

VM Cartridges



audio-technica

History

Driving over 50 years of legendary performance
VM cartridges: getting deeper into the groove of every sound

1962



AT-1, AT-3

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

1967



AT35X

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

1978



AT25

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

1979



AT120E/G

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

2011



AT150ANV

50th anniversary model with a
sapphire cantilever which was firstly
adopted by Audio-Technica.



VM Cartridges Series Overview



VM760SLC



VM750SH



VM740OML

700 Series

For superior sound with superfine fidelity.



VM540OML



VM530EN



VM520EB



VM510CB

500 Series

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



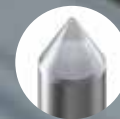
VM610MONO



VM670SP

600 Series

For special applications, designed to bring out the best sound of mono and 78 rpm records



Special Line Contact



Shibata



MicroLine®



Elliptical Nude



Elliptical Bonded



Conical Bonded



Conical Styli

Line Contact Styli

Elliptical Styli





Ideal selections for ideal sounds

Styli Shapes

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

Conical Styli

The benefit of conical styli, even if the cartridge is 'lean', is the ball surface of the stylus touches the groove of vinyl records precisely. Due to its stability, it has been used widely in radio stations.



Elliptical Styli

To reduce the tracking distortion and pinch-effect of a conical stylus, the elliptical stylus is made with a smaller effective radius to overcome these two conditions and provide more detailed audio content.



Line Contact Styli

(Special Line Contact, Shibata, MicroLine®)

Having a greater tracking ability than an elliptical stylus, the line contact styli will have a deeper contact area to the vinyl record groove. This enables the stylus to fully reproduce all content of the vinyl record with reduced stylus and groove wear.



Cartridge Bodies

Combine any one of 3 cartridges with any one of 7 styli for a fully customisable analogue sound experience.

700 Series

High-end model fitted with the die-cast aluminium alloy housing. The body reduces unwanted vibration and enhances the superior sound quality of high-performance line contact styli.

500 Series

Standard cartridge body fitted with the paratoroidal coils, centre shield plate, and the same 6N-OFC coil wire used in the 700 series.

600 Series

Specialised mono body with internal wiring dedicated to monaural sound.

Features & Mechanism

Perfecting sounds of world renown
in purely original ways

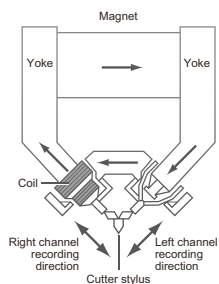
Analogous to the cutter head

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

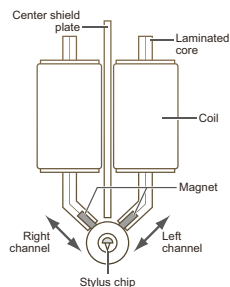
Instead of using a single, large magnet, the two magnets are arranged in the shape of a 'V'. The two magnets are positioned precisely to match the positions of the left and right channels in the stereo groove walls.

Consequently, the VM design ensures outstanding channel separation, extended frequency response and superb tracking.

Basic structure of the cutter head



Basic structure of the VM cartridges



Para-toroidal generating system delivers substantial improvements

The new VM cartridges differ in their styli design, but all share the basic construction of their generating systems (cartridge engine).

On the Para-toroidal generating system, since leakage of magnetic flux in this continuous and unitted 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, left and right channels should be connected. Mono body on which left and right terminals are connected internally reduces record noise which is primarily in the vertical direction and obtains highly focused 'centre' sound image compared with stereo bodies.

Line Contact Styli

Special Line Contact

Nude Rectangular Shank



VM760SLC

DUAL MOVING MAGNET STEREO CARTRIDGE



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

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

Shibata Nude Square Shank



VM750SH

DUAL MOVING MAGNET STEREO CARTRIDGE



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

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

Line Contact Styli

MicroLine®

Nude Square Shank



VM740ML

DUAL MOVING MAGNET STEREO CARTRIDGE



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

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

MicroLine®

Nude Square Shank



VM540ML

DUAL MOVING MAGNET STEREO CARTRIDGE



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

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



VM540ML/H

DUAL MOVING MAGNET STEREO
CARTRIDGE WITH HEADSHELL

Elliptical & Conical Styli

Elliptical Nude

Nude Round Shank



VM530EN

DUAL MOVING MAGNET
STEREO CARTRIDGE

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

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



VM530EN/H

DUAL MOVING MAGNET STEREO
CARTRIDGE WITH HEADSHELL

Elliptical Bonded

Bonded Round Shank



VM520EB

DUAL MOVING MAGNET
STEREO CARTRIDGE

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

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



VM520EB/H

DUAL MOVING MAGNET STEREO
CARTRIDGE WITH HEADSHELL

Conical Bonded

Bonded Round Shank



VM510CB

DUAL MOVING MAGNET
STEREO CARTRIDGE

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

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



For Shellac or Phonograph Records

Conical (3mil)

