium pipe	Aluminium pipe
Vertical Tracking Angle	23°	23°	23°	23°
Dimensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
Weight	6.4g	6.4g	6.4g	6.4g
Replacement Stylus	VMN20EB	VMN10CB	VMN70SP	VMN10C
Accessories	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2

Model Number	VM540ML/H	VM530EN/H	VM520EB/H
			
Dimensions	H21.3×W21.0×L60.4mm	H21.3×W21.0×L60.4mm	H21.3×W21.0×L60.4mm
Weight	16.8g	16.8g	16.8g

Half-inch mount moving magnet cartridges specifications

Model Number	AT95E	AT95Ex [7]	AT91	AT91R	AT3600L (see note n°5)
					
Type	Stereo Dual Moving Magnet	Stereo Dual Moving Magnet	Stereo Dual Moving Magnet	Stereo Dual Moving Magnet	Stereo Dual Moving Magnet
Frequency Response	20 to 20,000 Hz	20 to 22,000 Hz	20 to 20,000 Hz	20 to 20,000 Hz	20 to 20,000 Hz
Channel Separation	20 dB (1 kHz)	20 dB (1 kHz)	18 dB (1 kHz)	20 dB (1 kHz)	20 dB (1 kHz)
Output Chanel Balance	2.0 dB	2.0 dB	2.5 dB	1.5 dB	2 dB
Output Voltage	3.5 mV (at 1 kHz, 5 cm/sec)	3.5 mV (at 1 kHz, 5 m/sec)	3.5 mV (at 1 kHz, 5 cm/sec)	3.5 mV (at 1 kHz, 5 cm/sec)	3.5 mV (at 1 kHz, 5 cm/sec)
Vertical Tracking Angle	23 degrees	23 degrees	20 degrees	20 degrees	20 degrees
Vertical Tracking Force Range	1.5 to 2.5 g (standard 2.0 g)	1.5 to 2.5 g (standard 2 g)	1.5 to 2.5 g (standard 2.0 g)	1.5 to 2.5 g (standard 2.0 g)	3.5 g
Stylus Shape	Elliptical	Elliptical	Conical	Conical	Conical
Stylus Size	0.3 x 0.7 mil (see note n°4)	0.3 x 0.7 mil	0.6 mil	0.6 mil	0.6 mil
Stylus Construction	Bonded Round Shank	Bonded Round Shank	Bonded Round Shank	Bonded Round Shank	Bonded Round Shank
Cantilever	Aluminium Pipe	Aluminium Pipe	Carbon Fiber Reinforced ABS	Aluminium Pipe	Carbon Fiber Reinforced ABS
Static Compliance	20 x 10^{-6} cm / dyne	20 x 10^{-6} cm / dyne	20 x 10^{-6} cm / dyne	20 x 10^{-6} cm / dyne	20 x 10^{-6} cm / dyne
Dynamic Compliance	6.5 x 10^{-6} cm / dyne (100 Hz)	6.5 x 10^{-6} cm / dyne (100 Hz)	6.5 x 10^{-6} cm / dyne (100 Hz)	5.0 x 10^{-6} cm / dyne (100 Hz)	6.5 x 10^{-6} cm / dyne (100 Hz)
Wire Used for Coil	TPC	TPC	TPC	TPC	TPC
Recommended Load Impedance	47,000 Ω	47,000 Ω	47,000 Ω	47,000 Ω	47,000 Ω
Recommended Load Capacitance	100-200 pF	100-200 pF	100-200 pF	100-200 pF	100-200 pF
Coil Inductance	400 mH (1 kHz)	400 mH (1 kHz)	400 mH (1 kHz)	400 mH (1 kHz)	400 mH (1 kHz)
Cartridge Weight	5.7 g	5.7 g	5.0 g	5.0 g	5.0 g
Mounting	1/2" centers	1/2" centers	1/2" centers	1/2" centers	1/2" centers
Replacement Stylus	ATN95E	ATN95Ex	ATN91 or ATN91R	ATN91R	ATN3600L or ATN91 (see note n°6)
Accessories Included	Two 8 mm installation screws; Two 5 mm installation screws; Two hexagonal nuts; Two round nuts; Four washers;	AT95Ex cartridge comes already installed on turntable.	Two 8 mm installation screws; Two 5 mm installation screws; Two hexagonal nuts; Two round nuts; Four washers;	AT91R cartridge comes already installed on turntable.	AT3600L cartridge comes already installed on turntable.

[1] Vertical tracking angle of 20 degree is IEC/DIN standard.
[2] The extension B or BL indicates only the packaging of the product (Bulk or Blister).
[3] PCOCC = Pure Cooper by Ohno continuous casting process.
[4] The abbreviation mil is equal to a thousandth of an inch - mil = 0,001 inch = 0,0254 mm = 25,4 µm
[5] The AT3600L budget cartridge is exclusively available as a factory fitted entry model for turntable manufacturers only.
[6] ATN3600L replacement stylus is the original stylus of AT3600L cartridge.
ATN91 is an upgrade replacement stylus for AT3600L, this replacement is only possible if your turntable tonearm features tracking force adjustment.
[7] AT95Ex, improved transcient response version of AT95E is exclusively available as factory fitted model for AT-LP5 turntable.

Model Number	AT95E/HSB
	
Dimensions [1]	H20×W21×L60mm
Weight	16.2 g

(1) Total lenght depend on final cartridge position following overhang adjustment.

