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.
“...pleased to introduce a new line of cartridges...”
Dear Customer,

I am proud to present the 2019 edition of our full-line phono cartridge and analogue record-related accessories catalogue, and I’m also pleased to introduce a new line of cartridges.

On page 13 you will find our new Moving Coil cartridges called the “OC9x Series” – Five new cartridges from Elliptical entry model up to the most sophisticated Special Line Contact configuration, the same diamond used on our flagship cartridge, the AT-ART1000.

The OC9x Series will represent a wide choice of great value proposition in the category of Moving Coil cartridges.

We simply wish to share the experience and our passion of analogue, and I would like to take this opportunity to thank you personally for your continued interest in our products.

松下和雄
Kazuo Matsushita
President
Audio-Technica Corporation
History

1962
AT-1
Audio-Technica’s first product: AT-1 stereo cartridge.

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 technology 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-OC9III 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
After 40 years of legendary success of MM cartridges using VM technology, Audio-Technica introduces the VM Series. A completely renewed line using the latest technologies and materials, keeping the original and exclusive AT-VM design.

2018
VM95 Series
After 38 years of 90 series success, this newly design series represents the best value proposition for every record player user, from conical entry model to the most sophisticated Shibata version.

2019
AT-OC9X Series
The next generation of the widely revered AT-OC9 cartridge series has been developed by Audio-Technica, pioneers of cartridge technology.
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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 AT81CP and AT85EP are P-mount design, though they can be used as 1/2” cartridges using the optional half-inch adapter bracket AT-PMA1. Once equipped with the optional half-inch adapter bracket AT-PMA1, P-mount cartridges become compatible with both half-inch mount tonearms and half-inch mount headshells.

The specifications (pages 44 to 47)

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 manufacturer) 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 heavily.
Understanding styli shapes, shank shapes and constructions

Four main series of cartridges:
- Excellence, Moving Coil, VM Series, VM95 Series and P Mount series.

Five different diamond stylus shapes:
- Special Line Contact, Shibata, Microlinear, Elliptical and Conical.

Four different stylus constructions:
- Conical SP Styli
- Elliptical Styli
- Microlinear Styli
- Line Contact Styli
- Special Line Contact Styli

Direct power
- the conical, while the smaller side radius can more accurately track side radius. This allows the stylus to ride in the center of the groove, like the Elliptical stylus has two radii, the front radius being wider than the walls, minimizing record wear and playback high frequency material with minimal distortion.

The Microlinear 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.

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 accommodate moving coil cartridges.

Moving magnet cartridges are more robust.

Moving magnet cartridges stylus assembly are field replaceable.

Audio-Technica Elliptical styli have a size of - 0.3 x 0.7 mil w/ with the first number indicating the side radius. 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 styli for 78rpm records is 2.5 or 3 mil (pages 43 & 57), 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 and being assembled to the cantilever. Also because of their lower mass, nude styli track more accurately (diamond density is lower than the metal shank, and the size is smaller). 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 groove.

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### Point Contact Styli

<table>
<thead>
<tr>
<th>Direct power</th>
<th>Moving Coil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving Coil</td>
<td>AT400M00</td>
</tr>
<tr>
<td></td>
<td>AT400M00/SP</td>
</tr>
<tr>
<td></td>
<td>AT400M00/LP</td>
</tr>
<tr>
<td>Moving Magnet</td>
<td>AT400M00</td>
</tr>
<tr>
<td></td>
<td>AT400M00/SP</td>
</tr>
<tr>
<td></td>
<td>AT400M00/LP</td>
</tr>
</tbody>
</table>

### Line Contact Styli

<table>
<thead>
<tr>
<th>AT-ART1000 (page 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-ART1010 (page 10)</td>
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<tr>
<td>AT-ART1015 (page 10)</td>
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<tr>
<td>AT-ART1030 (page 10)</td>
</tr>
<tr>
<td>AT-ART1050 (page 10)</td>
</tr>
<tr>
<td>AT-ART1060 (page 10)</td>
</tr>
</tbody>
</table>

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(1) The abbreviation mil is equal a thousandth of an inch - 1 mil = 0.001 inch = 0.0254 mm = 25.4 μm
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 aluminium housing to minimize vibrations that can colour the sound quality.

**Cartridge Rebuild Programme**

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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**AT-ART1000**

**Direct power stereo MC cartridge**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>ART1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Direct Power System</td>
</tr>
<tr>
<td>Body Material</td>
<td>Aluminium / titanium</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>15 to 30,000 Hz</td>
</tr>
<tr>
<td>Channel Separation</td>
<td>30 dB (1 kHz)</td>
</tr>
<tr>
<td>Output Channel Balance</td>
<td>5.5 dB (1 kHz)</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>5.2 mV (at 1 kHz, 5 cm/sec)</td>
</tr>
<tr>
<td>Vertical Tracking Angle</td>
<td>21 degrees</td>
</tr>
<tr>
<td>Vertical Tracking Force Range</td>
<td>Specified for each individual cartridge</td>
</tr>
<tr>
<td>Stylus Shape</td>
<td>Special Line Contact</td>
</tr>
<tr>
<td>Stylus Curvature Radius</td>
<td>1.5 x 0.28 mil</td>
</tr>
<tr>
<td>Stylus Construction</td>
<td>Nude rectangular shank</td>
</tr>
<tr>
<td>Cantilever</td>
<td>0.26mm Ø solid boron</td>
</tr>
<tr>
<td>Static Compliance</td>
<td>30 x 10^-6 cm / dynes</td>
</tr>
<tr>
<td>Dynamic Compliance</td>
<td>12 x 10^-6 cm / dynes (100 Hz)</td>
</tr>
<tr>
<td>Wire Used for Coil</td>
<td>20 µm Ø PCOCC (4 turns / coil)</td>
</tr>
<tr>
<td>Terminal Pins</td>
<td>Brass</td>
</tr>
<tr>
<td>Recommended Load Impedance</td>
<td>35 kΩ (mine and unit)</td>
</tr>
<tr>
<td>Coil Impedance</td>
<td>3 kΩ (mine and unit)</td>
</tr>
<tr>
<td>DC Resistance</td>
<td>1 kΩ</td>
</tr>
<tr>
<td>Coil Inductance</td>
<td>1 µH (fully wound)</td>
</tr>
<tr>
<td>Cartridge Weight</td>
<td>11 g</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17.3 (H) x 17 (W) x 25.5 (L) mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>1/2” centers</td>
</tr>
<tr>
<td>Replacement Stylus</td>
<td>(see page 9, note n°1)</td>
</tr>
<tr>
<td>Accessories Included</td>
<td>1 non-magnetic screwdriver; 1 handle; 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</td>
</tr>
</tbody>
</table>

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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.

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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.
• 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/m³] 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 1.5 x 0.28 mil 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.

• 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.
AT-OC9X Series cartridges
AT-OC9X Series cartridges made from 32 Years of cumulated experience and customer feedback from 12 different models all inspired by the acclaimed AT-OC9.

The next generation of the widely revered AT-OC9 cartridge series has been developed by Audio-Technica, pioneers of cartridge technology.

The new series features an array of stylus options including: Bonded Elliptical, Nude Elliptical, Microlinear, Shibata and Special Line Contact.

- The moving coil structure has a wide frequency response and enables the audio information to be separated into both the left and right channels resulting in an accurately defined stereo image.
- Pure Copper by Ohno Continuous Casting process (PCOCC) is used for the coils to achieve the purest signal possible.
- Threaded holes in the cartridge body enable the cartridge to be mounted on to the headshell, or integral tonearm, with just two screws M2.6 – no nuts or bolts required.
- Features an aluminium cantilever for AT-OC9XEB and AT-OC9XEN models, and boron cantilever for AT-OC9XML, AT-OC9XSH and AT-OC9XSL.
- A neodymium magnet and pure iron yoke (for AT-OC9XEB and AT-OC9XEN) provides increased magnetic energy.
- The yoke parts of the magnetic structure of the AT-OC9XML, AT-OC9XSH and AT-OC9XSL uses Permendur, a soft magnetic alloy made of Iron and Cobalt.
- Aluminium body minimizes unwanted vibration for reduced resonance and a superior audio reproduction.

The 5 new models of the AT-OC9X series all feature PCOCC internal wiring and an aluminium body with integrated M2.6 threaded inserts to enable easier mounting.

AT-OC9XML, AT-OC9XSH, AT-OC9XSL also feature a Permendur Yoke magnetic structure combined with a Boron cantilever.
AT-OC9X Series / Elliptical models

AT-OC9XEB
Dual moving coil stereo cartridge with bonded Elliptical stylus

239,00 €
Including VAT EAN 4961310150440

Bonded Round Shank Elliptical

Includes:
• 1 non-magnetic screw driver
• 1 brush
• 2 washers
• 4 pairs of mounting screws (M2.6): 5mm, 8mm, 10mm, 12mm
• 1 plastic protector.

AT-OC9XEN
Dual moving coil stereo cartridge with Elliptical nude stylus

339,00 €
Including VAT EAN 4961310150433

Nude Square Shank Elliptical

Includes:
• 1 non-magnetic screw driver
• 1 brush
• 2 washers
• 4 pairs of mounting screws (M2.6): 5mm, 8mm, 10mm, 12mm
• 1 plastic protector.

An excellent affordable introduction to the characteristics that is moving coil.
• Features bonded Elliptical stylus and aluminium cantilever
• A neodymium magnet and pure iron yoke provides increased magnetic energy
• Aluminium body minimizes unwanted vibration for reduced resonance and a superior audio reproduction
• Pure Copper by Ohno Continuous Casting process (PCOCC) is used for the coils to achieve the purest signal possible

Featuring a square shank for accurate stylus alignment and nude diamond for increased fine detail retrieval.
• Features low mass nude elliptical stylus and aluminium cantilever
• A neodymium magnet and pure iron yoke provide increased magnetic energy
• Aluminium body minimizes unwanted vibration for reduced resonance and a superior audio reproduction
• Pure Copper by Ohno Continuous Casting process (PCOCC) is used for the coils to achieve the purest signal possible

AT-OC9X Series cartridges feature threaded insert for easy mounting either on integral tonearm or on removable headshells. A special line of removable through hole type headshells have been designed for the new AT-OC9X cartridges, see page 50.
AT-OC9X Series / Line Contact models

AT-OC9XML
Dual moving coil stereo cartridge with Microlinear stylus

- Microlinear complex diamond profile enabling higher frequency response, detail like never before experienced and limiting inner groove distortion. Microlinear diamond profile provides low record and stylus wear.
  - Features nude Microlinear stylus and boron cantilever which provides lower distortion and high transient response
  - A neodymium magnet and permendur yoke for dramatically increased magnetic energy
  - Aluminium body minimizes unwanted vibration for reduced resonance and a superior audio reproduction

- Pure Copper by Ohno Continuous Casting process (PCOCC) is used for the coils to achieve the purest signal possible

Includes:
- 1 non-magnetic screw driver
- 1 brush
- 2 washers
- 4 pairs of mounting screws (M2.6): 5mm, 8mm, 10mm, 12mm
- 1 plastic protector.

