

New Product Report.

VM Cartridges/Styli series renewal

21 November 2016



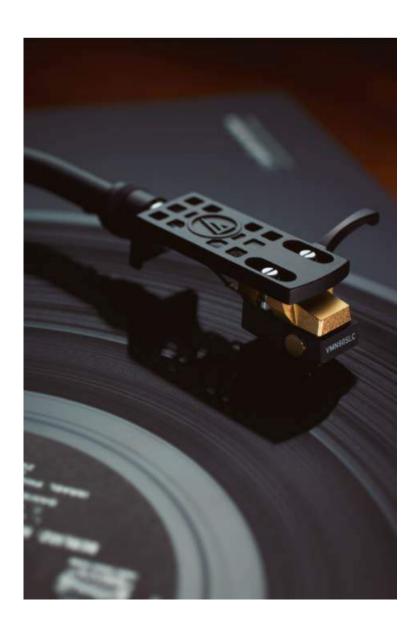
Concept.

Present a logical and cohesive series that encourages users to experiment with and expand-on their cartridge collection.

Improve the accessibility of experiencing the sonic differences, subtleties, and sound enhancement possibilities delivered by changing styli onto cartridge bodies.

Provide guidance on pairing suitability's of stylus types with cartridge bodies to maximise sound performance.

Deliver a new Audio-Technica cartridges line-up for the first time during the last 30 years





Background.

Model numbers

Reinstituted the use of 'VM' (instead of 'AT') within each model code to reconnect with the technology that remains the cornerstone of Audio-Technica's heritage.

Clear indication of cartridge body characteristics and stylus types through the use of a clear numbering and lettering model code structure

• Number meaning:

700 series - Die-cast aluminium alloy housing

600 series – High-density moulded housing

500 series – Mono body terminating left and right channels to reduce record noise

Letter meaning:

SLC - Special line contact

SH - Shibata stylus

ML - MicroLine™ stylus

EN - Elliptical stylus, Nude

EB - Elliptical stylus, Bonded

CB - Conical stylus, Bonded

SP - Conical Bonded round shank for Shellac or Phonograph records

MONO - Conical Bonded round shank for Mono LP records

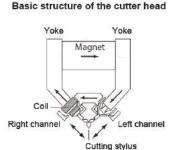


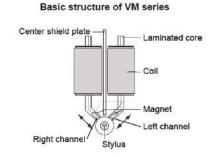
Background (continued).

VM Cartridge structure

Audio-Technica's high performance para-toroidal coil structure is inherited in this new VM generation.

Toroidal ring coils are separated by a centre magnetic shield for complete electrical channel separation. As a result, the new Dual Moving Magnet cartridge series offers audiophiles a delicate-yet-stable sound performance at affordable price positions - a blend that continues to allow Audio-Technica products to be favoured for high-fidelity sound.





Create VM cartridges for SP/MONO [information for internal use only, not for customer]

To have a Dual Moving Magnet cartridge offering for customers with SP/LP records, previously only available within Audio-Technica's Moving Coil types.

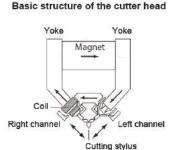


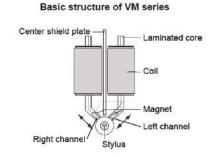
Background (continued).

VM Cartridge structure

Audio-Technica's high performance para-toroidal coil structure is inherited in this new VM generation.

Toroidal ring coils are separated by a centre magnetic shield for complete electrical channel separation. As a result, the new Dual Moving Magnet cartridge series offers audiophiles a delicate-yet-stable sound performance at affordable price positions - a blend that continues to allow Audio-Technica products to be favoured for high-fidelity sound.





Create VM cartridges for SP/MONO [information for internal use only, not for customer]

To have a Dual Moving Magnet cartridge offering for customers with SP/LP records, previously only available within Audio-Technica's Moving Coil types.



Key Features overview.

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.

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 body). 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.



Key Features overview (continued).

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.



Combine any one of 3 cartridge bodies with any one of 7 styli.

Cartridge Bodies

700 series

Top-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 para-toroidal coils, centre shield plate, and 6N-OFC coil wire (same as used for the 700 series).