P-mount moving magnet cartridges specifications

Model Number	AT3482P	AT300P	AT311EP
			
Type	Stereo Dual Dual Magnet	Stereo Dual Dual Magnet	Stereo Dual Dual Magnet
Frequency Response	20 to 20,000 Hz	20 to 22,000 Hz	15 to 27,000 Hz
Channel Separation	24 dB / 15 dB (1 kHz/10 kHz)	26 dB / 16 dB (1 kHz/10 kHz)	29 dB / 18 dB (1 kHz/10 kHz)
Output Chanel Balance	1.5 dB (1 kHz)	1.5 dB (1 kHz)	1.25 dB (1 kHz)
Output Voltage	5.0 mV (at 1 kHz, 5 cm/sec)	5.0 mV (at 1 kHz, 5 cm/sec)	3.5 mV (at 1 kHz, 5 cm/sec)
Vertical Tracking Angle	20 degree (see note n°1)	20 degree (see note n°1)	20 degree (see note n°1)
Vertical Tracking Force Range	1.0 to 1.5 g (1.25g recommended)	1.0 to 1.5 g (1.25g recommended)	1.0 to 1.5 g (1.25g recommended)
Stylus Shape	Conical	Conical	Elliptical
Stylus Size	0.6 mil (see note n°4)	0.6 mil (see note n°4)	0.3 x 0.7 mil (see note n°4)
Stylus Construction	Bonded Round Shank	Bonded Round Shank	Bonded Round Shank
Cantilever	Carbon Fiber	Alloy Tube	Alloy Tube
Color : body / styli	Black / Black	Black / Ivory	Black / Ivory
Wire Used for Coil	TPC	TPC	TPC
Recommended Load Impedance	47,000 Ω	47,000 Ω	47,000 Ω
Recommended Load Capacitance	100-200 pF	100-200 pF	100-200 pF
Coil Inductance	400 mH (1 kHz)	400 mH (1 kHz)	400 mH (1 kHz)
Mounting	P-mount only	P-mount & 1/2" mount	P-mount & 1/2" mount
Replacement Stylus	ATN3472P (aluminium cantilever)	ATN3472P	ATN3472SE
Accessories Included	P-mount black installation screw and nut; plastic protector;	P-mount black installation screw and nut; plastic protector; Universal 1/2" mount adaptor	P-mount black installation screw and nut; plastic protector; Universal 1/2" mount adaptor

(1) Vertical tracking angle of 20 degree is IEC/DIN standard.
(4) The abbreviation mil is equal to a thousandth of an inch - mil = 0,001 inch = 0,0254 mm = 25,4 µm

Elliptical replacement styli for AT95E cartridges

ATN95E
Replacement stylus for AT95E

The ATN95E is also compatible
with discontinued models AT93 and AT95.

26,00 €
Including VAT
EAN 4961310062484

Bonded Round Shank
Elliptical

ATN95Ex
Replacement stylus for AT95Ex/BL

32,00 €
Including VAT
EAN 5055145748381

Bonded Round Shank
Elliptical

Conical replacement styli for AT91, AT91R and AT3600 series

ATN91
Replacement stylus for AT91

The ATN91 is also the compatible stylus for
CN5625AL and AT90 discontinued cartridges.
The ATN91 is also the upgrade replacement styli
for AT3600L. The tracking force of AT3600L equipped
with ATN91 is 2g, do not upgrade from ATN3600L to ATN91 when
your tonearm does not allowed tracking force adjustment.

18,00 €
Including VAT
EAN 5055145702116

Bonded Round Shank
Conical

ATN91R
Replacement stylus for AT91R

22,00 €
Including VAT
EAN 4961310138974

Bonded Round Shank
Conical

ATN3600L
Replacement stylus for AT3600L

This ATN3600L styli is compatible with the following
cartridges: AT3600 - AT3600L - AT3601 - AT3651 -
AT3650L - AT3650C - AT3650 - AT3626.
This is also the replacement stylus for turntable models
Audio-Technica LP60USB and LP60.

14,00 €
Including VAT
EAN 5055145748039

Bonded Round Shank
Conical

Original Audio-Technica styli
packaging, including: white box,
transparent lid with Audio-Technica
logo, internal stylus protection
shell for diamond and cantilever
protection.

Currently we are aware that counterfeight cartridges and styli,
with a similar form factor to the AT3600L, AT91 and AT95E are
being distributed illegaly.
The original condition of genuine AT3600L, AT91 and AT95E
consist of the following: Audio-Technica circle monogram on
the styli, original Audio-Technica packaging (see above).
We recommend to purchase from a reseller displaying the
official Audio-Technica Authorised Reseller logo.

Conical replacement styli ATP-2, ATP-1 and ATP-2XN

ATP-N2
Replacement stylus for ATP-2

The ATP-2 was included with AT-PL120 turntable from 2005 to
2010. The ATP-N2 is also compatible with ATP-2, ATP-1 and
ATP-2XN cartridges.

69,00 €
Including VAT
EAN 4961310059507

Bonded Round Shank
Elliptical

P-mount replacement styli cartridges

Conical Symbol

ATN3472P
Replacement conical
stylus for AT300P, AT3482P and AT3482H/U

19,00 €
Including VAT
EAN 5055145739631

Bonded Round Shank
Conical

Elliptical Symbol

ATN3472SE
Replacement elliptical
stylus for AT311EP

The ATN3472SE is also compatible with AT92ECD and AT301EP.