AT-OC9XSH
Dual moving coil stereo cartridge with Shibata stylus

- Shibata profile diamond originally design for Quadraphonic replay offers a depth of sound, combined with high frequency response that has to be heard to be believed.
  - Features nude Shibata stylus and boron cantilever with rich low frequency reproduction and high transient response
  - A neodymium magnet and permendur yoke provides dramatically increased magnetic energy
  - Aluminium body minimizes unwanted vibration for reduced resonance and a superior audio reproduction

- Pure Copper by Ohno Continuous Casting process (PCOCC) is used for the coils to achieve the purest signal possible

Includes:
- 1 non-magnetic screw driver
- 1 brush
- 2 washers
- 4 pairs of mounting screws (M2.6): 5mm, 8mm, 10mm, 12mm
- 1 plastic protector.

AT-OC9XSL
Dual moving coil stereo cartridge with Special Line Contact stylus

- Special Line Contact as featured in our flagship ART1000, this diamond profile offers the ultimate in accurate sonic reproduction with a sense of space and realism to all instruments that few other configuration can achieve.
  - Features Nude Special Line Contact stylus and boron cantilever with accurate tracking ability and high transient response
  - A neodymium magnet and permendur yoke provides dramatically increased magnetic energy
  - Aluminium body minimizes unwanted vibration for reduced resonance and a superior audio reproduction

- Pure Copper by Ohno Continuous Casting process (PCOCC) is used for the coils to achieve the purest signal possible

Includes:
- 1 non-magnetic screw driver
- 1 brush
- 2 washers
- 4 pairs of mounting screws (M2.6): 5mm, 8mm, 10mm, 12mm
- 1 plastic protector.
Moving coil cartridges / AT33 Series

**AT33Sa**
Dual moving coil stereo cartridge with Shibata stylus

- **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 aluminium 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.

799.00 € Including VAT
EAN: 4961301289688

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**AT33PTG/II**
Dual moving coil stereo cartridge with Micro linear stylus

- **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 17Ω to 10Ω. 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.

699.00 € Including VAT
EAN: 4961310111182

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**AT33EV**
Dual moving coil stereo cartridge with Elliptical stylus

- **Elliptical stylus 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 diamond 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

489.00 € Including VAT
EAN: 4961510103872

Moving coil phono cartridges for mono vinyl LP records

AT33MONO
High-end moving coil mono cartridge for mono vinyl LP (Long Play) records

- Mono cartridge compatible with stereo playback systems.
- 0.65mil conical nude square 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 microgroove 33 1/3rpm and 45rpm vinyl records.

AT-MONO3/LP
High output moving coil mono cartridge for mono vinyl LP (Long Play) records

- 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 microgroove 33 1/3rpm records.

Note: 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.

Note: 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.
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

199.00 € including VAT
EAN 4961310008338

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.

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.

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

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.)
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 achieved 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

<table>
<thead>
<tr>
<th>Cartridge</th>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-ART1000/RB</td>
<td>1990,00 € inc. VAT</td>
<td>ART1000 Cartridge rebuild programme</td>
</tr>
</tbody>
</table>

### Moving coil cartridge trade-in programme prices

<table>
<thead>
<tr>
<th>Your old cartridge</th>
<th>Your new order</th>
<th>Description of the new cartridge</th>
<th>Full price of the replacement model</th>
<th>Your price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-ART9</td>
<td>AT-ART9/RP</td>
<td>MC cartridge replacement for AT-ART9 or AT50ANV</td>
<td>1090,00 € inc. VAT</td>
<td>708,50 € inc. VAT</td>
</tr>
<tr>
<td>AT-ART7</td>
<td>AT-ART7/RP</td>
<td>MC cartridge replacement for AT-ART7 or AT50ANV</td>
<td>1190,00 € inc. VAT</td>
<td>773,50 € inc. VAT</td>
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<tr>
<td>AT50ANV</td>
<td>AT-ART9/RP</td>
<td>MC cartridge replacement for AT-ART9 or AT50ANV</td>
<td>1090,00 € inc. VAT</td>
<td>708,50 € inc. VAT</td>
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<td>AT50ANV</td>
<td>AT-ART7/RP</td>
<td>MC cartridge replacement for AT-ART7 or AT50ANV</td>
<td>1190,00 € inc. VAT</td>
<td>773,50 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9/III</td>
<td>AT-OC9xSL/RP</td>
<td>MC cartridge replacement for AT-OC9xSL or AT-OC9/III or AT-OC9/III LTD</td>
<td>749,00 € inc. VAT</td>
<td>486,85 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9/III</td>
<td>AT-OC9xSH/RP</td>
<td>MC cartridge replacement for AT-OC9xSH or AT-OC9/III or AT-OC9/III LTD</td>
<td>649,00 € inc. VAT</td>
<td>421,85 € inc. VAT</td>
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<tr>
<td>AT-OC9/III LTD</td>
<td>AT-OC9xSL/RP</td>
<td>MC cartridge replacement for AT-OC9xSL or AT-OC9/III or AT-OC9/III LTD</td>
<td>749,00 € inc. VAT</td>
<td>486,85 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9/III LTD</td>
<td>AT-OC9xSH/RP</td>
<td>MC cartridge replacement for AT-OC9xSH or AT-OC9/III or AT-OC9/III LTD</td>
<td>649,00 € inc. VAT</td>
<td>421,85 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9ML/II</td>
<td>AT-OC9xML/RP</td>
<td>MC cartridge replacement for AT-OC9xML or AT-OC9ML/II</td>
<td>549,00 € inc. VAT</td>
<td>356,85 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9xEB</td>
<td>AT-OC9xEB/RP</td>
<td>MC cartridge replacement for AT-OC9xEB or AT-F2</td>
<td>239,00 € inc. VAT</td>
<td>155,35 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9xEN</td>
<td>AT-OC9xEN/RP</td>
<td>MC cartridge replacement for AT-OC9xEN or AT-F7</td>
<td>339,00 € inc. VAT</td>
<td>220,35 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9xML</td>
<td>AT-OC9xML/RP</td>
<td>MC cartridge replacement for AT-OC9xML or AT-OC9ML/II</td>
<td>549,00 € inc. VAT</td>
<td>356,85 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9xSH</td>
<td>AT-OC9xSH/RP</td>
<td>MC cartridge replacement for AT-OC9xSH or AT-OC9/III</td>
<td>649,00 € inc. VAT</td>
<td>421,85 € inc. VAT</td>
</tr>
<tr>
<td>AT-OC9xSL</td>
<td>AT-OC9xSL/RP</td>
<td>MC cartridge replacement for AT-OC9xSL or AT-OC9/III</td>
<td>749,00 € inc. VAT</td>
<td>486,85 € inc. VAT</td>
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<td>AT33EV</td>
<td>AT33EV/RP</td>
<td>MC cartridge replacement for AT33EV</td>
<td>489,00 € inc. VAT</td>
<td>317,85 € inc. VAT</td>
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<td>AT33PTG/II</td>
<td>AT33PTG/II/RP</td>
<td>MC cartridge replacement for AT33PTG/II</td>
<td>699,00 € inc. VAT</td>
<td>454,35 € inc. VAT</td>
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<td>AT33Sa</td>
<td>AT33Sa/RP</td>
<td>MC cartridge replacement for AT33Sa</td>
<td>799,00 € inc. VAT</td>
<td>519,55 € inc. VAT</td>
</tr>
<tr>
<td>AT-F7</td>
<td>AT-OC9xEN/RP</td>
<td>MC cartridge replacement for AT-OC9xEN or AT-F7</td>
<td>339,00 € inc. VAT</td>
<td>220,35 € inc. VAT</td>
</tr>
<tr>
<td>AT-F2</td>
<td>AT-OC9xEB/RP</td>
<td>MC cartridge replacement for AT-OC9xEB or AT-F2</td>
<td>239,00 € inc. VAT</td>
<td>155,35 € inc. VAT</td>
</tr>
<tr>
<td>AT-MONO3LP</td>
<td>AT-MONO3LP/RP</td>
<td>MC cartridge replacement for AT-MONO3LP</td>
<td>199,00 € inc. VAT</td>
<td>129,35 € inc. VAT</td>
</tr>
<tr>
<td>AT-MONO3SP</td>
<td>AT-MONO3SP/RP</td>
<td>MC cartridge replacement for AT-MONO3SP</td>
<td>199,00 € inc. VAT</td>
<td>129,35 € inc. VAT</td>
</tr>
<tr>
<td>AT-33MONO</td>
<td>AT-33MONO/RP</td>
<td>MC cartridge replacement for AT-33MONO</td>
<td>399,00 € inc. VAT</td>
<td>259,55 € inc. VAT</td>
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</tbody>
</table>
VM Series cartridges: features & mechanism
Analogue 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 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.

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. Other moving magnet Audio-Technica cartridge models are designed with a moulded integrated suspension system.

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 electromagnetic 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.

<table>
<thead>
<tr>
<th>VM760SLC</th>
<th>VM750SH</th>
<th>VM740ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Line Contact</td>
<td>Shibata</td>
<td>Microlinear</td>
</tr>
</tbody>
</table>

500 Series
VM540ML

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

VM530EN: Elliptical Nude
VM520EB: Elliptical Bonded
VM510CB: Conical Bonded 0.6 mil

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

VM610MONO: Conical Bonded 0.6 mil
VM670SP: Conical Bonded 3 mil

Elliptical Styli
Conical Styli
VM cartridges / with Line Contact styli

VM760SLC
VM cartridge with Special Line Contact Stylus

- 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

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.

VM750SH
VM cartridge with Shibata Stylus

- 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

Fitted with the Shibata stylus, which was developed for playing quadradisc, 4-channel 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.

VM740ML
VM cartridge with Microlinear Stylus

- 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

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

VM540ML
VM cartridge with Microlinear Stylus 500 Series body

- 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

Standard model with a Microlinear 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.