600 series

Specialised mono body which internal wiring is dedicated to monaural sound.

Stylus constructions.

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.









VM Cartridges series overview





VM760SLC

Dual Moving Magnet Stereo Cartridge with Special Line Contact stylus

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



Nude Rectangular Shank





RRP Price: €699.00 (inc.VAT) / £639.00 (inc.VAT)



Shibata Nude Square Shank



VM750SH

Dual Moving Magnet Stereo Cartridge with Shibata stylus

Fitted with the Shibata stylus, which was developed for playing 4 channel vinyl records that demand high-frequency reproduction capabilities during playback. Not only for high-frequencies, 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



RRP Price: €429.00 (inc.VAT) / £389.00 (inc.VAT)



VM740ML

Dual Moving Magnet Stereo Cartridge with MicroLine™ stylus

High-end model featuring a MicroLine[™] stylus in an aluminium diecast 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



Nude Square Shank





RRP Price: €329.00 (inc.VAT) / £299.00 (inc.VAT)



VM540ML

Dual Moving Magnet Stereo Cartridge with MicroLine™ stylus

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



Nude Square Shank





RRP Price: €259.00 (inc.VAT) / £235.00 (inc.VAT)



VM530EN

Dual Moving Magnet Stereo Cartridge with Elliptical stylus

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

- 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



Nude Round Shank





RRP Price: €199.00 (inc.VAT) / £179.00 (inc.VAT)



VM520EB

Dual Moving Magnet Stereo Cartridge with Elliptical stylus

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

- 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



Bonded Round Shank





RRP Price: €129.00 (inc.VAT) / £119.00 (inc.VAT)



Conical Bonded

Bonded Round Shank



VM510CB

Dual Moving Magnet Stereo Cartridge with Conical stylus

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



RRP Price: €109.00 (inc.VAT) / £99.00 (inc.VAT)



VM540ML/H

Dual Moving Magnet Stereo Cartridge with Headshell

Standard model with a MicroLine[™] stylus, comes pre-assembled with a lightweight aluminium headshell (AT-HS10). 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
- Pre-assembled with a lightweight aluminium headshell (AT-HS10) for a quicker, easier set-up



Nude Square Shank





RRP Price: €284.00 (inc.VAT) / £258.00 (inc.VAT)



VM530EN/H

Dual Moving Magnet Stereo Cartridge with Headshell

High-end elliptical stylus model pre-assembled with a lightweight aluminium headshell (AT-HS10). Equipped with a nude elliptical stylus to reduce the execution mass of the vibration system, that enables fuller frequency reproduction.

- 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
- Pre-assembled with a lightweight aluminium headshell (AT-HS10) for a quicker, easier set-up



Nude Round Shank





RRP Price: €224.00 (inc.VAT) / £202.00 (inc.VAT)



Elliptical Bonded

Bonded Round Shank



VM520EB/H

Dual Moving Magnet Stereo Cartridge with Headshell

Standard elliptical stylus model equipped with an elliptical bonded stylus, and pre-assembled with a lightweight aluminium headshell (AT-HS10). This elliptical stylus reduces tracing distortion and allows for more accurate sound reproduction.

- 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
- Pre-assembled with a lightweight aluminium headshell (AT-HS10) for a quicker, easier set-up



RRP Price: €154.00 (inc.VAT) / £142.00 (inc.VAT)



VM670SP

Dual Moving Magnet Stereo Cartridge for Shellac or Phonograph records

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





RRP Price: €159.00 (inc.VAT) / £145.00 (inc.VAT)



Conical Bonded

Bonded Round Shank



VM610MONO

Dual Moving Magnet Stereo Cartridge for Mono Vinyl LP records

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



RRP Price: €139.00 (inc.VAT) / £125.00 (inc.VAT)



VMN60SLC

Replacement stylus for VM760SLC

Special Line Contact stylus

Nude Rectangular Shank construction

RRP Price:

€570.00 (inc.VAT) / £522.00 (inc.VAT)

VMN50SH

Replacement stylus for VM750SH

Shibata stylus

Nude Square Shank construction

RRP Price:

€300.00 (inc.VAT) / £272.00 (inc.VAT)

VMN40ML

Replacement stylus for VM740ML & VM540ML

MicroLine™ stylus

Nude Square Shank construction

RRP Price:

€216.00 (inc.VAT) / £196.00 (inc.VAT)









VMN30EN

Replacement stylus for VM530EN

Elliptical Nude stylus

Nude Round Shank construction

RRP Price:

€156.00 (inc.VAT) / £140.00 (inc.VAT)

VMN20EB

Replacement stylus for VM750SH

Elliptical Bonded stylus

Bonded Round Shank construction

RRP Price:

€86.00 (inc.VAT) / £80.00 (inc.VAT)

VMN10CB

Replacement stylus for VM510CB & VM610MONO

Conical Bonded stylus

Bonded Round Shank construction

RRP Price:

€66.00 (inc.VAT) / £60.00 (inc.VAT)









VMN70SP

Replacement stylus for VM670SP

Conical (3mil) stylus Bonded Round Shank construction RRP Price:

 $\ensuremath{\not\in} 94.00$ (inc.VAT) / £86.00 (inc.VAT)





Launch schedule

New models:

Launch date (EU/Western markets): 5th January 2017 (CES)

Japan Launch date: 13th October 2016 (Japan launch event)

Available for pre-orders (new line-up): 1st December 2016 Warehouse stock availability (new line-up): Mid-December 2016

PP samples (5 of each model): Late-November / Early December 2016 (TBC)

Existing models:

Latest order date for existing models (if available): 31st December 2016 Latest shipment date for existing models (if available): 31st January 2017



Replacement / Upgrade Matrix.















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

VM600 body

⁽¹⁾ Becomes stereo wiring SP cartridge. Since the SP records only have monaural modulation, using mono body would be recommended.

⁽²⁾ When playing early years of mono LP, there is a possibility that a stylus touches the bottom of a vinyl records' groove and has noise from your speakers.

^{*} 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



Available assets.

Images

Available to download from the Marketing drive
M:\Image Bank\Consumer Products\VM series [CES 2017 launch]

Brochure

VM series brochure will be available, adapted for Europe, shortly.

Full compatibility matrix

PDF showing full compatibility of new VM series cartridges and replacement styli with continued and EOL models is available.



Specifications.

	VM760SLC	VM750SH	VM740ML
Гуре	VM	VM	VM
requency response	20 to 30,000Hz	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.)
Channel separation	30dB (1kHz)	30dB (1kHz)	28dB (1kHz)
Output balance	1.0dB (1kHz)	1.0dB (1kHz)	1.0dB (1kHz)
Fracking 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)
Coil impedance	2.7k ohms (1kHz)	2.7k ohms (1kHz)	2.7k ohms (1kHz)
OC resistance	800 ohms	800 ohms	800 ohms
_oad impedance	47k ohms	47k ohms	47k ohms
_oad capacitance	100 to 200pF	100 to 200pF	100 to 200pF
Coil inductance	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)
Static compliance	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)
Stylus	Nude Special Line Contact (1.5×0.28mil)	Nude Shibata (2.7×0.26mil)	Nude MicroLine™ (2.2×0.12mil)
Cantilever	Aluminium tapered pipe	Aluminium tapered pipe	Aluminium tapered pipe
Vertical tracking angle	23°	23°	23°
Dimensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
Veight	8.0g	8.0g	8.0g
Replacement stylus sold separately)*"	VMN60SLC	VMN50SH	VMN40ML
Accessories	Cartridge installation screws	Cartridge installation screws	Cartridge installation screws
	5mm×2 and 10mm×2	5mm×2 and 10mm×2	5mm×2 and 10mm×2
	Washer×2	Washer×2	Washer×2
	Hexagon nut×2	Hexagon nut×2	Hexagon nut×2
	Non-magnetic screwdriver×1	Non-magnetic screwdriver×1	Non-magnetic screwdriver×1
	Brush×1	Brush×1	Brush×1
	Lead wire set ×1	Lead wire set ×1	Lead wire set ×1



Specifications.