26,00 €
Including VAT
EAN 5055145748022

Bonded Round Shank
Elliptical

Replacement styli guide for discontinued audio-technica models

Discontinued model	Original stylus shape	Recommended replacement	Alternative replacement / Note
AT100E	Elliptical	**VMN20EB**	Any VNM model can be selected
AT101EP	Elliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT101P	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT103	Elliptical	**VMN20EB**	Any VNM model can be selected
AT120E	Elliptical	**VMN20EB**	Any VNM model can be selected
AT120E-II	Elliptical	**VMN20EB**	Any VNM model can be selected
AT120E/T	Elliptical	**VMN30EN**	Any VNM model can be selected
AT120Ea	Elliptical	**VMN30EN**	Any VNM model can be selected
AT120Eb	Elliptical	**VMN30EN**	Any VNM model can be selected
AT120ET	Elliptical	**VMN30EN**	Any VNM model can be selected
AT125LC	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT130E	Elliptical	**VMN30EN**	Any VNM model can be selected
AT130E	Elliptical	**VMN30EN**	Any VNM model can be selected
AT130Ea	Elliptical	**VMN30EN**	Any VNM model can be selected
AT140E	Elliptical	**VMN30EN**	Any VNM model can be selected
AT140Ea	Elliptical	**VMN30EN**	Any VNM model can be selected
AT140LC	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT140ML	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT150ANV	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT150E	Elliptical	**VMN30EN**	Any VNM model can be selected
AT150Ea	Elliptical	**VMN30EN**	Any VNM model can be selected
AT150MLX	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT150Sa	Shibata	**VMN50SH**	Any VNM model can be selected
AT150Ti	Eliptical	**VMN30EN**	Any VNM model can be selected
AT155LC	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT160ML	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT2000XE	Elliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT2001	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT2002	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT2003	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT2004	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT2005	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT250	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT3400	Conical	**ATN95E**	Makes cartridge elliptical
AT3400C	Conical	**ATN95E**	Makes cartridge elliptical
AT3401	Conical	**ATN95E**	Makes cartridge elliptical
AT3410	Conical	**ATN95E**	Makes cartridge elliptical
AT3450	Conical	**ATN95E**	Makes cartridge elliptical
AT3450C	Conical	**ATN95E**	Makes cartridge elliptical
AT3450L	Conical	**ATN95E**	Makes cartridge elliptical
AT3451	Conical	**ATN95E**	Makes cartridge elliptical
AT3451E	Eliptical	**ATN95E**	Choose **ATN95Ex** as upgrade
AT3452E	Eliptical	**ATN95E**	Choose **ATN95Ex** as upgrade
AT3472BE	Eliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT3472C	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT3472EP	Eliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT3472P	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT3472PBK	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT3472EPBK	Elliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT3474SE	Elliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT3482P	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)

Discontinued model	Original stylus shape	Recommended replacement	Alternative replacement / Note
AT3492EP	Eliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT3492P	Conical	**ATN3472P**	**ATN3472SE** (makes cartridge elliptical)
AT3600	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3600C	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3600L	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3601	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT3626	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3650	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3650C	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3650L	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT3651	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT3651E	Elliptical	**ATN91**	Makes cartridge conical
AT3652	Conical	**ATN91**	Choose **ATN91R** for aluminium cantilever
AT3712	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT3472PBK	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT420E	Elliptical	**VMN20EB**	Any VNM model can be selected
AT430E	Elliptical	**VMN20EB**	Any VNM model can be selected
AT440LC	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT440ML	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT440ML/OCC	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT440MLa	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT440MLB	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT440MLb	MicroLine®	**VMN40ML**	Any VNM model can be selected
AT5000SE	Elliptical	**ATN3472SE**	**ATN3472P** (Makes cartridge conical)
AT80	Conical	**ATN3472P**	**ATN3472SE** (Makes cartridge elliptical)
AT90	Conical	**ATN3600L**	Choose **ATN91** for 2g Tracking Force
AT91E	Elliptical	**ATN91**	Makes cartridge conical
AT93	Conical	**ATN95E**	Makes cartridge elliptical
AT95C	Conical	**ATN95E**	Makes cartridge elliptical
ATP2	Elliptical	**ATP-N2**	No alternative options
ATP1	Conical	**ATP-N2**	Makes cartridge elliptical
ATP2XN	Elliptical	**ATP-N2**	No alternative options
ATX1	Elliptical	**ATP-N2**	No alternative options
ATX11	Elliptical	**ATP-N2**	No alternative options
ATX3E	Elliptical	**ATP-N2**	No alternative options
ATX5E	Elliptical	**ATP-N2**	No alternative options

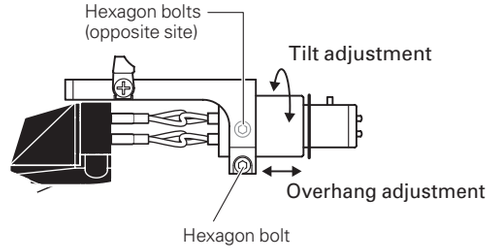
Headshells

Removable headshell for half-inch cartridges with azimuth and overhang adjustment

AT-LH13/OCC

13g TechniHard™ adjustable headshell
with AT6101 quad wire

79,00 €
Including VAT
EAN 4961310002374



- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of installation screws (3mm, 5mm, 6mm, 8mm, 10mm, 12mm and 14mm)
- 1 hexagon wrench (for overhanging and tilt adjustment)

AT-LH18/OCC

18g TechniHard™ adjustable headshell
with AT6101 quad wire

79,00 €
Including VAT
EAN 4961310002398

- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of installation screws (3mm, 5mm, 6mm, 8mm, 10mm, 12mm and 14mm)
- 1 hexagon wrench (for overhanging and tilt adjustment)

AT-LH15/OCC

15g TechniHard™ adjustable headshell
with AT6101 quad wire

79,00 €
Including VAT
EAN 4961310002381

- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of installation screws (3mm, 5mm, 6mm, 8mm, 10mm, 12mm and 14mm)
- 1 hexagon wrench (for overhanging and tilt adjustment)

Removable headshell for half-inch cartridges, M2.6 threaded

AT-LT13A

13g headshell aluminium die cast body

39,00 €
Including VAT
EAN 4961310001964

- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of screws (3mm, 5mm, 6mm, 8mm, 10mm, 12mm and 14mm)
- Includes gold plated terminals quad wire
- 3 pairs of M2.6 threaded holes with 3.5mm distance allows 3 overhang positions adjustment.

AT-MG10

10g headshell magnesium body

49,00 €
Including VAT
EAN 4961310001957

- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of screws (3mm, 5mm, 6mm, 8mm, 10mm, 12mm and 14mm)
- Includes gold plated terminals quad wire
- 3 pairs of M2.6 threaded holes with 3.5mm distance allows 3 overhang positions adjustment.