VM540ML/H
VM540ML mounted on AT-HS10BK headshell

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

Fitted with the Shibata stylus, which was developed for playing quadradisc, 4-channel 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.
VM530EN
Dual moving magnet stereo cartridge

179.00 €
Including VAT
EAN 4961310137557

Accessories included
Nude Round Shank
Elliptical Nude

• 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
VM530EN mounted on AT-HS10BK headshell

208.00 €
Including VAT
EAN 4961310137632

VM520EB
Dual moving magnet stereo cartridge

109.00 €
Including VAT
EAN 4961310137540

Accessories included
Bonded Round Shank
Elliptical Bonded

• 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

138.00 €
Including VAT
EAN 4961310137625

VM510CB
Dual moving magnet stereo cartridge

95.00 €
Including VAT
EAN 4961310137632

Accessories included
Bonded Round Shank
Conical Bonded

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

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.

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

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.
VM cartridges / mono cartridges for Shellac & early mono LP’s

**VM670SP**  
For Shellac 78rpm mono Standard Play Records
- Model dedicated to 78rpm records, whose conical stylus has a large curvature radius at the tip. The curvature radius is 3 mil, and suitable for playing 78rpm records from a wide variety of eras.

<table>
<thead>
<tr>
<th>Replacement stylus for VM670SP</th>
<th>159,00 € including VAT</th>
<th>Bonded Round Shank Conical (3 mil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMN60SLC</td>
<td>EAN 4961310137710</td>
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</tr>
<tr>
<td>VMN50SH</td>
<td>EAN 4961310137694</td>
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<tr>
<td>VMN40ML</td>
<td>EAN 4961310137687</td>
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<tr>
<td>VMN30EN</td>
<td>EAN 4961310137670</td>
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<td>VMN70SP</td>
<td>EAN 4961310137717</td>
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<tr>
<td>VMN20EB</td>
<td>EAN 4961310137663</td>
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</tr>
<tr>
<td>VMN10CB</td>
<td>EAN 4961310137656</td>
<td></td>
</tr>
</tbody>
</table>

**VM610MONO**  
For mono Vinyl Microgroove Long Play Records
- Mono LP model with a conical bonded stylus, dedicated to early monaural LP records. Specialised internal wiring allows for reduced surface noise.

**Replacement styli for VM cartridges**

<table>
<thead>
<tr>
<th>Replacement styli for VM670SP</th>
<th>159,00 € including VAT</th>
<th>Bonded Round Shank Conical (3 mil)</th>
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<td>VMN70SP</td>
<td>EAN 4961310137717</td>
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<tr>
<td>VMN20EB</td>
<td>EAN 4961310137663</td>
<td></td>
</tr>
<tr>
<td>VMN10CB</td>
<td>EAN 4961310137656</td>
<td></td>
</tr>
</tbody>
</table>
The cartridge becomes worn after an extended period of play, even the finest diamond stylus. Our VM cartridges can be used again for a long time by only 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.

Replacement & upgrade styli matrix

<table>
<thead>
<tr>
<th>Cartridge Body</th>
<th>Product</th>
<th>Special Line Contact Stylus</th>
<th>Shibata Stylus</th>
<th>Microlinear Stylus</th>
<th>Elliptical Nude Stylus</th>
<th>Elliptical Bonded Stylus</th>
<th>Conical Bonded Stylus</th>
<th>3mil Conical Bonded Stylus</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM760SLC</td>
<td>VMN60SLC</td>
<td>Standard Replacement</td>
<td>Becomes VM750SH</td>
<td>Becomes VM740ML</td>
<td>Compatible</td>
<td>Compatible</td>
<td>Compatible</td>
<td>Possible (1)</td>
</tr>
<tr>
<td>VM750SH</td>
<td>VMN50SH</td>
<td>Upgrade to VM760SLC</td>
<td>Standard Replacement</td>
<td>Becomes VM740ML</td>
<td>Compatible</td>
<td>Compatible</td>
<td>Compatible</td>
<td>Possible (1)</td>
</tr>
<tr>
<td>VM740ML</td>
<td>VMN40ML</td>
<td>Upgrade to VM750SH</td>
<td>Standard Replacement</td>
<td>Compatible</td>
<td>Compatible</td>
<td>Compatible</td>
<td>Possible (1)</td>
<td></td>
</tr>
<tr>
<td>VM540ML</td>
<td>VMN30EN</td>
<td>Compatible</td>
<td>Standard Replacement</td>
<td>Becomes VM530EN</td>
<td>Becomes VM520EB</td>
<td>Becomes VM510CB</td>
<td>Possible (1)</td>
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<tr>
<td>VM530EN</td>
<td>VMN20EB</td>
<td>Compatible</td>
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<td>Becomes VM510CB</td>
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<td>VM500 Body</td>
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<td>Becomes VM510CB</td>
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<td>VM510CB</td>
<td>VM670SP</td>
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<td>Possible not recommended (2)</td>
<td>Possible not recommended (2)</td>
<td>Possible not recommended (2)</td>
<td>Becomes VM610MONO</td>
<td>Standard Replacement</td>
<td></td>
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<tr>
<td>VM600 Body</td>
<td>VM610MONO</td>
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<td>Possible not recommended (2)</td>
<td>Possible not recommended (2)</td>
<td>Possible not recommended (2)</td>
<td>Becomes VM670SP</td>
<td>Standard Replacement</td>
<td></td>
</tr>
</tbody>
</table>

(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 Preamp-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 Preamp amplifier, 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, Microlinear or Elliptical type stylus can be considered if you are sure that the dimensional groove construction of the LPs 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 Microlinear, and 800 hours for Shibata and Special Line Contact.
VM95 Series
After 38 years on the market and more than 5 million pieces sold, in 2018 Audio-Technica introduced the next generation of the legendary AT95E: AT-VM95E

The VM95E has been upgraded and redesigned to offer the user improved performance and better sound quality.

- An improved and distinctive design resulting in a more rigid low resonance housing.
- A new coil design delivering increased output voltage (4mV) compared to AT95 and AT95EX.
- Newly designed radial damping ring improving and increasing frequency and transient response to 22,000Hz.
- Easier to mount using threaded inserts in the cartridge body enabling it to be mounted to the headshell or on an integral tonearm with just two screws (no nuts).

**Designed to be interchanged and upgraded**

The VM95 Series will not only replace two legendary Audio-Technica products, its adaptable design allows the interchangeability and the upgrade to more expensive styli.

**One family, 18 products:**
- Six moving magnet VM cartridges in the Series, use the same electromagnetic engine-body featuring six different styli, offering a wide choice of options for every budget and application.
- Six interchangeable replacement styli are perfectly compatible with VM95 Series body (and also with XP Series DJ cartridges).
- Six cartridge sets featuring each of the VM95 Series cartridge pre-mounted on the black version of AT-HS6 headshell for plug and play solution.

*Due to the increased quantity of counterfeit products available online, never accept an Audio-Technica cartridge, replacement stylus or cartridge-headshell set in non Audio-Technica original packaging and always buy from an Audio-Technica Authorized Dealer.*
VM95 Series overview

VM95 Series consist of 18 new products, six cartridges using the same electromagnetic engine-body featuring six different styli, offering a wide choice for every budget and every application. The six cartridges are also available factory mounted on the exclusive AT-HS6BK headshell.

Six cartridges using the same electromagnetic engine-body

Six replacement styli all interchangeable

Six factory pre-mounted sets using AT-HS6BK headshell

AT-VM95C
AT-VMN95C
AT-VM95C/H

Conical Bonded 0.6 mil

Conical Styli

AT-VM95E
AT-VMN95E
AT-VM95E/H

Elliptical Bonded

Elliptical Styli

AT-VM95EN
AT-VMN95EN
AT-VM95EN/H

Elliptical Nude
VM95 Series overview

**Line Contact Styli**

- AT-VM95ML
- AT-VM95ML/H
- AT-VMN95ML
- AT-VMN95ML/H

- AT-VM95SH
- AT-VM95SH/H
- AT-VMN95SH
- AT-VMN95SH/H

- AT-VM95SP
- AT-VM95SP/H
- AT-VMN95SP
- AT-VMN95SP/H

**Microlinear**

- AT-VM95ML

**Shibata**

- AT-VM95SH

**Conical Bonded 3 mil**

- AT-VM95SP

**SP Styli for 78rpm**

- AT-VM95SP/H
VM95 Series cartridges and sets

The AT-VM95C, the new Audio-Technica entry model Conical cartridge will replace the legendary AT90 Series models such as AT91, AT91R and CN5625AL. Also the AT-VM95C is a “budget” cartridge featuring a conical stylus, the compatibility in the range will allow to upgrade with any of the 4 other LP styli of the Series such as Elliptical, Elliptical Nude, Microlinear and Shibata.

AT-VM95C
Cartridge with Conical Stylus

- Aluminium cantilever
- 4.0mV output voltage
- Compatible body with all VM95 Series stylus assemblies
- Replacement for AT91, AT91R and CN5625AL

AT-VM95C/H
AT-VM95C mounted on AT-HS6BK headshell

- The AT-VM95C/H Audio-Technica cartridge set is assembled, tested and packed in the Audio-Technica Factory in Fukui-Japan
- The total set weight is 15.5g

The AT-VM95E, the new Audio-Technica entry model Elliptical cartridge will replace the legendary AT95E and take advantage of the developments of the AT95EX introduced in 2015. The AT-VM95E features an improved and distinctive design resulting in a more rigid low resonance housing, and two threaded inserts in the cartridge body enabling it to be mounted to the headshell or on an integral tonearm with just two screws, no nuts.

AT-VM95E
Cartridge with Elliptical Stylus

- Aluminium cantilever
- 4.0mV output voltage
- Compatible body with all VM95 Series stylus assemblies
- Replacement for AT95E and AT95EX
- 20 to 22,000Hz frequency response

AT-VM95E/H
AT-VM95E mounted on AT-HS6BK headshell

- The AT-VM95E/H Audio-Technica cartridge set is assembled, tested and packed in the Audio-Technica Factory in Fukui-Japan
- The total set weight is 15.5g

The AT-VM95EN, features a Nude Elliptical Diamond. The construction of the stylus being a one piece diamond with a round shank inserted in the cantilever creates a lighter and more rigid transmission system than a diamond tip bonded on a round titanium shank such as in the AT-VM95E. Also the use of nude diamond implies a substantial difference in pricing, yet the quality of the reproduction will be immediately noticed, specifically in the fidelity of high frequencies and in the quality of the transient responses.

AT-VM95EN
Cartridge with Nude Elliptical Stylus

- Aluminium cantilever
- 3.5mV output voltage
- Compatible body with all VM95 Series stylus assemblies
- 20 to 23,000Hz frequency response

AT-VM95EN/H
AT-VM95EN mounted on AT-HS6BK headshell

- The AT-VM95EN/H Audio-Technica cartridge set is assembled, tested and packed in the Audio-Technica Factory in Fukui-Japan
- The total set weight is 15.5g
Since SP records have monaural modulation, when combining an SP stylus with a stereo body, such as the AT-VM95SP, it is recommended to use the “MONO ON” function of your standard Stereo Phono Preamplifier to minimize record surface noise.