Bonded Round Shank



VM670SP

DUAL MOVING MAGNET MONO CARTRIDGE



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

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

For Mono Vinyl LP Records

Conical

Bonded Round Shank



VM610MONO

DUAL MOVING MAGNET MONO CARTRIDGE



Mono LP model with a conical bonded stylus in the body dedicated to monaural sound. Specialised internal wiring allows for reduced surface noise and stable sound reproduction.

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

Replacement & Upgrade Styli

Even the finest diamond stylus becomes worn after an extended period of play. The styli in our VM cartridges are no different. But it is easy to replace the stylus and continue to use your cartridge. Our renewed VM cartridges have 7 styli and 3 types of bodies to choose from. Not only is it not necessary to buy an entirely new cartridge, but you can also enjoy the experience of upgrading your stylus or trying a new cartridge/stylus combination.

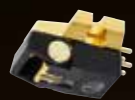
Cartridge Body	Product	Special Line Contact Stylus VMN60SLC	Shibata Stylus VMN50SH	MicroLine® Stylus VMN40ML	Elliptical Nude Stylus VMN30EN	Elliptical Bonded Stylus VMN20EB	Conical Bonded Stylus VMN10CB	3mil Conical Bonded Stylus VMN70SP
 VM700 Body	VM760SLC	Standard Replacement	Becomes VM750SH	Becomes VM740ML	Compatible	Compatible	Compatible	*(1)
	VM750SH	Becomes VM760SLC	Standard Replacement	Becomes VM740ML	Compatible	Compatible	Compatible	*(1)
	VM740ML	Becomes VM760SLC	Becomes VM750SH	Standard Replacement	Compatible	Compatible	Compatible	*(1)
 VM500 Body	VM540ML	Compatible	Compatible	Standard Replacement	Becomes VM530EN	Becomes VM520EB	Becomes VM510CB	*(1)
	VM530EN	Compatible	Compatible	Becomes VM540ML	Standard Replacement	Becomes VM520EB	Becomes VM510CB	*(1)
	VM520EB	Compatible	Compatible	Becomes VM540ML	Upgrade to VM530EN	Standard Replacement	Becomes VM510CB	*(1)
	VM510CB	Compatible	Compatible	Becomes VM540ML	Upgrade to VM530EN	Upgrade to VM520EB	Standard Replacement	*(1)
 VM600 Body	VM670SP	*(2)	*(2)	*(2)	*(2)	*(2)	Becomes VM610MONO	Standard Replacement
	VM610MONO	Compatible	Compatible	Compatible	*(2)	*(2)	Standard Replacement	Becomes VM670SP

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

(2) For best results when playing vintage mono LPs, Audio-Technica recommends using the VMN510CB conical stylus. A line contact or elliptical type stylus can be considered if you are sure that the dimensional groove construction of the LP(s) can safely handle these stylus tip shapes.