Removable headshell for half-inch cartridges with slot type overhang adjustment

AT-HS10BK

10g headshell aluminium
die cast body - black finish

29,00 €
Including VAT
EAN 4961310132026

- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of installation screws (3mm, 5mm, 6mm, 8mm, 10mm, 12mm and 14mm)
- Includes gold plated terminals quad wire

AT-HS10SV

10g headshell aluminium
die cast body - silver finish

29,00 €
Including VAT
EAN 4961310132033

- Threaded headshell avoiding use of nuts when fitting cartridge
- 7 pairs of installation screws (3mm, 5mm, 6mm, 8mm, 10mm, 12 mm and 14mm)
- Includes gold plated terminals quad wire

AT-HS1

10g dj style cartridge headshell

12,00 €
Including VAT
EAN 5055145748282

This headshell for 1/2"-mount cartridges and 4-pin turntable arm (Audio-Technica, Technics, SME) features all-metal construction and an integral finger lift, includes lead wires and mounting screws.

AT-HS3

11.1g angled shape headshell for straight tonearm

32,00 €
Including VAT
EAN 491310139414

- Lightweight aluminium headshell suitable for 1/2" mount cartridges
- Finger lift allows precise stylus placement
- Includes lead wires and mounting screws

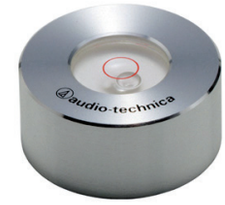
Accessories

AT618
Disc stabilizer

49,00 €
Including VAT
EAN 4961310000844

- Holds record firmly in place stabilising the record
- Thick rubber construction
- 600g.

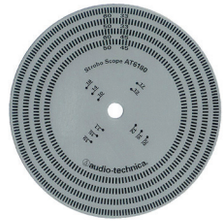
AT615
Turntable leveler



29,00 €
Including VAT
EAN 4961310001698

- Precise level for horizontal adjustment of turntable
- Machined aluminium housing.

AT6180
Stroboscopique disc
(50 Hz / 60 Hz) 33 - 45 rpm
and overhang adjustment tool



20,00 €
Including VAT
EAN 4961310070687

AT6101
Cartridge to headshell
PCOCC lead wires

12,00 €
Including VAT
EAN 4961310001650

- Perfect Crystal OCC quad wire (PCOCC high purity oxygen free conductor)
- 0.12mm x 22 core strand construction
- 24K gold plated crimped lead tip.

AT6012
Record care kit

19,90 €
Including VAT
EAN 4961310082406

Scientific record-care formula gently removes microdust and other contaminants, dissolves fingerprints, and eliminates static electricity

- Velvet brush pad reaches into grooves
- Inner reservoir directs the record care solution into brush pad's leading edge
- For LP/EP use only (do not use for Shellac records)
- A two-ounce bottle of A-T Record Care Solution is available separately as AT634.

AT634
Record care solution

9,90 €
Including VAT
EAN 4961310084073

- One bottle supplied with AT6012 record care kit

AT607
Stylus cleaner liquid with brush applicator

9,00 €
Including VAT
EAN 4961310000080

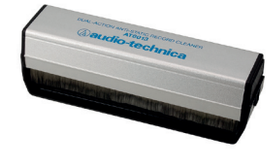
- 10ml volume
- Applicator brush is attached to the cap for ease of use.

AT6011
Anti-static record brush

18,00 €
Including VAT
EAN 4961310133238

- Removes harmful dust and contaminants from your vinyl records.

AT6013
Dual-action anti-static record cleaner



29,00 €
Including VAT
EAN 4961310133245

- Two carbon fibre brushes and central velvet pad work together to collect dust and other contaminants in one pass.

P20008
Non-magnetic screwdriver

P.O.A.
EAN 4961310059613

P20009
Anti-static stylus brush

P.O.A.
EAN 4961310059606

Cartridge-making Dictionary Audio-Technica's guide to cartridge-making terminology

33rpm
33rpm very often denotes 12" LP Vinyl records (1949-Today), that should be played at a speed of 33 1/3 rpm, rpm stands for Rotation Per Minute.

45rpm
45rpm very often denotes 7" Vinyl records, (1949-Today) that should be played at a speed of 45rpm, rpm stands for Rotation Per Minute.

78rpm
78rpm very often denotes 10" Shellac SP Gramophone records (1925-1950) that should be played at a speed of 78rpm, rpm stands for Rotation Per Minute.

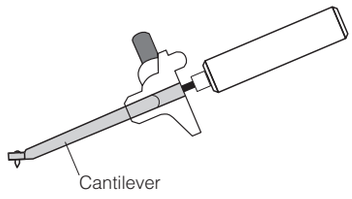
Anti-skating
When the record is in play, the friction between the stylus in the groove of the record and the length of the arm (the distance between the tip and the arm bearing) creates a force that pushes the cartridge toward the center of the disk. Anti-skating creates a force that pulls the arm towards the outer edge of the disc to compensate it. Because records don't have a constant amplitude, a static compensation will never totally cure the problem. It is a matter of balance. Badly set anti-skating will produce channel balance and distortion issues. When the anti-skating is set too high, the left channel will distort during loud passages, while on the other side if it's too low, the right channel will distort. Also the amount of anti-skating depends on the shape of the tip. Conical stylus tends to require more anti-skating (due to the amount of friction generated by their shape) than more complex shapes (Line contact or Micro linear).

Azimuth (see also Tilt)
For magnetic tape drives, azimuth refers to the angle between the tape head and magnetic tape. For phono cartridges, Azimuth is the angle between the surface of the record and the vertical axis of the cartridge.
Note the difference between cartridge removable head shells: some models such as the "Technihard series" (page 30) feature an "azimuth" adjustment. This feature is particularly useful when it is not provided by the tonearm itself.

