

ortofon



MC *Diamond*

Ortofon

World leader in the cartridge industry

Ortofon has always been a company in the field of sound reproduction. Founded in Copenhagen in 1918, it started by creating technology which served as the basis for adding a soundtrack to the silent movies of the early 1920s. In 1948, the company developed the first moving coil cartridge, and since then Ortofon has developed and manufactured more than 300 different cartridges, with our latest being the MC Diamond.

Today Ortofon is the world leader in phono cartridges. This is the result of combining design with technology and the highest level of engineering in the audio industry. Acoustics, materials technology, and micro mechanics are key competences in Ortofon's technological prowess. Ortofon has its research and manufacturing facilities in Denmark; the production of cartridges and components is carried out at the company's factory in Nakskov, Denmark.

Production is based on experienced workers with a high level of craftsmanship. This assures the well know, highly uniform, quality of Ortofon products. The phono cartridges are sold worldwide through a network of more than 60 distributors worldwide along with sales subsidiaries in the USA and Japan. Ortofon is today recognized among consumers and industry professionals as a quality brand.

MC Diamond

Our most exclusive cartridge

The MC Diamond model represent the highest echelon of Moving Coil cartridges. As its name suggests, the MC Diamond uses a Diamond cantilever that in combination with Ortofon Replicant 100 diamond offers extreme transparency, speed, and responsiveness beyond that of any other combination.



Design elements

- The housing and the body of the cartridge are made of Titanium by the technology Selective Laser Melting.
- High-performance iron-cobalt alloy is applied for select parts of the magnet system.
- The Wide-Range armature damping system provides complete elimination of unwanted resonance.
- The Thermo Plastic Elastomer (TPE) bottom cover enhances damping of system resonances.
- Special coil armature design allows for more direct interface with the rubber dampers, giving a better stereo perspective.
- The Ortofon Replicant 100 diamond, with its extraordinarily large contact surface, provides unparalleled high accuracy in sound.
- The use of Diamond cantilever in the MC Diamond has prompted a paradigm shift in our understanding of analogue reproduction. The improvements found in the use of a Diamond cantilever have redefined the boundaries of analog reproduction, presenting greater inner detail, subtlety, and depth like never before.



Advancements in technology

An engineering feature of the MC Diamond cartridges is the Selective Laser Melting process in which fine particles of Titanium are welded together, layer-by-layer, to construct a single piece body devoid of unnecessary material. Using this technique, the density of the body can be precisely controlled, allowing for extremely high internal damping. The final result provides absolute freedom from resonances existing in the cartridge body material, and allows for the MC Diamond cartridges to be perfectly matched with an extremely wide array of different tonearms.



The use of Titanium in the MC Diamond cartridges has provided a further improvement to the overall rigidity of the structure, the cartridge weight, and its dynamic capability. Because of the nature of SLM-based construction, each cartridge body is cosmetically unique and will show small dimples or lines under close examination.

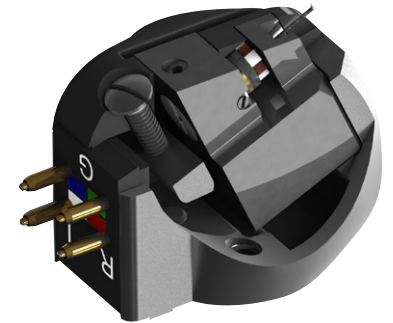
Magnet system

The optimized geometry of MC Diamonds magnet system combined with choice materials like neodymium and iron-cobalt offers an unprecedented consistency of the flux density within the system's air gap. Due to an increase of active material inside of the magnet system, the magnetic field strength is delivered more uniformly, allowing each coil to sense identical flux density regardless of its position. Because of this, dynamics and impulse linearity are preserved to an overwhelming extent.