AT-VM95ML, Cartridge with Microlinear Stylus

- Aluminium cantilever
- 3.5mV output voltage
- Compatible body with all VM95 Series stylus assemblies
- 20 to 25,000 Hz frequency response

AT-VM95ML/H, AT-VM95ML mounted on AT-HS6BK headshell

- The AT-VM95ML/H Audio-Technica cartridge set is assembled, tested and packed in the Audio-Technica Factory in Fukui-Japan
- The total set weight is 15.5g

AT-VM95SH, Cartridge with Shibata Stylus

- Aluminium cantilever
- 3.5mV output voltage
- Compatible body with all VM95 Series stylus assemblies
- 20 to 25,000 Hz frequency response

AT-VM95SH/H, AT-VM95SH mounted on AT-HS6BK headshell

- The AT-VM95SH/H Audio-Technica cartridge set is assembled, tested and packed in the Audio-Technica Factory in Fukui-Japan
- The total set weight is 15.5g

AT-VM95SP, 78rpm cartridge with 3mil SP Conical Stylus

- 3mil SP stylus for reduced record surface noise
- Aluminium cantilever
- 2.7mV output voltage
- Compatible body with all VM95 Series stylus assemblies

AT-VM95SP/H, AT-VM95SP mounted on AT-HS6BK headshell

- The AT-VM95SP/H Audio-Technica cartridge set is assembled, tested and packed in the Audio-Technica Factory in Fukui-Japan
- The total set weight is 15.5g
VM95 Series - Styli compatibility charts

Every cartridge diamond stylus becomes worn after a period of play.
Around 500 hours for a conical stylus, 300 hours for an Elliptical stylus, 1000 hours for a Microlinear stylus, and 800 hours for a Shibata stylus.

Our VM95 Series dual moving magnet cartridges can be used almost forever by replacing the interchangeable stylus. It is no longer necessary to purchase a complete cartridge when your diamond is worn out, you can simply buy the matching replacement stylus, but also enjoy the experience of upgrading your cartridge with a different stylus.

The six models of VM95 Series cartridges all use the same electromagnetic engine-body, therefore each of the six replacement styli are perfectly compatible.

VM95 Series - Replacement Styli

**AT-VMN95C**
Conical replacement stylus for AT-VM95C

21,00 €
Including VAT
EAN 4961310146095

Aluminium Cantilever
Conical

**AT-VMN95E**
Elliptical replacement stylus for AT-VM95E

29,00 €
Including VAT
EAN 4961310146079

Aluminium Cantilever
Elliptical

**AT-VMN95EN**
Elliptical nude replacement stylus for AT-VM95EN

99,00 €
Including VAT
EAN 4961310146061

Aluminium Cantilever
Nude Round Shank
Elliptical Nude

**AT-VMN95ML**
Microlinear replacement stylus for AT-VM95ML

149,00 €
Including VAT
EAN 4961310146054

Aluminium Cantilever
Nude Square Shank
Microlinear

**AT-VMN95SH**
Shibata replacement stylus for AT-VM95SH

179,00 €
Including VAT
EAN 4961310146047

Aluminium Cantilever
Nude Square Shank
Shibata

**AT-VMN95SP**
3mil Conical replacement SP stylus for AT-VM95SP

59,00 €
Including VAT
EAN 4961310146082

Aluminium Cantilever
Bonded Round Shank
SP 3mil Conical

**VM95 Series compatibility with the AT-XP Series DJ Cartridges**

- The electromagnetic engine body of XP-Series, is fully compatible with all replacement styli of VM95 Series and will deliver more output voltage than VM95 Series cartridge. So providing improved compatibility with phono inputs of Professional DJ Mixers.
- VM95 Series electromagnetic engine-body is also compatible with the three replacement styli of the DJ cartridge AT-XP Series, nevertheless, the electromagnetic engine-body of XP-Series, will deliver more output voltage than VM95 Series cartridge in order to provide better compatibility with phono inputs of Professional DJ Mixers.
- Note that typical tracking force when using XP Series styli is three grams as opposed to two grams for VM95 Series styli.
- The suspension design and compliance of XP Series styli have been optimized for intensive DJ’ing, including possible manual cueing and back-cueing.
- The VM95 Series suspension design and compliances of VM95 Series have been designed for optimum audiophile reproduction.

Every cartridge diamond stylus becomes worn after a period of play.
Around 500 hours for a conical stylus, 300 hours for an Elliptical stylus, 1000 hours for a Microlinear stylus, and 800 hours for a Shibata stylus.

Our VM95 Series dual moving magnet cartridges can be used almost forever by replacing the interchangeable stylus. It is no longer necessary to purchase a complete cartridge when your diamond is worn out, you can simply buy the matching replacement stylus, but also enjoy the experience of upgrading your cartridge with a different stylus.

The six models of VM95 Series cartridges all use the same electromagnetic engine-body, therefore each of the six replacement styli are perfectly compatible.
The AT-XP series cartridges provide a high quality sound for vinyl DJ’s. Offering all of the features of a DJ cartridge, but with a Hi-fi sound, the XP series are perfect for the stage and club DJ who prioritises sound quality. The following features demonstrate the quality of the AT-XP series, and show why DJ’s can rely on th Audio-Technica sound for a true Hi-fi audio performance.

- High quality audiophile experience in DJ venues
- Durable robust design for high-quality specialist DJ playback
- Signal output level and output impedance characteristics suited for professional DJ applications
- Great visibility of stylus tip for instant positioning in dark environments
- VM dual magnet construction
- High-rigidity and Low-resonance cartridge housing
- Produced in the Audio-Technica Fukui factory in Japan under strict quality control for precise manufacturing.

**Audio-Technica’s VM architecture**

One of the reasons for the excellent sound reproduction of the VM series is Audio-Technica’s VM cartridge structure. Instead of using a single, large magnet, the two magnets are arranged in the shape of a “V” positioned precisely to match the positions of the left and right channels in the stereo groove walls.

Consequently, the VM design (VM meaning V-Mount) ensures outstanding channel separation, extended frequency response and superb tracking. As featured in the VM range of Hi-fi cartridges an excellent stereo image will be provided through the improved channel separation.

Due to the VM architecture, the XP series DJ cartridges are not suitable for scratch or turntablist applications. Nevertheless unlike most of Hi-fi cartridges they allow manual cueing and back-cueing.
AT-XP Series - Audiophile DJ cartridges

AT-XP7
Audiophile DJ cartridge, elliptical stylus aluminium tapered pipe cantilever

149,00 €
Including VAT
EAN 4961310142537

- Tapered aluminium cantilever providing outstanding rigidity
- Stainless wire suspension, double-layered rubber damper and tapered aluminium cantilever ensure precise tracking

AT-XP5
Audiophile DJ cartridge, elliptical stylus carbon fiber-reinforced ABS cantilever

89,00 €
Including VAT
EAN 4961310142551

- Durable carbon fiber-reinforced ABS cantilever and nylon wire suspension ensure precise tracking

AT-XP3
Audiophile DJ cartridge, conical stylus carbon fiber-reinforced ABS cantilever

59,00 €
Including VAT
EAN 4961310145613

- Durable carbon fiber-reinforced ABS cantilever and nylon wire suspension ensure precise tracking

Replacement styli for XP Series DJ cartridges

ATN-XP7
Elliptical replacement stylus for AT-XP7
The ATN-XP7 is also compatible with AT-XP5, AT-XP3 and all VM95 Series bodies.

119,00 €
Including VAT
EAN 4961310145644

Aluminium tapered cantilever
Bonded Round Shank Elliptical

ATN-XP5
Elliptical replacement stylus for AT-XP5
The ATN-XP5 is also compatible with AT-XP7, AT-XP3 and all VM95 Series bodies.

59,00 €
Including VAT
EAN 4961310145651

Carbon reinforced cantilever
Bonded Round Shank Elliptical

ATN-XP3
Conical replacement stylus for AT-XP3
The ATN-XP5 is also compatible with AT-XP7, AT-XP5 and all VM95 Series bodies.

29,00 €
Including VAT
EAN 4961310145675

Carbon reinforced cantilever
Bonded Round Shank Conical
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.

Conical stylus P-mount moving magnet cartridge

**AT81CP**
P-mount MM cartridge, conical stylus

- 0.6 mil conical stylus
- Carbon fiber cantilever
- Bonded round shank, conical diamond

**AT85EP**
P-mount MM cartridge, elliptical stylus

- 0.3 x 0.7 mil elliptical stylus
- Alloy tube cantilever
- Bonded round shank, elliptical diamond

P-mount cartridge replacement styli

**ATN81CP**
Replacement conical stylus for AT81CP,
The ATN81CP is also compatible with AT300P, AT3482P and AT3482H/U.

**ATN85EP**
Replacement elliptical stylus for AT85EP
The ATN85EP is also compatible with AT92ECD, AT301EP and AT311EP.

P-mount to 1/2” adapter

**AT-PMA1**
Half-inch adapter bracket

The P-Mount Adapter bracket allows to mount P-mount cartridges on half-inch mount tonearms and half-inch mount headshells.
P-MOUNTING

- **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.

Audio-Technica P-mount cartridges can be mounted as follow:
- P-mount (plug-in)
- Half-inch mount (1/2”) using universal AT-PMA1 adapter

HALF-INCH MOUNTING

- **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.
Playing 78rpm Shellac SP Records

Why 78, Why Shellac, Why SP?
Those records are black, heavy, easily breakable and were the main music and audio media from 1900 to 1960.

• **78** is one way to name them in the sense that the rotational speed is in general 78rpm (rotations per minute).
• **Shellac** is another way to name them because they were made among other components out of Shellac resin.
• **SP** is another way to name them, it is the abbreviation of Standard Play, Standard Play as opposed Long Play (LP) who started to replace SP records from 1955.

“Play your SP records as many times as you want!”

As long as you use a modern dedicated SP cartridge, you can play them again and again with very minor alteration of the record, as the tracking force of a modern phono cartridge is only 2 to 5 grams.

As opposed to the tracking force of over 50 grams that was applied by an acoustic Gramophone using needles, when the extra weight could potentially damage the record.
To play SP Records, you need a turntable that operates at 78rpm

Obviously, if the rotational speed of the record is 78rpm, your turntable needs to be able to operate at this given speed. If your turntable plays only 33rpm or 45rpm as many turntables do, you will not be able to play your SP record.