Bonded diamond

Bonded diamond refers to a stylus where the diamond tip is glued on a metal shank that is itself glued into the hole of the cantilever. This construction may increase the mass of the overall tip and affect transient reproduction compared with nude styli that are preferred and used on higher-priced models.

Boron (boron cantilever)
Boron is a chemical element from the metalloid family, extracted from Borax and Kernite. Its atomic number is 5. Boron is used for high-end cantilevers due to its lightweight and high-rigidity properties. It reaches a score of 9.5 on the Mohs hardness scale (for reference Diamond scores 10 and Aluminium 3).

Cantilever (stylus cantilever)


Styli are principally made of three components: Stylus Tip, Stylus Cantilever, and Stylus Suspension.

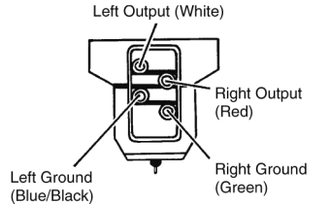
The cantilever is a tiny suspended "arm" (solid or pipe) that holds the Diamond Tip on one end and transfers the vibrations to the other end where the Magnets (in case of MM cartridges) or the Coils (in case of MC cartridges) are housed.
Different materials are used to make a cantilever: Aluminium, Saphyr, Beryllium, boron... The lighter and stiffer being the best.

Cartridge (Phono Magnetic Cartridge)
The phono cartridge is the transducer used for the playback of gramophone records.
The phono cartridge converts the mechanical energy (vibrations) from a stylus riding in a record groove into an electrical signal that will be amplified then processed, recorded, or played through a sound system.

Channel Balance
The channel balance of a cartridge is the ability of the transducer to reproduce left and right channels in the same manner. Channel balance should be part of the cartridge specifications, it expresses the possible output difference in dB from one channel to another. A cartridge with ideal channel balance will playback any mono signal with equal level in both channels. The channel balance will be 0dB. The ratio of the signals between the two channels is specified in dB. Channel imbalance can result in several factors independent from the cartridge itself: mechanical factors include incorrect azimuth settings, misalignment of the tonearm and/or of the cartridge on the headshell, and/or improper anti-skating adjustment. Other Channel imbalance issues, independent from the cartridge or the turntable, could include mismatched cables, electronic elements such as stereo preamplifiers, speaker system, speaker positioning and/or room acoustics.

Channel Separation
The channel separation of a cartridge is the ability of the transducer to deliver only signal on the left channel of the cartridge, and nothing on the right channel when there is only signal on the left channel groove,and vice versa. Channel separation is frequency dependent. Audio-Technica indicate in the specifications the Channel separation, specified at 1kHz. For high-end cartridges, Audio-Technica provides channel separation curves, showing the separation in dB from 20Hz to 20,000Hz. A high channel separation provides a better stereo image.

Compliance
Compliance is the inverse of stiffness. Every cartridge works as a suspension, a high compliance cartridge will be suited for a low mass tonearm and a low compliance (stiffer) cartridge will be suited for a high mass tonearm. There is not a perfect compliance number, the cartridge compliance together with the effective mass of the tonearm/cartridge combination determine the tonearm's fundamental resonance. For optimal results the frequency should be maintained between 9-13Hz.

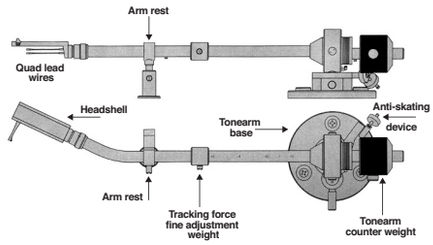
Connecting (the phono cartridge)


To install a Phono cartridge, connect the four wires of the cartridge headshell to the correct terminals on the back of the cartridge.

The four wires are colour-coded and generally labeled as follows :
Left Channel: **White**
Left Channel Ground: **Blue**
Right Channel: **Red**
Right Channel Ground: **Green**

Conical

(form factor of the diamond stylus)
Also called spherical, because of the shape of the tip of the cone. Conical shaped stylus are simple to produce, therefore it becomes the most popular when economy is a factor.

Counterweight
(Tonearm Counterweight)


Dual Moving Magnet cartridge
Audio-Technica's patented Vertical Dual Magnet phono cartridge, unlike conventional cartridges, use the 90° V-Shape of the cutter head. The standard cutter head (used to record the vinyl master) uses two transducer coils, mounted perpendicular to each other at 45° from horizontal, to cut the channel: one in each wall of the 90° record groove. This way, the cartridge achieves accurate tracking, excellent channel separation, high definition of the stereo image and extreme clarity over the entire audio spectrum.

Elliptical

(form factor of the diamond stylus)
An Elliptical stylus is produced starting from a Conical Stylus, then two cuts are made in order to make the vertical contact longer and the front to back contact narrower.
The elliptical tip follows the groove modulation with more precision than a conical tip, improving frequency response, phase response, and lowering distortion, specifically in the inner turns of the record.

Frequency Response
Frequency response is the quantitative measure of the output spectrum of the cartridge in response to the stimulus of the record grove modulation.
It is a measure of the magnitude for the output as a function of frequency; typically measured in decibels (dB). In the case of cartridge measurement, the input signal will be a constant-amplitude pure tone through the bandwidth provided by a reference record.

Impedance
The impedance is a measure of the total opposition that a circuit presents to alternate electric current. The output impedance of an electronic device is the impedance of its internal circuit "seen" by any device connected to its output. The Input impedance of an electronic device is the impedance "seen" by any source connected at its input.
Input impedance of the phono preamplifier and output impedance of the cartridge should be properly matched to achieve optimal sound. An impedance mismatch will work as a filter and degrade the sound making it dull or harsh depending on the setup. A general rule

of thumb is that the input impedance of your phono preamp (also referred to as the load impedance of your cartridge) should be 10 times the output impedance of your cartridge (also called the source impedance).

