



The Ortofon MC 20 Super II: The Fourth Generation of a Legend

A legend was born when the Ortofon MC 20 won the prestigious Grand Prix Award of the Japanese Hi-Fi Sound magazine, as the best cartridge of 1978. Since then, several other Ortofon cartridges have received this – and similar – honours, but it was the MC 20 that introduced the international audio community to an unprecedented level of quality in analogue sound.

A Completely New Design – Inside and Out

As the fourth generation of Ortofon's best selling Moving Coil cartridge ever, the MC 20 Super II has a tradition as well as a reputation to live up to. Very conscious of this, the Ortofon engineering team has carefully evaluated every detail and available technology, to create a cartridge which – once more – will define the standard of sound reproduction in its class.

Fritz Gyger Type 1 Stylus With Improved Geometry and Ultra Stable Imaging

The FG Type 1 stylus benefits from the latest technological advances within diamond cutting and polishing. It is now possible to produce a very slim profile which will track even the highest frequency groove information. This is particularly important

for the innermost turns of the groove. At the same time, the FG Type 1 stylus is distinguished by a larger than normal footprint for reduced distortion and record wear. The audible results are crystal clear – a convincing and natural reproduction with a very stable definition of width and depth in the musical perspective.

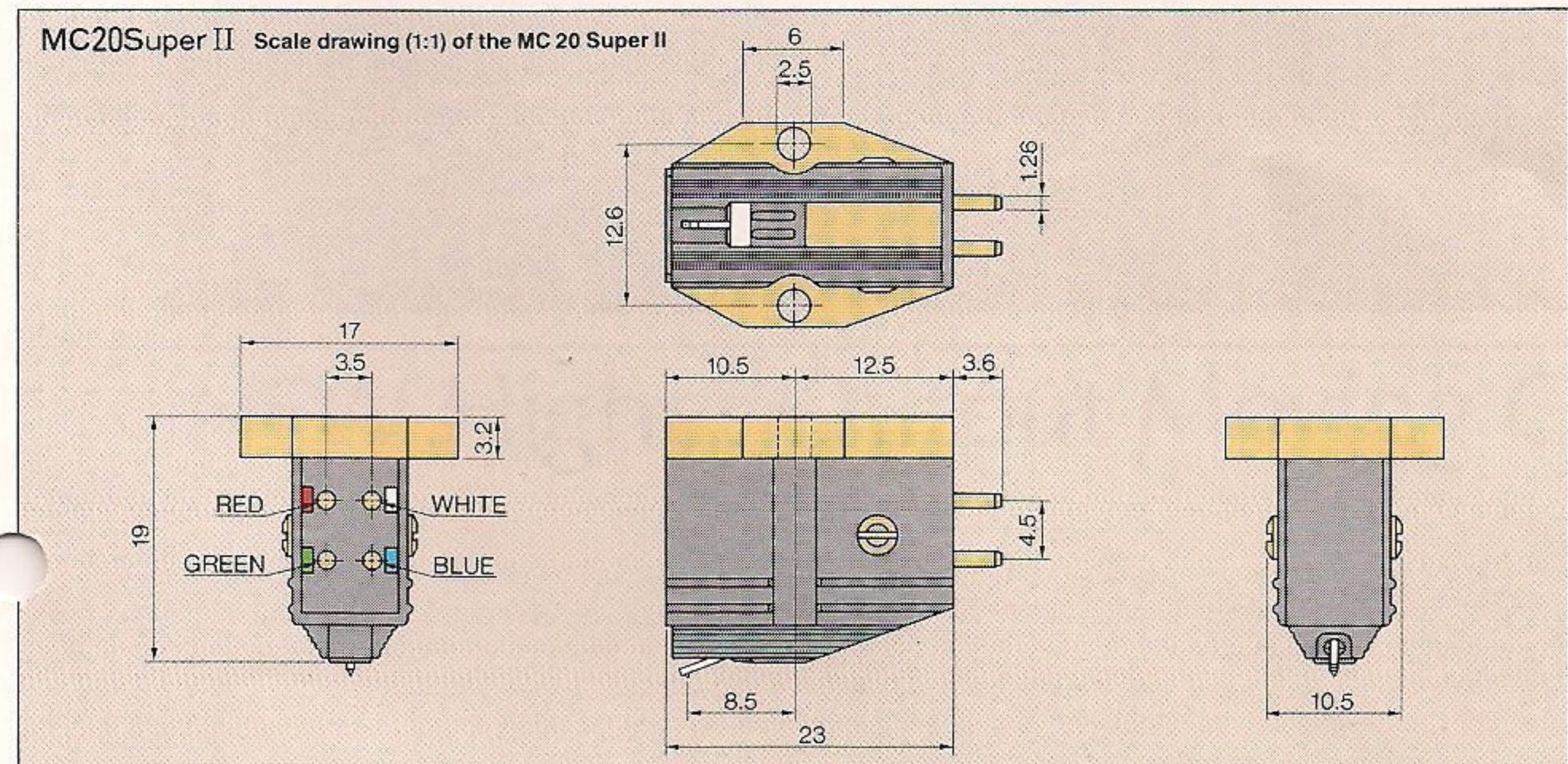
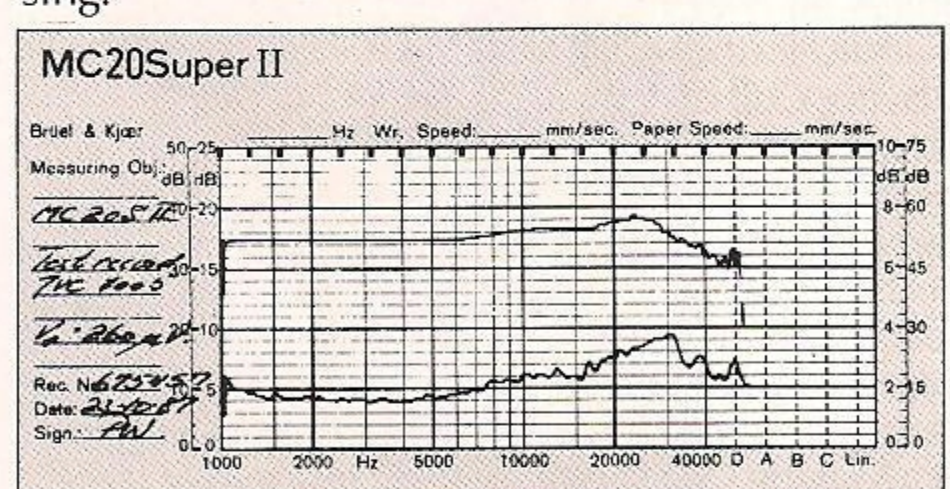
The Ortophase® Concept Adds a New Dimension to Analogue Sound

