

Micro-Precision 7-Series Component Speakers

Amalgamating authenticity, engineering and brilliance

Introduction

Thomas Hoffmann. Mr Hoff, T Hoff, Herr Hoff, The Hoff; respectfully call this gentleman what you will. But when it comes to true audiophile and audio engineering circles you can rest assured every single person knows exactly who he is. For the very name Thomas Hoffmann is synonymous with extreme high-quality audio. For decades now this musical genius has dedicated his life to developing some of the world's best loudspeakers, and I'm not just talking hyperbolically. Indeed Mr Hoffmann's incredible designs continue to set new benchmark standards for sonic reproduction, with their aural performance bordering on disbelief. Add to this the fact Thomas works consistently with a small engineering team developing some of the world's most advanced materialistic machining methods too, and it all makes sense when you see the company's mantra that states *"the pursuit of sheer aural excellence"*.

Quality is vital, flamboyancy is not

The latest evolution of Micro-Precision's esteemed 7-Series range doesn't demand attention with extravagant styling, and that's entirely intentional. This company has never been big on pursuing visual theatrics. Its focus has always been singular; uncompromising sound quality. If chrome plating and airbrushed flames are what catch your attention, perhaps look elsewhere. The philosophy behind the 7-Series stable is simple yet ambitious: reproduce music as faithfully as possible. No artificial enhancement, no added coloration and no tonal manipulation; just an honest, transparent presentation of the recording. Micro-Precision enjoys a bow wave of reputation that travels before it, one that is no accident nor misplaced. Ergo when I drew the short straw to review these components I didn't have to be asked twice !

Proven reasoning conducive to proven techniques

While Micro-Precision is certainly no newcomer to loudspeaker design, some readers may be less familiar with the fundamentals. Hence, it's worth revisiting the basics. At their core speakers are remarkably simple devices. Their job is to move air, generating compression waves as the diaphragm travels forward and rarefaction waves as it moves back. Those pressure variations are what our ears ultimately perceive as sound. The diaphragm is the heart of the transducer, as it is the component directly responsible for setting the surrounding air into motion. It's also the reason Micro-Precision devoted so much attention to material selection during the development of its 7-Series components. The company's goal was uncompromising realism, and achieving that depends heavily on the physical properties of the diaphragm material itself. To perform at the highest level, the diaphragm must strike a delicate balance between certain attributes. It needs to be exceptionally lightweight to respond instantly to the incoming signal, yet sufficiently rigid to behave as a true piston without flexing or deforming under load. Equally important is controlled internal damping, which suppresses unwanted resonances and prevents the cone from imparting its own character onto the music. Only by satisfying all three requirements can a driver reproduce sound with the naturalness, accuracy and transparency that the 7-Series was engineered to deliver.

Unfortunately, no single material possesses all the characteristics required for the perfect diaphragm. The ideal solution lies in carefully engineered composites, blending the strengths of different materials while minimizing their individual shortcomings. Developing such a material though demands significant expertise, extensive testing and a deep understanding of acoustics and engineering. There are shortcuts of sorts; exotic materials such as diamond and ceramic offer exceptional stiffness with remarkably low moving mass, making them highly effective diaphragm materials. The downside of course is their cost. In that both are prohibitively expensive and typically reserved for ultra-high-end applications like Micro-Precision's superb Z-Studio range. Another proven path to natural, uncoloured sound is a material centred upon pulp fibre. Lightweight, inherently well-damped, sufficiently rigid and relatively easy to shape, it has long been favoured by designers pursuing musical realism over marketing spectacle. For the 7-series cones Micro-Precision's engineers evaluated numerous hybrid pulp formulations before developing a proprietary composite composed of an ultralight pulp core sandwiched between a thin layer of lightweight yet strong fibre. This was found to deliver the ideal balance of speed, control and tonal neutrality, conducive to sound that is as precise, dynamic and lifelike as can be.