Load
When connected to a phono preamp, the cartridge forms a RLC (Resistor, Inductor, Capacitor) circuit which acts as a resonant filter emphasizing certain frequencies while reducing others. In order the achieve to most linear frequency response, manufacturers specify several load values (load capacitance, load impedance and so on). By following these specifications for the choice of the phono stage, one can achieve the best sonic results.

LP Record
LP stands for Long Play or 33 rpm microgroove vinyl record format. Introduced by Columbia Records in 1948, it was adopted in the mid-fifties as a new standard by the entire record industry. It became stereophonic in the mid 60's and is still the standard format of vinyl albums today.

Magnetic cartridge (see cartridge)

MC phono input
MC stands for Moving Coil. A Phono Input on a pre-amplifier or Amplifier mentioning MC means that the characteristics of the preamplifier input stage, in terms of Input impedance, Gain and de-emphasis equalisation are such that it will allow you to use a Moving Coil Phono Cartridge by plugging it into this input.

Micro linear (form factor of a stylus diamond, see MicroLine®)
A specific shape of a diamond stylus, Micro linear refers to a particular "ridge shape" stylus. An Audio-Technica trademark, Micro linear styli are known as MicroLine®.

MicroLine®

Audio-Technica Trademark which denotes the Micro linear "ridge" shape stylus.
The tip of the diamond is such that it allows a contact surface of around 115 µm2. The shape is "similar" to other diamond tips such as SAS, Dynavector or Namiki.
The MicroLine® diamond is different from Line Contact diamonds, also featured on high-end styli. Line Contact tips are also known as "Shibata", providing a contact surface between 50 and 75 µm2.

MM input
MM stands for Moving Magnet: an MM input denotes the input stage of a preamplifier is able to handle the signal of a Moving magnet phono cartridge and the MM input also has an input impedance suitable for the output impedance of MM cartridges.

Monaural
Monophonic sound reproduction (often called mono) is single-channel audio program material or single channel audio reproduction. Monaural recording on vinyl has been replaced by stereo sound during the mid 60's. 78rpm records and Vinyl records from 1952 to 1960 are Monaural. Stereo sound on vinyl records was introduced in 1958.

Moving Coil cartridges
The MC design is a tiny electromagnetic generator, but as opposed to MM design, the 2 coils are attached to the stylus (the moving part), and move within the field of a fixed permanent magnet. The coils are much smaller than MM cartridge coils and made from very thin copper wire. This result in a low impedance, low output signal but on the other hand it is also very lightweight allowing for a better response and a more detailed reproduction.
Moving coil cartridges are extremely small precision devices and as a consequence they are considerably more expensive, but are preferred by audiophiles due to measurable and subjectively better performance.

Moving Magnet cartridges
The MM design is a tiny electromagnetic generator, but as opposed to the MC (moving coil) design the stylus cantilever carries a pair of small permanent magnets. Those magnets are positioned between two sets of fixed coils forming the tiny electromagnetic generator.
As magnet vibrates in response to the stylus following the record groove, it induces a tiny current in the coils.

Mu-metal (shielding)
Mu-metal is a range of nickel-iron alloys that are notable for their high magnetic permeability. The high permeability makes mu-metal useful for shielding against static or magnetic fields. Mu-metal is frequently used to protect low signal transformers such as the ones found on microphone preamplifier input stages or on the Cartridge step-up transformers used with MC cartridges. Several models of Audio-Technica cartridges use Mu-metal shielding between the left and right sections of the cartridge in order to improve channel separation.

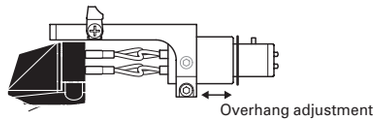
Neodymium
Neodymium is used as a component in the alloys used to make high-strength, powerful permanent magnets (neodymium magnets). These magnets are widely used throughout the audio industry in products such as microphones, professional loudspeakers, or in-ear headphones, where low magnet mass or volume, and strong magnetic fields, are required.

Nude Shank diamond

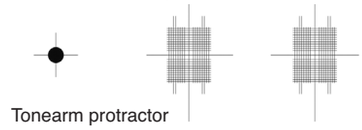
Nude

Bonded
Nude diamond refers to a stylus when the diamond glued into the hole of the cantilever is made out of one single piece of diamond.
This construction as opposed to Bonded shank (jointed) improves the mass of the overall tip and, because the vibrating signal does not have to transfer through two different materials, provides the best possible transient reproduction. Nude styli, although expensive to produce, are preferred and used on the higher priced models.

Output Voltage (of a cartridge)
Amplitude in mV of the electrical signal delivered by the cartridge for a given standard program material of the record grove. Knowing the Output voltage is an important factor: it will inform of the characteristic of the Phono input needed in order to accommodate a given cartridge. Output voltages may vary from under 0.1mV for the least efficient Moving Coil models on the market, up to 5mV for very efficient Moving Magnet cartridges. Such differences of more than 30dB shows that when selecting a cartridge, the selection of the associated preamplifier, with or without step-up transformer, is essential.

Overhang (Cartridge overhang adjustment)


In the case of cartridges mounted on a removable headshell, it could be necessary to adjust the cartridge by several millimeters in order for the stylus to be properly aligned with the tangent of the groove. Older tonearms provide adjustment on their bases in order to perform a proper setting using a tonearm protractor alignment system. Most modern tonearms do not provide this feature. In such a case, it is important to be able to adapt the distance between contact point of the stylus and axis of the tonearms with the Overhang adjustment provided by the cartridge headshell.