The optimized magnet system allows for the use of a lightweight, non-magnetic armature, which also provides noteworthy benefit to the dynamic capability of the MC Diamond. The reason for this is that our specially designed precision moulded non-magnetic armature does not alter the magnetic field during movement. Hence when combined with ultrapure oxygen-free copper coil wire, it delivers perfect reproduction of the cantilever movements without compromise. The material applied for the armature has very high strength and rigidity.

Because the magnet system delivers a tremendous magnetic flux density, the need for design compromises is eliminated. It is due to this aspect that the amount of coil windings required to achieve significant output voltages is reduced to a minimum, resulting in a further reduction in moving mass.

The magnet system has also allowed for more spaciousness within the air gap, allowing for coil windings to be done completely independent of each other, without any overlap or interaction between them and with an extreme precision in each coil turn in all layers. The cumulative result of these improvements simply delivers more lifelike reproduction, with nearly boundless imaging, dimensionality, and dynamics.



Damping

As a core element, Ortofon's Wide Range Damping system (WRD), in which a small platinum disc is sandwiched between two rubber absorbers, ensures not only exceptional tracking performance, but also optimizes damping throughout the entire frequency range. Distortion and resonance are hereby virtually eliminated.

Specifically for the MC Diamond, the WRD has been re-engineered to incorporate a completely new rubber compound, specially developed in-house. The new rubber compound utilizes Multi Wall Carbon Nanotube Technology (MWCNT), which further improves damping and enhances overall performance.



Diamond

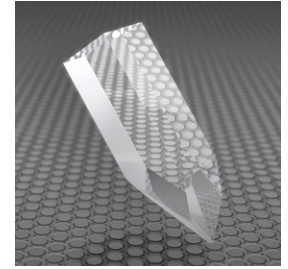
The finest diamond in the world

The MC Diamond make use of Ortofon's Replicant 100 diamond, known for its thin and light profile and extraordinarily large contact surface.

Since the Replicant 100 is closest to the shape of the cutting stylus, it exhibits unparalleled accuracy in sound compared to any other in existence.

The solid Diamond cantilever found in the MC Diamond provides the best possible interface

between the stylus and armature, owing to its hardness and crystal structure. The improvements found in the use of a Diamond cantilever have redefined the boundaries of analog reproduction, presenting greater inner detail, subtlety, and depth like never before.



Stylus protection guard

The stylus guard provided for MC Diamond is designed to be easily replaced and removed without risking contact to the fragile stylus assembly. To avoid accidental damage to the stylus or cantilever please mount the enclosed stylus guard onto the cartridge whenever the cartridge is not in use. The stylus guard should also be attached during mounting or removal of the cartridge.



The stylus guard is simply removed by holding the sides between the thumb and forefinger and pulling straight along the orientation of the cartridge. Affixing the stylus guard is accomplished by a straight movement in the opposite direction.

Please read our recommendations for stylus care on our HiFi FAQ:
www.ortofon.com/support/support-hifi/faq-installation

Spare stylus guards are available via the Ortofon webshop:
www.ortofon.com/hifi/products/styli-guards

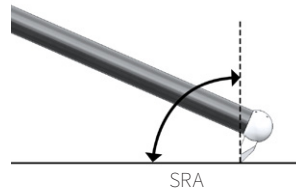
Set-up

As with any cartridge, setup and alignment is crucial in order to ensure the best sound reproduction. In addition to alignment, consideration must be made to adjust azimuth, anti-skating and VTA to maximize the potential performance of any high-end cartridge.

Please find our recommendations for set-up and alignment on our HiFi FAQ:
www.ortofon.com/support/support-hifi/faq-installation

Stylus Rake Angle (SRA)

With a complex stylus shape like the Replicant 100, there must be special attention paid to positioning the diamond in the groove.



The Stylus Rake Angle (SRA - see figure) is very important to the performance of the Replicant 100 stylus, and the long contact surface (the sharp edge) of the diamond should be almost perpendicular to the record surface when viewed from the side. The angle between the record surface and the cantilever is close to 23 degrees when SRA is 90 degrees.