The inherently phase linear characteristics of the Fritz Gyger Type 1 stylus are further emphasised by the proprietary Ortophase® concept which was introduced in Ortofon's famous MC 2000 cartridge. Statistically reliable listening tests and extensive laboratory studies have demonstrated the importance of phase linearity in the reproduction of high quality audio. But it has taken Ortofon's experience and manufacturing technology to make cartridges phase linear. Since a cartridge is a bandwidth limited transducer, a ruler-flat frequency response will not produce phase linear characteristics. Ortofon's research has shown that a very carefully calculated shaping of the amplitude response will result in a linear phase response.

This is the reason why frequency charts for the MC 20 Super II – and the other new Ortofon cartridges – show a slightly rising level above 5 kHz. Normally, such a response would be interpreted as a result of uncontrolled resonances. In fact, the natural resonances are under full control, and every Ortofon Moving Coil cartridge has been tuned by hand to ensure that it precisely meets the specifications of the Ortophase® concept.

Non-Resonant Aluminium Cartridge Housing Prevents Sonic Colouration

The sound of the MC 20 Super II also benefits from Ortofon's new aluminium cartridge housing.



Internally, the magnetic assembly is securely screwed and glued to the body, and the precision fit of the two anodised extrusions makes the entire housing acoustically inert. The large, solid upper plate makes it easy to achieve a perfect mechanical coupling to any high quality shell.

Technical Data MC 20 Super II

- Output voltage (1 kHz, 5 cm/s): > 0.2 mV
- Channel balance (1 kHz): < 1.0 dB
- Channel separation (1 kHz): > 25 dB
- Frequency response: 20 – 40,000 Hz, +4 dB/-1 dB
- Compliance (dynamic): 16 μm/mN
- Stylus: Fritz Gyger Type 1
- Tracking force: 1.6 – 2.0 g
- Tracking ability (315 Hz): > 90 μm
- Recommended load impedance: ≥ 10Ω
- Weight: 10 g

MC 20 Super Higher Output Moving Coil Cartridge



In 1948, Ortofon introduced the world's first moving coil cartridge. For over thirty years now the moving coil principle has been universally accepted as the finest source for superior sound reproduction.

Since those early days, Ortofon have been continually developing new cartridges and cutterheads.

Our unique experience in moving coil technology has now led us to the introduction of a brilliant new performer - THE MC 20 SUPER.

This new cartridge incorporates the very latest developments to come out of our research laboratories and also employs the acclaimed van den Hul stylus shape in the Mk II version.

The Stylus

The special van den Hul stylus chosen for the MC 20 Super, is an improvement of the original shape. In addition to providing excellent tracking capability, this new slim shape is more robust and places far less critical demands on the cartridge/headshell mounting.

The van den Hul shape is, in fact, the shape that most closely resembles the actual cutting sapphire.