Para-toroidal coil
Para-toroidal coils are used on high-end Moving Magnet Audio-Technica cartridges, providing better channel separation, channel balance and improved transient response. Para-toroidal inductors are passive electronic components, widely used for transformer construction. The inductor with a closed-loop core can have a higher magnetic field and thus higher inductance and Q factor than similarly constructed coils with a straight core. The advantage of the toroïdal shape is that due to its symmetry, the amount of magnetic flux that escapes outside of the core (leakage flux) is minimum; therefore it radiates less electromagnetic interference to nearby circuits or equipment.

Phono Preamp
Denotes a preamplifier with an input or a series of inputs capable of handling the output from a Phono cartridge. As opposed to a "standard" line input preamp such as a Microphone input preamplifier, the Phono Preamplier will provide the necessary gain, Input impedance matching to the output impedance of the cartridges, and the de-emphasis equalisation needed to support the signal originated from the phono cartridge playing a record.
In the case of a Vinyl record, the equalisation will usually be RIAA.

Phono Cartridge (see Cartridge)

Phono input
Denotes the pair of input connectors (L&R) of the Phono Preamp.

Pole Piece
The pole piece is a structure composed of material of a high magnetic permeability that serves to direct the magnetic field produced by the magnet. A pole piece attaches to and, in a sense, extends a pole of the magnet, hence the name.

Radius (stylus Radius)
The radius of a stylus is the distance (R) in either mil (thousandth of an inch) or µm (micro, 10^-6, of a meter). The conical stylus has a unique Radius which varies from 0.6 to 0.7 mil for Vinyl records. (2, 2.5, 3, or 3.5mil for shellac records). The elliptical stylus has two radii, R1 and R2, for the front and side. Standard elliptical Styli are around 0.3 x 0.7 mil. Due to the complexity of line contact and MicroLine® styli, their radius value is not always an accurate description of their shape and size.

Cartridge-making Dictionary Audio-Technica's guide to cartridge-making terminology

Replacement Stylus
Stylus assembly of Moving Magnet cartridges are field replaceable.
When the diamond is worn out, (between 600 and 1000 hours) or if the cantilever becomes damaged, the stylus assembly needs to be replace.
The Stylus assembly represents between 60% to 80% of the cost of a complete cartridge (depending on the nature of the diamond tip). It makes sense, not only for economic reasons but also to avoid work on the cartridge wiring or mechanical position, to replace only the Stylus assembly instead of the complete cartridge.

RIAA
RIAA stands for: Recording Industry Association of America (RIAA), the trade organization that represents the recording industry in the United States. Early RIAA standards included the RIAA equalization
curve, the format of the stereophonic record groove and the dimensions of records.

RIAA equalization
is a specification for the recording and playback of phonograph records. The purpose of the equalization is to permit greater recording times, improve sound quality, and to reduce the groove damage that would otherwise arise during playback.
RIAA equalization is a form of pre-emphasis on recording and de-emphasis on playback. A recording is made with the low frequencies reduced and the high frequencies boosted, and on playback the opposite occurs.

RIAA input
(Also known as Phono input)
Input of a preamplifier section providing the de-emphasis equalization needed to support the signal originating from a phono cartridge playing a vinyl record. (Note: Most 78rpm shellac records produced after 1942 can be played with RIAA equalization, nevertheless we recommend you check the nature of the pre-emphasis used by the record company.)

Round Shank

Specifically the shape of the shank where the tip is fitted. Round shank is generally used for shapes that require no or minimal orientation (round, conical elliptical).

Shellac record
Shellac records are also described as 78rpm records or SP (Short Play)

Shibata

The Shibata stylus has two radii, similar to an elliptical stylus. However, the radii of a shibata stylus are longer and more narrow. This allows for more surface contact and effective pick-up of ultra-high frequencies with less groove stress and distortion.

SP record (see Shellac record)
SP stands for Short Play denoting 78 rpm Shellac records, as opposed to LP (Long Play) denoting 33 1/3 rpm microgroove vinyl records.

Special Line Contact

(form factor of specific stylus diamonds) Audio-Technica uses Special Line Contact shape stylus on several high-end cartridge styli. The tip of the diamond is such that it allows a contact surface between 50 and 75μm^2. The shape is "similar" to other diamond tips known as Shibata.

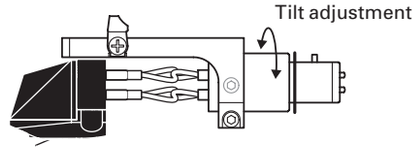
Spherical (diamond, see conical)

Square Shank

Square shank styli cost more than round shank to make but mounting them in laser cut holes in the cantilever locks them precisely in correct alignment with the record groove. This is the reason why they are used for shapes that need a precise orientation (Line Contact, MicroLine®).

Step-up Transformer
An MC cartridge has both a low output voltage (generally below 1mV) and a low output impedance compared to a MM cartridge. The role of the step-up transformer is to raise the output voltage while, at the same time, match the required impedance between your cartridge and the phono preamplifier.

Stylus Holder (Stylus Assembly)
The plastic part of an interchangeable stylus that holds the cantilever and the vibrating part, both forming the Stylus assembly.
On Moving magnet cartridges, the removable stylus assembly is held in place on the cartridge casing.

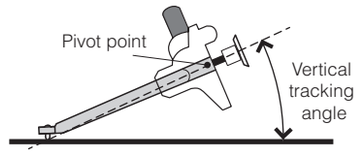
Tilt (see also Azimuth)


Tilt is the angle between the surface of the record and the vertical axis of the cartridge. This angle should be 90° in order to insure optimal channel balance.

Tracking Force
To play back a vinyl disc, the stylus must make good contact with the walls of the record groove. Excessive down force (tracking force or tracking weight) will both wear and not guarantee that the stylus will perfectly follow the record grove. Audio-Technica specifies the tracking force, for each cartridge, as a range of recommended values in grams. A cartridge given insufficient tracking force is more likely to cause damage to the groove wall than one whose tracking weight is set at the high-end of the recommended range. The cartridge could lose contact with the groove wall, or "jump", causing damage to the record as it bounces trying to regain contact.