Let's first talk cones

Let's begin our discussion at the cones; the 7"/170 mm 7.16 MK III woofer and the 3"/80 mm 7.8 MK I wideband. Although each is designed for a different frequency range, they share the same engineering philosophy and many of the same construction techniques. At the heart of each driver is a hybrid short-strand pulp and fibre diaphragm, chemically treated to improve resistance to moisture and environmental ageing while further increasing its structural integrity. The result is a cone that combines exceptionally low mass with impressive rigidity, minimising mechanical deformation while maintaining excellent pistonic behaviour and a high Young's modulus. Centrally mounted is a pulp dust cap that performs more than just a protective role. In addition to preventing contaminants from entering the motor assembly, it reinforces the cone along its most vulnerable point along the central axis, further reducing the likelihood of deformation under heavy excursion. Beneath the cone, mounted around the pole piece, are aluminium shorting rings. These serve several critical functions, including reducing inductance-related non-linearity, suppressing modulation distortion and minimising eddy currents within the motor. They also improve thermal management by drawing heat away from the voice coil former and pole piece, allowing the motor to maintain more consistent performance during prolonged high-power operation. Working in conjunction with a progressive roll spider, the motor assembly maintains precise alignment of the moving components throughout their X-max. Even during large excursions and demanding musical transients the voice coil remains accurately centred within the magnetic gap, ensuring distortion stays exceptionally low while preserving the driver's remarkable composure.

The former material on the larger drivers is selected according to each driver's intended operating range. The 7.16 MK III woofers employ heat-resistant glassfiber formers, while the 7.8 MK I widebands use a lightweight pulp former to maximise transient response across its considerably higher operating frequencies. The CCAW 4 Ohm voice coil on the 7.16 MK III and 8 Ohm coil on the 7.8 MK I are wound using a high-density technique that reduces the unused space between windings, decreasing air gaps for improved efficiency, power handling and control. Combined with an effective cooling system, the result is continuous power ratings of 60 Watts for the 7.16 MK III and 30 watts for the 7.8 MK I wideband. The robust suspension system also allows each driver to comfortably absorb dynamic peaks well beyond those continuous figures without complaint. On paper those ratings may appear modest compared with some of today's power-hungry flagship drivers. In reality, they tell only part of the story. Micro-Precision's design philosophy centres on minimising moving mass rather than simply increasing power capacity. A lighter cone and suspension require less force to accelerate and decelerate, resulting in superior transient response, greater efficiency and a more faithful reproduction of musical detail. A simple analogy illustrates the point. An open-cut mining truck may produce several thousand horsepower, while a Hayabusa motorcycle generates only a fraction of that output. Yet nobody would expect the truck to match the motorcycle for acceleration, agility or responsiveness. Loudspeaker design follows much the same principle. Raw power is meaningless without low mass and precise control, and the 7.16 MK III has a moving mass of 9.3 grams whilst the 7.8 MK I is 1.9 grams.

The motor assemblies are housed in rigid die-cast magnesium baskets that are both magnetically inert and highly resistant to resonance. Finished in a durable black powder coat the baskets provide a clean, purposeful appearance while their generously vented structure allows unrestricted airflow around the motor. A large pole vent on the 7.16 MK III further improves cooling by exhausting heated air from within the voice coil. The back plate also incorporates additional clearance to prevent the former from bottoming during extreme excursions. Despite their substantial motor structures the drivers remain modestly shallow. The 7.16 MK III requires just 68 mm of mounting depth, while the 7.8 MK I wideband measures only 50 mm. Magnetic flux is provided by high-grade Y35 ferrite magnets, and completing the package are CNC machined rear plate and heavy-duty gold-plated terminals, chosen for their excellent conductivity and long-term resistance to corrosion.

Thence the domes

Turning to the 7.28 MK IV tweeter, it quickly becomes apparent that Micro-Precision has applied the same uncompromising engineering philosophy found throughout the 7-Series range. Every aspect of its design reflects a meticulous understanding of acoustics, material science and airflow; ensuring it integrates seamlessly with the 7.16 MK III woofer and 7.8 MK I wideband in both two-way and three-way configurations. At the heart of the 7.28 MK IV is a 28 mm pure silk dome, chosen for its naturally smooth tonal character and outstanding transient performance. The diaphragm undergoes a proprietary treatment process developed entirely in-house by Micro-Precision. Rather than relying on a single coating, the raw silk is successively treated with numerous layers of a specially formulated damping and sealing compound. This painstaking process optimises stiffness, controls resonances and protects the diaphragm from environmental influences. As a result, the tweeters combine remarkable clarity with exceptionally low distortion, making them capable of reproducing the finest musical detail with effortless precision.