Audio-Technica AT-LP120 models and the AT-1240 model operate perfectly at 78rpm and in addition the speed is adjustable within 10%, a nice feature as a lot of SP records were not always recorded at the right speed.

To play SP Records, you need a dedicated SP cartridge

Never use any cartridge designed for LP Vinyl records on an SP record.

As you can see on the schematic, the groove of an SP record is much wider than the groove of an LP record (Vinyl). Using a LP record stylus, typically of a radius of 0.6 mil on a 78 record will result in more noise than music. Playing SP records with LP stylus will result in damage to both the record and the cartridge. The typical radius size of a SP stylus is from 2.5 mil to 3.5 mil, about 5 times the radius size of the typical styli used for LP records.

Audio-Technica cartridges for SP 78rpm records

**AT-MONO3/SP**
High output true mono moving coil cartridge for 78rpm mono Shellac SP records

- **Price:** 199.00 €
- **Including VAT**
- **EAN:** 4961310008338
- **2.5mil Conical Stylus**
- **Bonded Round Shank**

See entire description on page 19.

**VM670SP**
VM Series mono moving magnet cartridge for 78rpm mono Shellac SP records

- **Price:** 159.00 €
- **Including VAT**
- **EAN:** 4961310176189
- **3mil Conical Stylus**
- **Bonded Round Shank**

See entire description on page 28.

**AT-VM95SP**
VM95 Series stereo moving magnet cartridge for 78rpm mono Shellac SP records

- **Price:** 79.00 €
- **Including VAT**
- **EAN:** 4961310146030
- **3mil Conical Stylus**
- **Bonded Round Shank**

See entire description on page 35.
<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT-ART9</th>
<th>AT-ART7</th>
<th>AT33Sa</th>
<th>AT33EV</th>
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<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
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<td>Vertical Tracking Angle</td>
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<td>Shibata</td>
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<tr>
<td>Stylus Cartridge Radius</td>
<td>1.5 x 0.28 mil (see note n°2)</td>
<td>1.5 x 0.28 mil (see note n°2)</td>
<td>2 x 0.26 mil (see note n°2)</td>
<td>0.3 x 0.37 mil (see note n°2)</td>
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<td>Nude rectangular shank</td>
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<td>17.3 (H) x 10.0 (W) x 25.6 (L) mm</td>
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<td>16.5 (H) x 16.0 (W) x 26.5 (L) mm</td>
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<td>25 dB (1 kHz)</td>
<td>25 dB (1 kHz)</td>
<td>25 dB (1 kHz)</td>
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<td>1.5 dB (0.1 kHz)</td>
<td>1.0 dB (0.1 kHz)</td>
<td>1.0 dB (0.1 kHz)</td>
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<td>0.03 mV (at 0.1 kHz, 5 cm/sec)</td>
<td>0.03 mV (at 0.1 kHz, 5 cm/sec)</td>
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<td>1.0 to 2.2 g (standard 2.0 g)</td>
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<td>1.0 to 2.2 g (standard 2.0 g)</td>
<td>1.0 to 2.2 g (standard 2.0 g)</td>
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<td>Stylus Style</td>
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<td>Stylus Cartridge Radius</td>
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<tr>
<td>Stylus Construction</td>
<td>Baked round shank</td>
<td>Baked round shank</td>
<td>Baked round shank</td>
<td>Baked round shank</td>
<td>Baked round shank</td>
</tr>
<tr>
<td>Cartridge Weight</td>
<td>6.9 g</td>
<td>2.0 g</td>
<td>12 g</td>
<td>12 g</td>
<td>12 g</td>
</tr>
<tr>
<td>Cartridge Dimensions</td>
<td>23 x 16.0 x 25.7 (L) mm</td>
<td>23 x 16.0 x 25.7 (L) mm</td>
<td>23 x 16.0 x 25.7 (L) mm</td>
<td>23 x 16.0 x 25.7 (L) mm</td>
<td>23 x 16.0 x 25.7 (L) mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>1/2” centers</td>
<td>1/2” centers</td>
<td>1/2” centers</td>
<td>1/2” centers</td>
<td>1/2” centers</td>
</tr>
</tbody>
</table>

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.
3 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 Authorized Service Center).
4 PCOCC = Pure Copper by Ohno Continuous Casting process.
5 When head amplifier connected.
6 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

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT-MONO3/SP</th>
<th>AT-MONO3/LP</th>
<th>AT33 MONO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Horizontal Mono Moving Coil</td>
<td>Horizontal Mono Moving Coil</td>
<td>Horizontal Mono Moving Coil</td>
</tr>
<tr>
<td><strong>Body Material</strong></td>
<td>Aluminium/Synthetic Resin</td>
<td>Aluminium/Synthetic Resin</td>
<td>Aluminium/Synthetic Resin</td>
</tr>
<tr>
<td><strong>Frequency Response</strong></td>
<td>20 to 15,000 Hz</td>
<td>20 to 15,000 Hz</td>
<td>20 to 20,000 Hz</td>
</tr>
<tr>
<td><strong>Output Voltage</strong></td>
<td>0.35 mV (at 1 kHz, 5.0 cm/sec)</td>
<td>0.35 mV (at 1 kHz, 5.0 cm/sec)</td>
<td>0.35 mV (at 1 kHz, 5.0 cm/sec)</td>
</tr>
<tr>
<td><strong>Vertical Tracking Angle</strong></td>
<td>23 degrees</td>
<td>23 degrees</td>
<td>23 degrees (see note n°1)</td>
</tr>
<tr>
<td><strong>Vertical Tracking Force Range</strong></td>
<td>3 to 7 g (standard 3.0 g)</td>
<td>5 to 2.5 g (standard 2.5 g)</td>
<td>2.5 to 2.7 g (standard 2.3 g)</td>
</tr>
<tr>
<td><strong>Stylus Shape</strong></td>
<td>Conical</td>
<td>Conical</td>
<td>Conical</td>
</tr>
<tr>
<td><strong>Cantilever</strong></td>
<td>Aluminum Pipe</td>
<td>Aluminum Pipe</td>
<td>Aluminium Pipe</td>
</tr>
<tr>
<td><strong>Stylus Curvature Radius</strong></td>
<td>0.65 mil (see note n°4)</td>
<td>0.65 mil (see note n°4)</td>
<td>0.65 mil (see note n°4)</td>
</tr>
<tr>
<td><strong>Stylus Construction &amp; Size</strong></td>
<td>Bonded round shank</td>
<td>Bonded round shank</td>
<td>Bonded round shank</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Half inch</td>
<td>Half inch</td>
<td>Half inch</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>15.6 x 15.6 x 28.3 mm</td>
<td>15.6 x 15.6 x 28.3 mm</td>
<td>17.8 (H) x 17.8 (W) x 28.3 (L) mm</td>
</tr>
<tr>
<td><strong>DC Resistance</strong></td>
<td>47,000 ohms</td>
<td>47,000 ohms</td>
<td>47,000 ohms</td>
</tr>
<tr>
<td><strong>Accessories Included</strong></td>
<td>Cartridge installation screws 11 mm x 2.8 mm x 2; Washer x 2, Nut x 2; Non-magnetic screwdriver x 1</td>
<td>Cartridge installation screws 11 mm x 2.8 mm x 2; Washer x 2, Nut x 2; Non-magnetic screwdriver x 1</td>
<td>Cartridge installation screws 11 mm x 2.8 mm x 2; Washer x 2, Nut x 2; Non-magnetic screwdriver x 1</td>
</tr>
</tbody>
</table>

#### Notes:
2. PCOCC = Pure Copper by Ohno Continuous Casting process.
3. When head amplifier connected.
4. 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.
5. 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).
6. The abbreviation mil is equal to a thousandth of an inch - mil = 0.001 inch = 0.0254 mm = 25.4 µm.

### XP series audiophile DJ moving magnet cartridges specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT-XP7</th>
<th>AT-XP5</th>
<th>AT-XP3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Moving Magnet VM Cartridge</td>
<td>Moving Magnet VM Cartridge</td>
<td>Moving Magnet VM Cartridge</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>Half inch</td>
<td>Half inch</td>
<td>Half inch</td>
</tr>
<tr>
<td><strong>Frequency Response</strong></td>
<td>20 to 10,000 Hz</td>
<td>20 to 10,000 Hz</td>
<td>20 to 10,000 Hz</td>
</tr>
<tr>
<td><strong>Channel Separation</strong></td>
<td>20 dB (1 kHz)</td>
<td>20 dB (1 kHz)</td>
<td>20 dB (1 kHz)</td>
</tr>
<tr>
<td><strong>Output Channel Balance</strong></td>
<td>2.0 dB (0 kHz)</td>
<td>2.0 dB (0 kHz)</td>
<td>2.0 dB (0 kHz)</td>
</tr>
<tr>
<td><strong>Output Voltage</strong></td>
<td>0.3 mV (at 5 kHz, 5 cm/sec)</td>
<td>0.5 mV (at 5 kHz, 5 cm/sec)</td>
<td>0.5 mV (at 5 kHz, 5 cm/sec)</td>
</tr>
<tr>
<td><strong>Vertical Tracking Angle</strong></td>
<td>20 degrees (see note n°1)</td>
<td>20 degrees (see note n°1)</td>
<td>20 degrees (see note n°1)</td>
</tr>
<tr>
<td><strong>Vertical Tracking Force Range</strong></td>
<td>2.0 to 4.0 g (standard 3g)</td>
<td>2.0 to 4.0 g (standard 3g)</td>
<td>2.0 to 4.0 g (standard 3g)</td>
</tr>
<tr>
<td><strong>Stylus Shape</strong></td>
<td>Elliptical bonded</td>
<td>Elliptical bonded</td>
<td>Elliptical bonded</td>
</tr>
<tr>
<td><strong>Stylus Size</strong></td>
<td>0.3 x 0.7 mm (see note n°4)</td>
<td>0.3 x 0.7 mm (see note n°4)</td>
<td>0.3 x 0.7 mm (see note n°4)</td>
</tr>
<tr>
<td><strong>Stylus Construction</strong></td>
<td>Bonded Round Shank</td>
<td>Bonded Round Shank</td>
<td>Bonded Round Shank</td>
</tr>
<tr>
<td><strong>Cantilever</strong></td>
<td>Aluminium tapering tube</td>
<td>Carbon reinforced ABS</td>
<td>Carbon reinforced ABS</td>
</tr>
<tr>
<td>** Coil Impedance**</td>
<td>670 ohms (4 kHz)</td>
<td>670 ohms (4 kHz)</td>
<td>670 ohms (4 kHz)</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>17.2 (H) x 17.8 (W) x 28.3 (L) mm</td>
<td>17.2 (H) x 17.8 (W) x 28.3 (L) mm</td>
<td>17.2 (H) x 17.8 (W) x 28.3 (L) mm</td>
</tr>
<tr>
<td><strong>Accessories Included</strong></td>
<td>Cartridge installation screws 11 mm x 2.8 mm x 2; Washer x 2, Nut x 2; Non-magnetic screwdriver x 1</td>
<td>Cartridge installation screws 11 mm x 2.8 mm x 2; Washer x 2, Nut x 2; Non-magnetic screwdriver x 1</td>
<td>Cartridge installation screws 11 mm x 2.8 mm x 2; Washer x 2, Nut x 2; Non-magnetic screwdriver x 1</td>
</tr>
</tbody>
</table>

#### Notes:
1. Vertical tracking angle of 20 degree is IEC/DIN standard.
2. PCOCC = Pure Copper by Ohno Continuous Casting process.
3. When head amplifier connected.
4. 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.
5. 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).