Tracking weight (see Tracking force)

Transient Response
The transient response is the behaviour of a system when a signal is changing from one value to a specified higher value. Rise time (the time required for the signal to change) and Overshoot are among the most important parameters entering under the generic definition, Transient response. A transducer having a good transient response will result in perceiving that the music material is sharp, with fast accelerations, capable of reproducing accurately and in a realistic manner the fastest impulses of musical instruments. On a record, the signal is present in the grove, the cartridge is transforming the mechanical groove of the record into an electrical current, and the transient response of the cartridge will essentially respond to fast changing sound waves present into the groove. Under Transient response, the capacity of the moving parts such as cantilever/stylus/tension spring assembly to be controlled and not to produce parasitic oscillations is also part of the transient response quality. The capacity of the system after changing to revert to its equilibrium is also important.

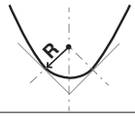
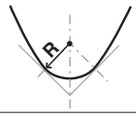
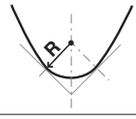
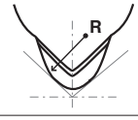
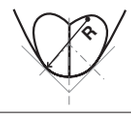
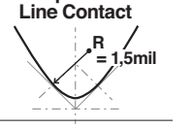
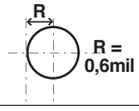
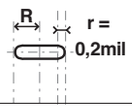
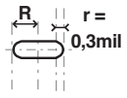
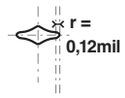
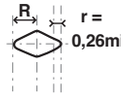
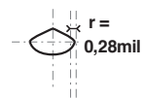
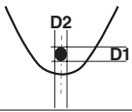
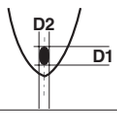
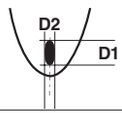
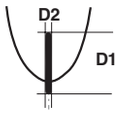
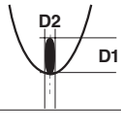
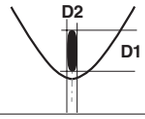
Vertical Tracking Angle
Vertical Tracking Angle is the angle between the record surface and the axis "cantilever-pivot-point" to "stylus-contact-area".


Vinyl (see also LP record)
Vinyl for most people denotes a 12 inch, 33rpm, micro-groove LP record.
The word Vinyl comes from the chemical form of the material used to produce LP records: vinyl chloride.
An important industrial application of this molecule is PVC (Poly Vinyl Chloride), the plastic commonly known as vinyl.
Vinyl was used for the first time to produce records by Columbia in 1946. During the early 50's the Vinyl record replaced the 78 rpm Shellac SP record as the standard.

VM™ (see Dual Magnet cartridge)

Understanding the sizes and shape

of Audio-Technica stylus tips and the contact area in the record groove (Microgroove LP only)

Stylus sizes Stylus shape	**0,6mil** **Conical**	**0,2 x 0,7mil** **Elliptical**	**0,3 x 0,7mil** **Elliptical**	**2,2 x 0,12mil** **MicroLine®**	**2,7 x 0,26mil** **Shibata**	**1,5 x 0,28mil** **Special Line Contact**
Stylus front view						
Stylus horizontal cross-section						
Audio-Technica moving coil cartridges	**AT33MONO** **AT-MONO3/LP**	**AT-F7**	**AT33EV** **AT-F2**	**AT-OC9ML/II** **AT33PTG/II**	**AT33Sa**	**AT-ART1000** **AT-ART7 - AT-ART9** **AT-OC9/III**
Audio-Technica VM Series cartridges	**VM610MONO** **VM510CB**		**VM530EN** **VM520EB**	**VM740ML** **VM540ML**	**VM750SH**	**VM760SLC**
Audio-Technica moving magnet cartridges	**AT3600L** **AT91 - AT91R**		**AT95E - AT95Ex**			
Audio-Technica moving magnet P-mount cartridges	**AT3482P** **AT300P**		**AT311EP**			
Dimensions (see horizontal cross section)	**R=0,6mil**	**R=0,7mil** **r=0,2mil**	**R=0,7mil** **r=0,3mil**	**R=2,2mil** **r=0,12mil**	**R=2,7mil** **r=0,26mil**	**R=1,5mil** **r=0,28mil**
Contact surface on record groove (stylus side view)						
Approximative contact dimensions ratio	**D1/D2=1**	**D1/D2=1,85**	**D1/D2=1,60**	**D1/D2=2,25**	**D1/D2=3**	**D1/D2=6**

(1) *D2 represents the contact dimension at the horizontal plane while D1 shows the contact dimension at the vertical plane. These two dimensions indicate the contact area between the record groove walls and the stylus tip. D2 must be as small as possible to track small groove variations (high frequency). The total contact area should as large as possible to minimize record wear and maximize accurate reproduction. The larger the area, the smaller pressure from the cartridge on the record; as opposed to the smaller the area, the more pressure is applied on a specific point of the groove, leading to record wear.*

We can see from the above table that the Line Contact and Micro linear shapes offers a smaller horizontal contact area leading to superior precision and high frequency transcription, while offering a larger contact area than conical and elliptical styli due to taller a vertical contact area minimizing record wear.

Alphanumeric product listing

Stereo phono cartridges production line 1962, Shinjuku, Tokyo

The quality and musicality of the Audio-Technica phono cartridges of today is the result of 55 years of heritage, the dedication of our design engineers and the handcraftsmanship of our production staff.

Audio-Technica entered the cartridge business in 1962 with AT1 when the company was formed. After 55 years of development and to honour our founder Hideo Matsushita, we feel the need to show our achievements and to provide this catalogue of our cartridges and vinyl related products for your guidance.

Audio-Technica Fukui, Japan, opened 2010

Housing 170 employees & engineers, the main production plant for Audio-Technica phono cartridges.

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