	VM540ML	VM530EN	VM520EB	VM510CB
Гуре	VM	VM	VM	VM
requency response	20 to 27,000Hz	20 to 25,000Hz	20 to 23,000Hz	20 to 20,000Hz
Output voltage	4.0mV (1kHz, 5cm/sec.)	4.5mV (1kHz, 5cm/sec.)	4.5mV (1kHz, 5cm/sec.)	5.0mV (1kHz, 5cm/sec.)
Channel separation	28dB (1kHz)	27dB (1kHz)	27dB (1kHz)	25dB (1kHz)
Output balance	1.0dB (1kHz)	1.5dB (1kHz)	1.5dB (1kHz)	1.5dB (1kHz)
racking 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)
C resistance	800 ohms	800 ohms	800 ohms	800 ohms
oad impedance	47k ohms	47k ohms	47k ohms	47k ohms
oad capacitance	100 to 200pF	100 to 200pF	100 to 200pF	100 to 200pF
oil inductance	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)	460mH (1kHz)
tatic compliance	40×10 -6 cm/dyne	35×10 -6 cm/dyne	35×10 -6 cm/dyne	35×10 -6 cm/dyne
ynamic compliance	10×10 -6 cm/dyne (100Hz)	8×10 -6 cm/dyne (100Hz)	8×10 -6 cm/dyne (100Hz)	8×10 -6 cm/dyne (100Hz)
tylus	Nude MicroLine (2.2×0.12mil)	Nude elliptical (0.3×0.7mil)	Bonded elliptical (0.3×0.7mil)	Bonded conical (0.6mil)
antilever	Aluminium tapered pipe	Aluminium pipe	Aluminium pipe	Aluminium pipe
ertical tracking angle	23°	23°	23°	23°
imensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
/eight	6.4g	6.4g	6.4g	6.4g
replacement stylus sold separately)*"	VMN40ML	VMN30EN	VMN20EB	VMN10CB
accessories	Cartridge installation screws	Cartridge installation screws	Cartridge installation screws	Cartridge installation screws
	5mm×2 and 10mm×2	5mm×2 and 10mm×2	5mm×2 and 10mm×2	5mm×2 and 10mm×2
	Washer×2	Washer×2	Washer×2	Washer×2
	Hexagon nut×2	Hexagon nut×2	Hexagon nut×2	Hexagon nut×2
	Non-magnetic screwdriver×1	Non-magnetic screwdriver×1	-	-
	Brush×1	Brush×1	-	-
	Lead wire set ×1		-	-

audio-technica



Specifications.

	VM670SP	VM610MONO
Туре	VM	VM
Frequency response	20 to 20,000Hz	20 to 20,000Hz
Output voltage	3.0mV (1kHz, 5cm/sec.)	3.0mV (1kHz, 5cm/sec.)
Channel separation	-	-
Output balance	-	-
Tracking force	4.5 to 5.5g (5.0g standard)	1.8 to 2.2g (2.0g standard)
Coil impedance	1.4k ohms (1kHz)	1.4k ohms (1kHz)
DC resistance	400 ohms	400 ohms
Load impedance	47k ohms	47k ohms
Load capacitance	100 to 200pF	100 to 200pF
Coil inductance	230mH (1kHz)	230mH (1kHz)
Static compliance	15×10 -6 cm/dyne	35×10 -6 cm/dyne
Dynamic compliance	2.0×10 -6 cm/dyne (100Hz)	8×10 -6 cm/dyne (100Hz)
Stylus	Bonded conical (3mil)	Bonded conical (0.6mil)
Cantilever	Aluminium pipe	Aluminium pipe
Vertical tracking angle	23°	23°
Dimensions	H17.3×W17.0×D28.2mm	H17.3×W17.0×D28.2mm
Weight	6.4g	6.4g
Replacement stylus (sold separately)*"	VMN70SP	VMN10C
Accessories	Cartridge installation screws	Cartridge installation screw
	5mm×2 and 10mm×2	5mm×2 and 10mm×2
	Washer×2	Washer×2
	Hexagon nut×2	Hexagon nut×2
	-	-
	-	-
	-	-