### XP Series pre-mounted cartridge-headshell sets specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT-XP7/H</th>
<th>AT-XP5/H</th>
<th>AT-XP3/H</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>12.1 x 21.4 x 21.4 mm</td>
<td>12.1 x 21.4 x 21.4 mm</td>
<td>12.1 x 21.4 x 21.4 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>15 kg</td>
<td>15 kg</td>
<td>15 kg</td>
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### VM Series cartridges specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>VM760SLC</th>
<th>VM750SH</th>
<th>VM740ML</th>
<th>VM540ML</th>
<th>VM530EN</th>
</tr>
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<tbody>
<tr>
<td>Type</td>
<td>VM Stereo</td>
<td>VM Stereo</td>
<td>VM Stereo</td>
<td>VM Stereo</td>
<td>VM Stereo</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>20 to 30,000Hz</td>
<td>20 to 30,000Hz</td>
<td>20 to 30,000Hz</td>
<td>20 to 30,000Hz</td>
<td>20 to 30,000Hz</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>4.0mV (1kHz, 5cm/sec.)</td>
<td>4.0mV (1kHz, 5cm/sec.)</td>
<td>4.0mV (1kHz, 5cm/sec.)</td>
<td>4.0mV (1kHz, 5cm/sec.)</td>
<td>4.0mV (1kHz, 5cm/sec.)</td>
</tr>
<tr>
<td>Channel Separation</td>
<td>3dB (1kHz)</td>
<td>3dB (1kHz)</td>
<td>3dB (1kHz)</td>
<td>3dB (1kHz)</td>
<td>3dB (1kHz)</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>100Ω</td>
<td>100Ω</td>
<td>100Ω</td>
<td>100Ω</td>
<td>100Ω</td>
</tr>
<tr>
<td>Recommended Load Impedance</td>
<td>100Ω to 200Ω</td>
<td>100Ω to 200Ω</td>
<td>100Ω to 200Ω</td>
<td>100Ω to 200Ω</td>
<td>100Ω to 200Ω</td>
</tr>
<tr>
<td>DC Resistance</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
</tr>
<tr>
<td>Recommended Load Impedance</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
</tr>
<tr>
<td>Recommended Load Capacitance</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
</tr>
<tr>
<td>Coil Inductance</td>
<td>6.4g</td>
<td>6.4g</td>
<td>6.4g</td>
<td>6.4g</td>
<td>6.4g</td>
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<tr>
<td>Cartridge installation screws</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
</tr>
<tr>
<td>Brush</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Washer</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cartridge installation screws</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
</tr>
<tr>
<td>Vertical Tracking Angle</td>
<td>H=21.3×W=21.0×L=60.4mm</td>
<td>H=21.3×W=21.0×L=60.4mm</td>
<td>H=21.3×W=21.0×L=60.4mm</td>
<td>H=21.3×W=21.0×L=60.4mm</td>
<td>H=21.3×W=21.0×L=60.4mm</td>
</tr>
<tr>
<td>Dimensions</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
</tr>
<tr>
<td>Weight</td>
<td>4.6g</td>
<td>4.6g</td>
<td>4.6g</td>
<td>4.6g</td>
<td>4.6g</td>
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### VM Series pre-mounted cartridge-headshell sets specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>VM540ML/H</th>
<th>VM530EN/H</th>
<th>VM520EB/H</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>16.8g</td>
<td>16.8g</td>
<td>16.8g</td>
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### VM series pre-mounted cartridge-headshell sets specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>VM520EB</th>
<th>VM510CB</th>
<th>VM670SP</th>
<th>VM610MONO</th>
</tr>
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<tbody>
<tr>
<td>Type</td>
<td>VM Stereo</td>
<td>VM Stereo</td>
<td>VM Mono (for SP)</td>
<td>VM Mono (for LP)</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>20 to 20,000Hz</td>
<td>20 to 20,000Hz</td>
<td>20 to 20,000Hz</td>
<td>20 to 20,000Hz</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>4.5mV (1kHz, 5cm/sec.)</td>
<td>4.5mV (1kHz, 5cm/sec.)</td>
<td>3.0mV (1kHz, 5cm/sec.)</td>
<td>3.0mV (1kHz, 5cm/sec.)</td>
</tr>
<tr>
<td>Channel Separation</td>
<td>2dB (1kHz)</td>
<td>2dB (1kHz)</td>
<td>2dB (1kHz)</td>
<td>2dB (1kHz)</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>1.1Ω</td>
<td>1.1Ω</td>
<td>1.1Ω</td>
<td>1.1Ω</td>
</tr>
<tr>
<td>Recommended Load Impedance</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
</tr>
<tr>
<td>Recommended Load Capacitance</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
</tr>
<tr>
<td>DC Resistance</td>
<td>400Ω</td>
<td>400Ω</td>
<td>400Ω</td>
<td>400Ω</td>
</tr>
<tr>
<td>Recommended Load Impedance</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
<td>47Ω</td>
</tr>
<tr>
<td>Recommended Load Capacitance</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
<td>100 to 200pF</td>
</tr>
<tr>
<td>Coil Inductance</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
<td>460mΩ (1kHz)</td>
</tr>
<tr>
<td>Stylus Cartridge Radius</td>
<td>5.3×0.764</td>
<td>5.3×0.764</td>
<td>5.3×0.764</td>
<td>5.3×0.764</td>
</tr>
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<td>Cartridge installation screws</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
<td>Round nut x 2</td>
</tr>
<tr>
<td>Vertical Tracking Angle</td>
<td>23°</td>
<td>23°</td>
<td>23°</td>
<td>23°</td>
</tr>
<tr>
<td>Dimensions</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
<td>H=17.3×W=17.0×D=28.2mm</td>
</tr>
<tr>
<td>Weight</td>
<td>6.4g</td>
<td>6.4g</td>
<td>6.4g</td>
<td>6.4g</td>
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## VM95 Series dual moving magnet cartridges specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT-VM95C</th>
<th>AT-VM95E</th>
<th>AT-VM95EN</th>
<th>AT-VM95ML</th>
<th>AT-VM95SH</th>
<th>AT-VM95SP</th>
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<tbody>
<tr>
<td>Cartridge EAN Code</td>
<td>4961310145123</td>
<td>4961310146016</td>
<td>4961310146009</td>
<td>496131014589</td>
<td>4961310146030</td>
<td>4961310146029</td>
</tr>
<tr>
<td>Type</td>
<td>VM Stereo Dual Magnet</td>
<td>VM Stereo Dual Magnet</td>
<td>VM Stereo Dual Magnet</td>
<td>VM Stereo Dual Magnet</td>
<td>VM Stereo Dual Magnet</td>
<td>VM Stereo Dual Magnet</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>20 to 20,000 Hz</td>
<td>20 to 20,000 Hz</td>
<td>20 to 22,000 Hz</td>
<td>20 to 22,000 Hz</td>
<td>20 to 20,000 Hz</td>
<td>20 to 20,000 Hz</td>
</tr>
<tr>
<td>Channel Separation</td>
<td>18 dB (1 kHz)</td>
<td>18 dB (1 kHz)</td>
<td>18 dB (1 kHz)</td>
<td>18 dB (1 kHz)</td>
<td>18 dB (1 kHz)</td>
<td>18 dB (1 kHz)</td>
</tr>
<tr>
<td>Output Channel Balance</td>
<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
<td>0.5 dB (1 kHz)</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>4.0 mV (at 1 kHz, 5 cm/sec)</td>
<td>4.0 mV (at 1 kHz, 5 cm/sec)</td>
<td>3.5 mV (at 1 kHz, 5 cm/sec)</td>
<td>3.5 mV (at 1 kHz, 5 cm/sec)</td>
<td>3.5 mV (at 1 kHz, 5 cm/sec)</td>
<td>3.5 mV (at 1 kHz, 5 cm/sec)</td>
</tr>
<tr>
<td>Vertical Tracking Angle</td>
<td>2.5 degrees</td>
<td>2.5 degrees</td>
<td>2.5 degrees</td>
<td>2.5 degrees</td>
<td>2.5 degrees</td>
<td>2.5 degrees</td>
</tr>
<tr>
<td>Vertical Tracking Force Range</td>
<td>17 x 10^-6 cm / dyne</td>
<td>17 x 10^-6 cm / dyne</td>
<td>17 x 10^-6 cm / dyne</td>
<td>17 x 10^-6 cm / dyne</td>
<td>17 x 10^-6 cm / dyne</td>
<td>17 x 10^-6 cm / dyne</td>
</tr>
<tr>
<td>Dynamic Compliance</td>
<td>6.5 x 10^-4 cm / dyne (100 Hz)</td>
<td>7 x 10^-4 cm / dyne (100 Hz)</td>
<td>10 x 10^-4 cm / dyne (100 Hz)</td>
<td>10 x 10^-4 cm / dyne (100 Hz)</td>
<td>10 x 10^-4 cm / dyne (100 Hz)</td>
<td>10 x 10^-4 cm / dyne (100 Hz)</td>
</tr>
<tr>
<td>Wire Used for Coil</td>
<td>T.P. Copper</td>
<td>T.P. Copper</td>
<td>T.P. Copper</td>
<td>T.P. Copper</td>
<td>T.P. Copper</td>
<td>T.P. Copper</td>
</tr>
<tr>
<td>Cell Impedance</td>
<td>3.3 mΩ (1 kHz)</td>
<td>3.3 mΩ (1 kHz)</td>
<td>3.3 mΩ (1 kHz)</td>
<td>3.3 mΩ (1 kHz)</td>
<td>3.3 mΩ (1 kHz)</td>
<td>3.3 mΩ (1 kHz)</td>
</tr>
<tr>
<td>DC Resistance</td>
<td>485 Ω</td>
<td>485 Ω</td>
<td>485 Ω</td>
<td>485 Ω</td>
<td>485 Ω</td>
<td>485 Ω</td>
</tr>
<tr>
<td>Recommended Load Impedance</td>
<td>47,000 Ω</td>
<td>47,000 Ω</td>
<td>47,000 Ω</td>
<td>47,000 Ω</td>
<td>47,000 Ω</td>
<td>47,000 Ω</td>
</tr>
<tr>
<td>Recommended Load Capacitance</td>
<td>100-250 pF</td>
<td>100-250 pF</td>
<td>100-250 pF</td>
<td>100-250 pF</td>
<td>100-250 pF</td>
<td>100-250 pF</td>
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<tr>
<td>Coil Inductance</td>
<td>750 mH (1 kHz)</td>
<td>750 mH (1 kHz)</td>
<td>750 mH (1 kHz)</td>
<td>750 mH (1 kHz)</td>
<td>750 mH (1 kHz)</td>
<td>750 mH (1 kHz)</td>
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<tr>
<td>Cartridge Weight</td>
<td>6.1 g</td>
<td>6.1 g</td>
<td>6.1 g</td>
<td>6.1 g</td>
<td>6.1 g</td>
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<tr>
<td>Mounting</td>
<td>2 x M2.6 threaded inserts</td>
<td>2 x M2.6 threaded inserts</td>
<td>2 x M2.6 threaded inserts</td>
<td>2 x M2.6 threaded inserts</td>
<td>2 x M2.6 threaded inserts</td>
<td>2 x M2.6 threaded inserts</td>
</tr>
<tr>
<td>Replacement Stylus</td>
<td>AT-VM95C</td>
<td>AT-VM95E</td>
<td>AT-VM95EN</td>
<td>AT-VM95ML</td>
<td>AT-VM95SH</td>
<td>AT-VM95SP</td>
</tr>
<tr>
<td>Included Accessories</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