The slim, highly polished profile of the stylus allows a wide contact area to the groove wall and permits:

- tracking of even the highest frequency groove information (especially in the innermost turns of the record groove).
- reduced record and stylus wear.
- reduced distortion and phase error, as a result of the diamond's improved tracking geometry.

Aluminium Housing

In order to gain the maximum benefit from this new diamond, it was necessary to construct an extremely rigid cartridge body that was virtually free from undesired resonances. We have achieved this by engineering the cartridge housing from extended aluminium profile, whilst ensuring that the cartridge weighs no more than 9 grams.

With this cartridge we have also achieved a dynamic compliance of 15 μm/mN, which means that the MC 20 Super can be mounted in all medium to heavy mass tonearms.

Carbon Fibre Plate

By introducing a special carbon fibre plate to the bottom of the MC 20 Super we have resolved the problem of static electricity that normally appears from records as small sparks on the projecting points of the cartridge's metal parts. This plate picks up the static electricity across the entire record surface and thus reduces these sparks considerably. At the same time the charcoal fibre plate, which is made of very hard material, connects the basis of the moving system to the housing and this too prevents undesired resonances.

The advances that made the MC 20 Super possible

We have again broken new ground in the development of the MC 20 Super, overcoming problems that previously seemed impossible.

In order for us to achieve a higher output voltage than normal, it was necessary to place more windings on the armature. Previous attempts at this have resulted in an increase in mass and therefore a loss of performance.

However, with the new MC 20 Super we have been able to keep a low equivalent stylus tip mass of just 0.5 mg with the introduction of unique Ortofon developments.

The first, is a new armature which was originally designed for Ortofon's state-of-the-art Ortophase® MC 2000. This new armature has been designed as a tiny, lightweight cross, which allows the number of minute windings to be increased without affecting the performance of the moving mass. As a result, the cross-sectional area of the windings is identical on both coils, thereby improving channel balance. And the coils are mounted at exactly 90° to each other

(just like the walls of the record groove), improving channel separation.

To meet the higher output the basic magnetic system has also been re-designed to include a stronger magnet and more efficient pole pins thus keeping the necessary number of windings to a minimum. Furthermore, the entire magnetic system is glued to the cartridge body, giving greater rigidity and mechanical stability. This also prevents internal resonances which in turn permits cleaner high frequency response.

In order to exercise complete control over all the moving parts, particularly in the high frequency range where the properties of the diamond influence reproduction most - we have incorporated the extremely stable Wide Range Damping system (pat.).

The advances that we made in linear phase technology on the Ortophase® Concept have also been applied to the MC 20 Super. The resulting linear phase and frequency response characteristics ensure an extremely high standard of stereo reproduction.

The moving coil principle

Moving coil cartridges are based on the use of twin coils of microscopically fine wire (one for each stereo channel), acting as miniaturised power generators; each generating its own electrical current as it moves within a magnetic field. Ortofon uses a patented construction method which allows the coils to adopt two different positions.

In the first position the magnetic field by-passes the coil and no signal is generated.

In the second position when the stylus and cantilever change place as they follow modulations in the record groove, the magnetic flux lines pass through the coil winding and a signal is induced. So, as the stylus traces the record's grooves, the variations in its movements are transmitted to the coils via the cantilever. The voltages that are reproduced are replicas of the signals placed in the groove when the record was cut. And it is because the moving coil principle is also used in the cutting process that the most accurate reproduction of the signals is achieved by the same method.

If additional amplification is required

The MC 20 Super cartridge has been designed for use directly in connection with amplifiers with built-in MC inputs. However, if the amplifier in question does not incorporate an MC input, or if additional amplification is deemed necessary, the 3 ohm input on all Ortofon transformers may be used. Whatever the circumstances, the MC 20 Super will fulfil the needs of a wide public of discerning music lovers.

ORTOFON MANUFACTURING A/S
11 B, Mosedalvej,
DK-2500 Copenhagen-Valby
Denmark

Technical Data

Technical Data	MC 20 Super
Weight	9 gram
Type of stylus	Van den Hul model II, nude
Stylus tip radius	r/R 5/70 μm
Equivalent stylus tip mass	0,40 mg
Frequency response	20-40,000 Hz +4dB-1dB
Output voltage at 1 kHz (5 cm/sec)	> 0,2 mV
Channel separation at 1 kHz	> 25 dB
Channel separation at 15 kHz	> 19 dB
Channel balance at 1 kHz	< 1 dB
Compliance dynamic (lateral/vertical)	15/15 μm/mN
Tracking angle (vertical)	20°
Tracking force range	16-20/1,6-2,0 mN/gram
Tracking force (recommended)	18 mN (1,8 g)
Tracking ability at 315 Hz (lateral)	> 80 μm
Internal resistance	3 ohm
Recommended load impedance	≥ 10 ohm
FIM distortion	≤ 0,8 %