Set-up

A perfect starting point is to set the tonearm parallel to the record surface and to use the recommended tracking force. The contact surface will be close to perpendicular to the record surface with this setting. The SRA can now gradually and carefully be changed by adjusting VTF and, if necessary, the tonearm height. The target should be an SRA around 92 degrees, determined by the listening experience. In other words, the point of the stylus should point slightly towards the tonearm base.

Azimuth adjustment

To attain maximum channel separation, it may be needed to adjust azimuth. If the cartridge is not perfectly perpendicular to the record's surface, then the tonearm or headshell may require to be tilted a few degrees. Correct azimuth is established by observing the reflected image of the cantilever. The cartridge's cantilever must form a straight line with its reflection. A small mirror can be used to facilitate this process.

Terminal connections

The backplate of the cartridge has color-coding, for correct and easy leadwire connection. For headshells and tonearms with exchangeable leadwires we recommend the use of the enclosed Ortofon LW-800S leadwires.



Antiskating

Correct anti-skating adjustment is important to achieve optimal tracking ability and minimize record wear and distortion. For the Ortofon Replicant 100 stylus, used in the MC Diamond, you may set the antiskating to match the tracking force, but using a test record is recommended.

Cartridge break-in

Although the MC Diamond will provide top reproduction right out of the box, the cartridge may slightly change character during the first tens of hours of use. This is normal, and you may in fact, find that this adds further refinement to your listening experience.

Maintenance

Stylus care

Ortofon does not recommend the use of solvents of any kind for cleaning the cartridge nor the stylus. If necessary, records may be washed in lukewarm demineralized water with a dash of sulphonic soap. Remove dust carefully from record surfaces by using a fine antistatic brush or cloth before every use. The use of solvents on the stylus and cantilever may damage stylus cement; interior parts of the cartridge can be affected seriously by the intrusion of solvents. The Ortofon warranty will not be valid in cases where such treatment has caused malfunction.

For cleaning the stylus, use the enclosed fiber brush a few times along the cantilever in the direction of the stylus, whenever you play a new record or change sides. Record care should also be performed regularly and is of paramount importance to prolong the life and condition of the stylus. Because of this, a record cleaning machine may be considered for ease and quality of record cleaning.



Repair service

Ortofon MC Diamond are exclusive cartridges of very high quality. To support our customers who have accidentally damaged their cartridges, Ortofon offers a special Repair service and/or Exchange service. Should you have a need for any service, please contact your local Ortofon authorized HiFi partner for further assistance:

www.ortofon.com/where-to-buy.

Our repair service is also available through the Ortofon webshop:

www.ortofon.com/hifi/products/repair-service.

Warning

Ortofon MC Diamond phono cartridges are only for mounting on turntables and must not be used for other purposes.

MC Diamond Technical Data

| TECHNICAL DATA | MC Diamond |
|---|---|
| Output voltage at 1 kHz, 5cm/sec. | 0.2 mV |
| Channel balance at 1 kHz | 0.5 dB |
| Channel separation at 1 kHz | 25 dB |
| Channel separation at 15 kHz | 20 dB |
| Frequency response | 20 Hz – 20 kHz ± 2 dB |
| Tracking ability at 315 Hz at recommended tracing force | 80 μ m |
| Compliance, dynamic, lateral | 11 μ m/mN |
| Stylus type | Special polished Nude Ortofon Replicant 100 on Diamond Cantilever |
| Stylus tip radius | r/R 5/100 μ m |
| Tracking force, range | 2.5 – 2.8 g |
| Tracking force, recommended | 2.6 g |
| Tracking angle | 23° |
| Internal impedance, DC resistance | 6 Ω |
| Recommended load impedance | > 10 Ω |
| Cartridge body material | SLM Titanium |
| Cartridge colour | Silver / black |
| Cartridge weight | 17.5 g |



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Date: _____ Approved by: _____