### Dimensions (1)

- AT-VM95C: 17.2 x 18.9 x 28.3 mm
- AT-VM95E: 17.2 x 18.9 x 28.3 mm
- AT-VM95EN: 17.2 x 18.9 x 28.3 mm
- AT-VM95ML: 17.2 x 18.9 x 28.3 mm
- AT-VM95SH: 17.2 x 18.9 x 28.3 mm
- AT-VM95SP: 17.2 x 18.9 x 28.3 mm

### Notes:

2. The abbreviation mil is equal to a thousandth of an inch - mil = 0.001 inch = 0.0254 mm = 25.4 μm.
3. T.P. Copper is a grade of copper, Electrolytic Tough Pitch Copper (ETP) or Oxygen Free Copper.
4. VM95 SP is used to play 78 rpm mono records.

## VM95 series pre-mounted cartridge-headshell sets specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT-VM95C/H</th>
<th>AT-VM95E/H</th>
<th>AT-VM95EN/H</th>
<th>AT-VM95ML/H</th>
<th>AT-VM95SH/H</th>
<th>AT-VM95SP/H</th>
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</thead>
<tbody>
<tr>
<td>Bundle EAN Code</td>
<td>4961310146535</td>
<td>4961310146528</td>
<td>4961310146511</td>
<td>4961310146504</td>
<td>4961310146407</td>
<td>4961310146542</td>
</tr>
</tbody>
</table>

### Dimensions (1)

- AT-VM95C/H: H21.2 x W21.4 x L62.4 mm
- AT-VM95E/H: H21.2 x W21.4 x L62.4 mm
- AT-VM95EN/H: H21.2 x W21.4 x L62.4 mm
- AT-VM95ML/H: H21.2 x W21.4 x L62.4 mm
- AT-VM95SH/H: H21.2 x W21.4 x L62.4 mm
- AT-VM95SP/H: H21.2 x W21.4 x L62.4 mm

### Notes:

1. Total length depends on final cartridge position following overhang adjustment.

## P-mount moving magnet cartridges specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>AT81CP</th>
<th>AT85EP</th>
</tr>
</thead>
</table>

### Type

- Stereo Dual Magnet
- Stereo Dual Magnet

### Frequency Response

- 20 to 20,000 Hz
- 20 to 20,000 Hz

### Channel Separation

- 18 dB (1 kHz)
- 18 dB (1 kHz)

### Output Channel Balance

- 2.0 dB (1 kHz)
- 2.0 dB (1 kHz)

### Output Voltage

- 3.5 mV (at 1 kHz, 5 cm/sec)
- 3.0 mV (at 1 kHz, 5 cm/sec)

### Vertical Tracking Angle

- 2.5 degrees (see note n°3)
- 2.5 degrees (see note n°3)

### Vertical Tracking Force Range

- 1.5 g to 3 g (1.25 g recommended)
- 1.8 g to 2.2 g (1.25 g recommended)

### Stylus Shape

- Conical
- Elliptical

### Stylus Size

- 0.6 mil (see note n°4)
- 0.3 x 0.7 mil

### Stylus Construction

- Bonded Round Shank
- Bonded Round Shank

### Cartridge

- 0.0254 cm reinforced ABS
- 0.0254 cm reinforced ABS

### Color / body / styli

- Black / Black
- Black / Black

### Wire Used for Coil

- TPC
- TPC

### Recommended Load Impedance

- 47,000 Ω
- 47,000 Ω

### Recommended Load Capacitance

- 100-250 pF
- 100-250 pF

### Coil Inductance

- 470 mH (1 kHz)
- 470 mH (1 kHz)

### Weight

- 6.0 g
- 6.0 g

### Accessories Included

- AT81CP (carbon reinforced ABS cantilever)
- AT85EP (aluminium cantilever)
Replacement styli for audio-technica cartridges Series AT95

**ATN95E**
Replacement stylus for AT95E
The ATN95E is also compatible with discontinued models AT93 and AT95.

`27.00 e`
Including VAT
EAN 4961310062484
Bonded Round Shank
Elliptical

**ATN95Ex**
Replacement stylus for AT95EX
The ATN95Ex is also compatible with discontinued models AT93 and AT95.

`33.00 e`
Including VAT
EAN 5055145748039
Bonded Round Shank
Elliptical

Replacement styli for audio-technica cartridges Series AT91

**ATN91**
Replacement stylus for AT91
The ATN91 is also a compatible stylus for CN5625AL and AT90 discontinued cartridges. The ATN91 can also be used as upgrade replacement stylus for AT3600L, if tonearm setting allows tracking force setting. The tracking force of AT3600L equipped with ATN91 becomes 2g, do not upgrade from ATN9600L to ATN91 when your tonearm does not allow tracking force adjustment.

`18.00 e`
Including VAT
EAN 5055145702116
Bonded Round Shank
Conical
ABS carbon reinforced cantilever

**ATN91R**
Replacement stylus for AT91R
The ATN91R is also a compatible stylus for CN5625AL and AT90 discontinued cartridges. The ATN91R can also be used as upgrade replacement stylus for AT3600L, if tonearm setting allows tracking force setting. The tracking force of AT3600L equipped with ATN91 becomes 2g, do not upgrade from ATN3600L to ATN91 when your tonearm does not allow tracking force adjustment.

`22.00 e`
Including VAT
EAN 4961310138974
Bonded Round Shank
Conical
Aluminium cantilever

Replacement styli for audio-technica cartridge AT3600L replacement styli for audio-technica LP60’s turntables

**ATN3600L**
Replacement stylus for AT3600L
This ATN3600L stylus 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.

`17.00 e`
Including VAT
EAN 5055145748239
Bonded Round Shank
Conical
Tracking force for ATN3600L should be 3.5g (standard tracking force of LP60’s turntables)
<table>
<thead>
<tr>
<th>Discontinued model</th>
<th>Original stylus shape</th>
<th>Recommended replacement</th>
<th>Alternative replacement / Note</th>
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<tbody>
<tr>
<td>AT100E</td>
<td>Elliptical</td>
<td>VMN20EB</td>
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<tr>
<td>AT101EP</td>
<td>Elliptical</td>
<td>ATN3472SE</td>
<td>ATN3472P (Makes cartridge conical)</td>
</tr>
<tr>
<td>AT101P</td>
<td>Conical</td>
<td>ATN3472P</td>
<td>ATN3472SE (Makes cartridge conical)</td>
</tr>
<tr>
<td>AT103</td>
<td>Elliptical</td>
<td>VMN20EB</td>
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<td>AT120E</td>
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<td>AT120E-II</td>
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<td>AT120E/T</td>
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<td>AT125LC</td>
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<td>VMN40ML</td>
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<td>ATN3472P (Makes cartridge conical)</td>
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<td>ATN91</td>
<td>Choose ATN91R for aluminium cantilever</td>
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<td>Choose ATN91R for aluminium cantilever</td>
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<td>Makes cartridge elliptical</td>
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<td>Conical</td>
<td>ATN85EP</td>
<td>Makes cartridge elliptical</td>
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<td>Makes cartridge elliptical</td>
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<td>Makes cartridge elliptical</td>
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<td>Makes cartridge elliptical</td>
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<td>Makes cartridge elliptical</td>
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<td>Makes cartridge elliptical</td>
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<td>AT3452E</td>
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<td>Choose ATN95Ex as upgrade</td>
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<td>ATN3472P (Makes cartridge conical)</td>
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<td>ATN3472P</td>
<td>ATN3472SE (Makes cartridge elliptical)</td>
</tr>
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<td>ATN3472SE (Makes cartridge conical)</td>
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<td>ATN3472P</td>
<td>ATN3472SE (Makes cartridge elliptical)</td>
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<td>ATN3472P</td>
<td>ATN3472SE (Makes cartridge elliptical)</td>
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</table>
## Headshells

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

<table>
<thead>
<tr>
<th>Headshell Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AT-LH13/OCC</strong></td>
<td>13g TechniHard™ adjustable headshell with AT6101 quad wire</td>
<td><strong>79.00 €</strong> Including VAT</td>
</tr>
<tr>
<td><strong>AT-LH13H</strong></td>
<td>13g adjustable through hole type headshell, with OFC lead-wires</td>
<td><strong>89.00 €</strong> Including VAT</td>
</tr>
<tr>
<td><strong>AT-LH15/OCC</strong></td>
<td>15g TechniHard™ adjustable headshell with AT6101 quad wire</td>
<td><strong>79.00 €</strong> Including VAT</td>
</tr>
<tr>
<td><strong>AT-LH15H</strong></td>
<td>15g adjustable through hole type headshell, with OFC lead-wires</td>
<td><strong>89.00 €</strong> Including VAT</td>
</tr>
<tr>
<td><strong>AT-LH18/OCC</strong></td>
<td>18g TechniHard™ adjustable headshell with AT6101 quad wire</td>
<td><strong>79.00 €</strong> Including VAT</td>
</tr>
<tr>
<td><strong>AT-LH18H</strong></td>
<td>18g adjustable through hole type headshell, with OFC lead-wires</td>
<td><strong>89.00 €</strong> Including VAT</td>
</tr>
</tbody>
</table>