Turn the 7.28 MK IV over and the attention to detail continues. The housing is a beautifully CNC machined aluminium affair, chosen not only for its magnetic inertness but also for its excellent thermal conductivity. The housing is alternatively available with black anodising, or even without the top mounting ring entirely if desired. Contained within the rear chamber is a sophisticated acoustic trap featuring a labyrinth of reinforcing ribs. This carefully engineered structure absorbs rear-wave reflections and suppresses unwanted resonances before they can influence the diaphragm, while simultaneously transferring heat away from the motor assembly and into the surrounding housing. The result is a cleaner acoustic environment and improved thermal stability under sustained operation, thus allowing for a 100 Watt continuous power handling figure. Sadly, incorporating such an elaborate rear chamber results in a mounting depth of 26 mm; but that's the harsh reality of high-end tweeter design. Serious motor systems and properly engineered rear chambers occupy space, physics won't allow for shortcuts if your goal is ultimate performance. The motor employs a 3.5 Ohm CCAW voice coil, constructed using many of the same techniques found throughout the 7-Series coils. Where it differs is in its magnetic structure. Instead of ferrite, the 7.28 MK IV uses a high-energy N52 neodymium magnet, producing a substantially higher magnetic flux density and BL value. The stronger magnetic field gives the diaphragm exceptional control during the fastest musical transients, allowing it to start and stop with remarkable precision. It also allows the tweeters to play low, returning a deep free air resonance of 840 Hz and a dynamic range of 800 Hz right through to 20.000 Hz.

Specifications don't lie

As an aside; these impressive technical specifications are not just marketing rhetoric. Each matched pair of drivers within the 7-Series has comprehensive AP, Audio-Precision technical sheets supplied. This paperwork runs through various technical abilities of your particular drivers, illustrating their exceptionally controlled response and predictable behaviour across their intended operating range.

Installation work

Installation of the components should prove relatively straightforward in most vehicles, though in some the 7.28 MK IV tweeters might present challenges. The 7.8 MK I is also a driver in possession of a healthy depth, ergo may not fit into certain factory locations. It's always advisable to confirm compatibility with your dealer before beginning the installation. For testing, I installed the components in our reference vehicle, which is currently equipped with Micro-Precision 7-Series amplifiers and a Quartorigo Opus 10 subwoofer. Micro-Precision recommends a break-in period of approximately fifteen to thirty hours for the 7-Series components, depending on the specific driver. After running pink noise and sine sweeps focused upon each driver's resonant frequency (Fs) for a duration of time, I evaluated the system using my standard selection of reference music. The playlist spans a broad range of genres, from heavy metal and electronic dance music through to classical and jazz, providing a comprehensive assessment of the components' abilities across different listening environments.

Hit the road Jack

With the break-in period and bench testing complete it was time to hit the road. Initial impressions centre on just how smooth and linear the response of these drivers is. The 7.8 MK I widebands deliver an exceptional level of musical accuracy, with a remarkably even response that is free from obvious peaks or nulls, even before any serious processing is applied. Their vocal reproduction is equally impressive, offering a natural and lifelike presentation without coloration. From the upper reaches of the vocal spectrum around C₆ down through to the upper sub-bass region of E₂, voices are rendered with impressive realism, texture and subtlety. Every nuance and tonal variation is conveyed with a sense of authenticity that makes vocals feel remarkably present. The 7.28 MK IV tweeters follow a similar philosophy. While they initially present with a slightly forward and energetic character straight out of the box, they quickly settle after only a few hours of use; transforming into a far smoother more refined performer. Their response azimuth is wide and their balance impressively linear; devoid of the harsh irregularities that can make lesser tweeters fatiguing. Even when accounting for the challenges of windscreen reflections in a vehicle environment, they maintain an unexpectedly controlled and balanced presentation.

As a complete system, the drivers deliver an exceptionally coherent tonal balance and a precisely focused soundstage. Their wide dispersion characteristics also provide greater flexibility in installation, meaning strict on-axis mounting is not an absolute requirement. In fact, these 7-Series drivers rank among some of the cleanest and most accurate I've experienced. This level of refinement is reflected in their minimal processing requirements, with in-car measurements on the real time analyser showing no more than a 1.5 dB adjustment required across the entire response. Even on the lower orders the 7.16 MK III woofer is quite the imposing number. The combination of a rigid cone structure and carefully controlled moving mass allows these drivers to deliver impressive levels of dynamic impact while maintaining remarkable precision. They produce powerful, authoritative high-subbass, midbass and lower-midrange with a level of control that belies their size.

Conclusion

Coming into land; Micro-Precision's 7-Series components rank among the cleanest and most refined speaker systems currently available within the *realistically affordable* market. Their exceptional tonal accuracy, linear response and inherent neutrality combine to create a presentation that feels remarkably natural and true to the original recording. They are genuinely top-tier by both name and performance, with only a select few competitors coming close to challenging them for realism, transparency and musical authenticity. Micro-Precision is a brand well known amongst audiophile circles; a single listening session is all it takes to understand why. Once heard, their level of refinement and realism speaks for itself.