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

Specifications



VM760SLC

VM750SH

VM740ML

VM540ML

VM530EN

VM520EB

VM510CB

VM670SP

VM610MONO

Type	VM	VM	VM	VM
Frequency response	20 to 30,000Hz	20 to 27,000Hz	20 to 27,000Hz	20 to 27,000Hz
Output voltage	4.0mV (1kHz, 5cm/sec.)	4.0mV (1kHz, 5cm/sec.)	4.0mV (1kHz, 5cm/sec.)	4.0mV (1kHz, 5cm/sec.)
Channel separation	30dB (1kHz)	30dB (1kHz)	28dB (1kHz)	28dB (1kHz)
Output balance	1.0dB (1kHz)	1.0dB (1kHz)	1.0dB (1kHz)	1.0dB (1kHz)
Tracking force	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)
Coil impedance	2.7k ohms (1kHz)	2.7k ohms (1kHz)	2.7k ohms (1kHz)	2.7k ohms (1kHz)
DC resistance	800 ohms	800 ohms	800 ohms	800 ohms
Load impedance	47k ohms	47k ohms	47k ohms	47k ohms
Load capacitance	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF
Coil inductance	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)
Static compliance	40×10 ⁻⁶ cm/dyne	40×10 ⁻⁶ cm/dyne	40×10 ⁻⁶ cm/dyne	40×10 ⁻⁶ cm/dyne
Dynamic compliance	10×10 ⁻⁶ cm/dyne (100Hz)	10×10 ⁻⁶ cm/dyne (100Hz)	10×10 ⁻⁶ cm/dyne (100Hz)	10×10 ⁻⁶ cm/dyne (100Hz)
Stylus	Nude Special Line Contact (1.5×0.28mil)	Nude Shibata (2.7×0.26mil)	Nude MicroLine (2.2×0.12mil)	Nude MicroLine (2.2×0.12mil)
Cantilever	Aluminium tapered pipe	Aluminium tapered pipe	Aluminium tapered pipe	Aluminium tapered pipe
Vertical tracking angle	23°	23°	23°	23°
Dimensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
Weight	8.0g	8.0g	8.0g	8.0g
Replacement stylus (sold separately)*»	VMN60SLC	VMN50SH	VMN40ML	VMN40ML
Accessories	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set×1	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 Lead wire set×1

Type	VM	VM	VM	VM	VM
Frequency response	20 to 25,000Hz	20 to 23,000Hz	20 to 20,000Hz	20 to 20,000Hz	20 to 20,000Hz
Output voltage	4.5mV (1kHz, 5cm/sec.)	4.5mV (1kHz, 5cm/sec.)	5.0mV (1kHz, 5cm/sec.)	3.0mV (1kHz, 5cm/sec.)	3.0mV (1kHz, 5cm/sec.)
Channel separation	27dB (1kHz)	27dB (1kHz)	25dB (1kHz)	–	–
Output balance	1.5dB (1kHz)	1.5dB (1kHz)	1.5dB (1kHz)	–	–
Tracking force	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	1.8 to 2.2g (2.0g standard)	4.5 to 5.5g (5.0g standard)	1.8 to 2.2g (2.0g standard)
Coil impedance	2.7k ohms (1kHz)	2.7k ohms (1kHz)	2.7k ohms (1kHz)	1.4k ohms (1kHz)	1.4k ohms (1kHz)
DC resistance	800 ohms	800 ohms	800 ohms	400 ohms	400 ohms
Load impedance	47k ohms	47k ohms	47k ohms	47k ohms	47k ohms
Load capacitance	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF
Coil inductance	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)	230mH (1kHz)	230mH (1kHz)
Static compliance	35×10 ⁻⁶ cm/dyne	35×10 ⁻⁶ cm/dyne	35×10 ⁻⁶ cm/dyne	15×10 ⁻⁶ cm/dyne	35×10 ⁻⁶ cm/dyne
Dynamic compliance	8×10 ⁻⁶ cm/dyne (100Hz)	8×10 ⁻⁶ cm/dyne (100Hz)	8×10 ⁻⁶ cm/dyne (100Hz)	2.0×10 ⁻⁶ cm/dyne (100Hz)	8×10 ⁻⁶ cm/dyne (100Hz)
Stylus	Nude elliptical (0.3×0.7mil)	Bonded elliptical (0.3×0.7mil)	Bonded conical (0.6mil)	Bonded conical (3mil)	Bonded conical (0.6mil)
Cantilever	Aluminium pipe	Aluminium pipe	Aluminium pipe	Aluminium pipe	Aluminium pipe
Vertical tracking angle	23°	23°	23°	23°	23°
Dimensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
Weight	6.4g	6.4g	6.4g	6.4g	6.4g
Replacement stylus (sold separately)*»	VMN30EN	VMN20EB	VMN10CB	VMN70SP	VMN10C
Accessories	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 Non-magnetic screwdriver×1 Brush×1 –	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 – – –	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 – – –	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 – – –	Cartridge installation screws 5mm×2 and 10mm×2 Washer×2 Hexagon nut×2 – – –

VM cartridges with Headshell



VM540ML/H



VM530EN/H



VM520EB/H

Dimensions	H21.3×W21.0×D60.4mm	H21.3×W21.0×D60.4mm	H21.3×W21.0×D60.4mm
Weight	16.8g	16.8g	16.8g

*In this series, we offer replacement styli with different stylus tip structures and point shapes. For more details, please refer to «Replacement Stylus Lineup» on page 10. Specifications are subject to change without notice due to improvements.





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