**AT6101**

Cartridge to headshell PCOCC lead wires

**12.00 €** Including VAT

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

**AT6108**

Cartridge to headshell lead wires

**34.90 €** Including VAT

- 6N-OFCC 99.9999% high-purity oxygen-free copper
- Ø 0.12mm x 29 core strand construction
- 24K gold plated crimped lead tip.
# Headshells

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
<th>VAT</th>
<th>EAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-LT13A</td>
<td>13g headshell aluminium die cast body</td>
<td>39.00 €</td>
<td>Including VAT</td>
<td>4961310002097</td>
</tr>
<tr>
<td>AT-MG10</td>
<td>10g headshell magnesium body</td>
<td>49.00 €</td>
<td>Including VAT</td>
<td>4961310002013</td>
</tr>
</tbody>
</table>

- 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
- 12.8g with cables, without screws

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
<th>VAT</th>
<th>EAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-HS6BK</td>
<td>9g headshell aluminium die cast body, black finish</td>
<td>29.00 €</td>
<td>Including VAT</td>
<td>4961310147068</td>
</tr>
<tr>
<td>AT-HS6SV</td>
<td>9g headshell aluminium die cast body, silver finish</td>
<td>29.00 €</td>
<td>Including VAT</td>
<td>4961310147075</td>
</tr>
<tr>
<td>AT-HS10BK</td>
<td>10g headshell aluminium die cast body, black finish</td>
<td>29.00 €</td>
<td>Including VAT</td>
<td>4961310132033</td>
</tr>
<tr>
<td>AT-HS40SV</td>
<td>10g headshell aluminium die cast body, silver finish</td>
<td>29.00 €</td>
<td>Including VAT</td>
<td>4961310132026</td>
</tr>
</tbody>
</table>

- Includes terminals quad wire
- 1 pair of 10mm screws and 1 pair of 8mm screws
- 1 pair of M2.6 nuts with plastic washer

Removable headshell for half-inch cartridges and straight tone arms with slot type overhang adjustment

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
<th>VAT</th>
<th>EAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-HS3</td>
<td>11g angled shape headshell for straight tonearm</td>
<td>32.00 €</td>
<td>Including VAT</td>
<td>4961310147049</td>
</tr>
<tr>
<td>AT-HS4</td>
<td>Angled shape headshell for straight tonearm</td>
<td>32.00 €</td>
<td>Including VAT</td>
<td>4961310147056</td>
</tr>
</tbody>
</table>

- Compatible with AT-LP3, AT-LP2x turntables*
- Includes terminals quad wire
- 1 pair of 16mm screws and 1 pair of 10mm screws
- 1 pair of M2.6 nuts with plastic washer

*On AT-LP2x turntable, the AT-HS3 headshell is an exclusive black finish version.
Turntables related accessories

**AT6006R**
Tonearm Safety Raiser

- Lifts tonearm automatically at the end of a record, protecting stylus tip
- Hydraulic lift with rubber lift bar operates safely and smoothly
- Can be mounted on a variety of turntables with different tonearm heights

Price: 129.00 € including VAT
EAN: 4961310146115

**AT6003R**
Cartridges protective display

Price: 24.00 € including VAT
EAN: 4961310146115

**AT6181DL**
Stroboscope Disc and Strobe Quartz Light

- Stroboscope disc and light kit allows you to precisely check a turntable’s rotation speed
- Yellow LED light provides a clear, accurate reading of 33 1/3, 45 and 78rpm speeds
- Useful overhang guide is included on the stroboscope disc

Price: 129.00 € including VAT
EAN: 4961310145682

**AT6180a**
Stroboscopic disc (50 Hz / 60 Hz) 33 1/3 - 45rpm and overhang adjustment tool

Price: 22.00 € including VAT
EAN: 4961310140090

**AT618a**
Disc stabilizer

- Holds record firmly in place stabilising the record
- Thick rubber construction
- 800g

Price: 49.00 € including VAT
EAN: 4961310140083

**AT615a**
Turntable leveler

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

Price: 29.00 € including VAT
EAN: 4961310140090
Cleaning accessories

**AT617a**  
Cartridge Stylus Cleaner  
- Specially formulated polyurethane gel gently removes dirt particles from stylus tip  
- Gel remains tacky for years  
- Surface is washable for repeated use

**AT607a**  
Stylus cleaner liquid with brush applicator  
- 10ml volume  
- Applicator brush is attached to the cap for ease of use

**AT6011a**  
Anti-static record brush  
- Removes harmful dust and contaminants from your vinyl records

**AT6012**  
Record care kit  
- 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 AT634a

**AT6013a**  
Dual-action anti-static record cleaner  
- Two carbon fibre brushes and central velvet pad work together to collect dust and other contaminants in one pass

**AT634a**  
Record care solution  
- One bottle supplied with AT6012 record care kit
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 33⅓rpm. Rpm stands for Rotation Per Minute.

45 rpm
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 pulls 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 low, 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 (Liné 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 "Technichard Series" (page 50) 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 showing the separation in dB from 20Hz to 20,000Hz.

Boron (boron cantilever)
Boron is a chemical element from the metallloid 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)

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, Sapphyr, 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 indicates 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/cartidge 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 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 stylus 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 groove 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

Stylus are principally made of three components: Stylus Tip, Stylus Cantilever, and Stylus Suspension.
is that the input impedance of your phonograph 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 phonograph preamp, the cartridge forms a RLC (Resistor, Inductor, Capacitor) circuit which acts as a resonant filter emphasizing certain frequencies while reducing others. In order to achieve the 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 sound 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 stereoaphonic in the mid-90'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.

Microlinear (form factor of a stylus diamond, see Microlinear)
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 Microlinear.

Microlinear
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 Microlinear 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. 78 rpm 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 the 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 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 (joined) 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 groove. 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 toroidal shape is that due to its symmetry, the amount of magnetic flux that escapes outside of the core (leakage flux) is minimal; 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 Preamplifier 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 Stylis are around 0.3 x 0.7 mil. Due to the complexity of line contact and Microlinear stylis, their radius value is not always an accurate description of their shape and size.
**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 replaced. 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**
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**
(SP stands for Short Play denoting 78rpm Shellac records, as opposed to LP (Long Play) denoting 33 1/3 rpm micro-groove 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 75μm². 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, Microlinear).

**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 ensure optimal channel balance.

**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, 33 1/3 rpm, 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 (Ploy 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 78rpm Shellac SP record as the standard.

**VM™**
(see Dual Magnet cartridge)

**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 groove, 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.

**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 groove. 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)
Understanding the sizes and shapes of Audio-Technica stylus tips and contact areas in the record groove for microgroove Long Play vinyl records (LP)

<table>
<thead>
<tr>
<th>Stylus curvature radius</th>
<th>0.6mil</th>
<th>0.3 x 0.7mil</th>
<th>2.2 x 0.12mil</th>
<th>2.7 x 0.26mil</th>
<th>1.5 x 0.28mil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stylus shape</td>
<td>Conical</td>
<td>Elliptical</td>
<td>MicroLinear</td>
<td>Shibata</td>
<td>Special Line Contact</td>
</tr>
</tbody>
</table>

**Stylus shape**
- Conical
- Elliptical
- MicroLinear
- Shibata
- Special Line Contact

**Audio-Technica moving coil cartridges**
- AT33MONO (0.65mil)
- AT-OC9XEB
- AT-OC9XML
- AT-OC9XSH
- AT-ART1000

**Audio-Technica VM Series cartridges**
- VM610MONO
- VM510CB
- VM530EN
- VM520EB
- VM740ML
- VM750SH
- VM760SLC

**Audio-Technica VM95 Series cartridges**
- AT-VM9SC
- AT-VM95E
- AT-VM95ML
- AT-VM95SS

**Audio-Technica moving magnet DJ cartridges**
- AT-XP3
- AT-XP5 - AT-XP7

**Audio-Technica moving magnet P-mount cartridges**
- AT81CP
- AT85EP

Dimensions (see horizontal cross section)
- R=0.6mil
- R=0.7mil
- R=2.2mil
- R=2.7mil
- R=1.5mil
- r=0.3mil
- r=0.12mil
- r=0.26mil
- r=0.28mil

Contact surface on record groove (stylus side view)

Approximative contact dimensions ratio
- D1/D2=1
- 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 be 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 Microlinear shapes offer a smaller horizontal contact area leading to superior precision and high frequency transcription, while offering a larger contact area than conical or elliptical styli due to a taller vertical contact area minimizing record wear.

Understanding the styli sizes of Standard Play Shellac records (SP)

<table>
<thead>
<tr>
<th>Stylus sizes</th>
<th>3mil</th>
<th>2.5mil</th>
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<tbody>
<tr>
<td>Stylus shape</td>
<td>Conical</td>
<td>Conical</td>
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</table>

**Audio-Technica moving coil SP cartridges**
- AT-MONO3/SP

**Audio-Technica VM Series SP cartridges**
- VM670SP

**Audio-Technica VM95 Series SP cartridges**
- AT-VM95SP

Illustration of different sizes between two typical conical styli:
- on the left, 3mil radius SP stylus for 78rpm records
- on the right, typical 0.6mil conical LP stylus for 33 and 48rpm records
LP and SP record grooves are represented at the same scale
- groove width of LP record 0.0025”, groove width of SP record 0.0070”
- groove depth of LP record 0.0013”, groove depth of SP record 0.0029”
### Alphanumeric product listing

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Established in 1962, Audio-Technica’s first product was the AT1 phono cartridge.

Early stereo phono cartridge production line in Shinjuku, Tokyo, Japan.

The quality and musicality of the Audio-Technica phono cartridges of today is the result of 56 years of analogue heritage, the ongoing dedication of our design engineers and continued handcraftsmanship of our production teams.

Audio-Technica Corporation are proud to be both a co-founded and sponsor of The Analogue Foundation which is creating opportunities for more people to discover, learn and simply enjoy the qualities of analogue. Through seminars, productions, collaborations and events, the Analogue Foundation seeks to share both the experience and passion of analogue.

Pictured is the Listening Station, a collaboration between the Analogue Foundation and luxury heritage luggage brand Globe-Trotter, which travels the world fitted with specially selected Audio-Technica analogue audio products, offering people a high-end vinyl listening experience.

Find out more at http://www.analoguefoundation.com
Audio-Technica Fukui, Japan, opened 2010

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