

Micro-Precision 3-Series Component Speakers

Inspired by excellence, refined to perfection

Introduction

Dwelling within premium car audio circles lends itself to a familiarity with certain manufacturers. Despite often sporting unconventional names, many of these companies deliberately remain boutique; preferring engineering excellence over mainstream recognition. German manufacturer Micro-Precision is a perfect example. *"What's the name of company again, Micro-something?"* is a question I hear with remarkable frequency. No disrespect to the mainstream brands, through many are comparatively ordinary; but when talking about the nature of designers like Micro-Precision there's a big hint within the name folks. And behind that Micro-Precision name lies one Thomas Hoffmann, an individual as much a true pioneer as he is an engineering powerhouse. For decades Thomas and the engineering team at Micro-Precision have been designing and developing superb car audio components, and unlike many competitors that merely rebadge products; Micro-Precision manufactures its own premium audio components in house. In doing so, it has firmly established itself among the elite names in high-end car audio worldwide.

Next on the agenda

There was a point within its illustrious tenure where Mr Hoffmann found himself facing a dilemma that most engineers would envy; what do you create next when your catalogue already spans virtually every high-end market segment? The Micro-Precision stable stretched from its mid-level 5-Series and high-level 7-Series ranges, through to the formidable Z-Studio behemoths; arguably among the finest component speakers ever produced. Rather than refresh existing products with cosmetic updates, Thomas chose the far more ambitious path, setting out to design an entry level range capable of wearing the mighty Micro-Precision name. Drawing upon technologies, materials and design philosophies previously reserved for its flagship products; the result was the aptly named 3-Series. A range that comfortably outperforms not only its direct rivals, but many products positioned considerably higher in the marketplace.

What's important and what's not

One outcome Micro-Precision didn't want with the 3-Series was for it to be endless numbers of shapes, sizes and average quality. Hence the range remains modest, with the main course being a simple two-way component set. So if you want mainstream stuff where x% failure rate is acceptable, then Micro-Precision is happy to bid you a most pleasant farewell. Whereas if you're interested in getting some impressive yet affordable componentry in your ride then read on. For as aforesaid the 3-Series was designed to be a simple yet elegant offering that will introduce you to the world of high-end German car audio; without introducing you to a mortgage broker.

Fundamental design

Without further ado let's get into it. Beginning with the 3.16 MKIII woofer, appearances prove wonderfully deceptive. At first glance the 167 mm driver looks relatively conventional, yet its engineering is anything but ordinary. The cone begins with a machined high-grade blackened aluminium diaphragm. This material was selected not only for its inherently smooth tonal characteristics but also its superb strength; as it dramatically increased stiffness while contributing exceptional damping properties; all without adding unnecessary mass. The resulting alloy cone achieves an outstanding Young's Modulus, allowing it to retain its structural integrity even under significant mechanical stress. A carefully profiled dust cap occupies the centre of the diaphragm, simultaneously suppressing unwanted resonances while optimising sound dispersion ahead of the piston surface. Complementing the cone is a purpose-designed butyl rubber surround, whose parabolic profile is strengthened at the weak points allowing it to progressively flex according to excursion demands. This maintains precise alignment throughout the driver's 53 Hz to 5000 Hz operating range. Supporting the lower suspension is a progressive polycotton spider, which works in harmony with the magnetic assembly to ensure consistently linear movement while contributing to the driver's impressive 89.4 dB sensitivity.

Smooth motoring

The motor assembly is every bit as sophisticated. At its heart sits a 1" / 25.4 mm glass fibre former carrying a four Ohm anodised alloy voice coil, refined by the inclusion of dual copper shorting rings. One resides within the pole piece while the second is embedded inside the magnet assembly. Without venturing too deeply into electromagnetic theory, these rings significantly reduce the adverse effects of eddy or Foucault currents by modifying the magnetic field through Faraday's Law of Induction. The result is reduced inductance, lower distortion and noticeably cleaner reproduction. The rear of the driver features a sturdy yet lightweight stamped steel basket incorporating four main structural spars supporting the Y35 grade ferrite magnet. Numerous ventilation intake ports surround the perimeter, allowing cool air to flow across the voice coil and former before exiting through a gently flared 10mm pole vent. This highly effective cooling arrangement enables the driver to comfortably sustain 60 Watts of continuous power while tolerating transient peaks approaching double that figure. The suspension's low resonant frequency of 62 Hz combines with a relatively high Q factor, making the driver exceptionally well suited to automotive door installations. Completing the package are gold-plated terminals connected to the voice coil via silver-coated tinsel leads.

Moving down the diameters

Micro-Precision has applied the same uncompromising philosophy to the 3.28 MKII tweeter. Its 28 mm pure silk dome has received a proprietary chemical coating that enhances both damping and high-frequency extension, while the carefully optimised dome profile delivers superb off-axis response. Even the protective grille has been thoughtfully engineered, employing a hexagonal perforation pattern to minimise acoustic obstruction. Beneath the diaphragm lies an equally sophisticated motor featuring a copper shorting ring working alongside a four-ohm voice coil wound around a thermally efficient 28 mm aluminium former. Driving the assembly is a meticulously designed N42 neodymium magnet whose geometry concentrates magnetic flux precisely where it is needed most. Cooling abilities was not left to chance, with the ferrofluid cooling system being capable of supporting 60 Watts of continuous power handling while allowing exceptionally free diaphragm movement. The result is lower resonance frequency of 1542 Hz and an extended low-frequency limit and an effortless integration with its larger sibling woofer.

Crossing the streams

Bringing both drivers together is a beautifully executed crossover network. Housed within robust ABS enclosures topped by clear acrylic covers; the epoxy-resin circuit boards are populated with premium components including hand matched Mundorf M-Cap and Audyn ultra-low loss polypropylene capacitors, MOX resistors and low-resistance air-core inductors. Together they form first-order 6 dB crossover slopes centred at 3500 Hz. You might be thinking that's a fair few components for simply first order slopes, however bear in mind that unlike many competitors in this price bracket Micro-Precision also incorporates phase-correction circuitry. Often referred to as impedance linearisation, this circuit improves electrical alignment between the drivers, ensuring their outputs arrive cohesively at the listening position. Demonstrating further attention to detail is a twin-position tweeter attenuation adjustment that allows precise tailoring for virtually any installation.

Refreshingly easy installation

Installation will prove refreshingly uncomplicated in most vehicles thanks to mounting depths of just 64.2 mm for the woofers and a mere 14 mm for the tweeters, dimensions that suit many modern vehicles. After allowing the speakers to settle in using correlated pink noise and gentle sines, I assembled a broad selection of familiar recordings and settled in with high expectations based on previous experience with Micro-Precision products.

Sweet, sweet music

Despite their entry-level nature the 3-Series didn't disappoint. Thomas Hoffmann and his team have a serious reputation for producing speakers that sound exceptional straight out of the box, and this series elevates that reputation even further. Whilst it's true that many a high-end speaker *absolutely need* a lengthy running-in period before revealing their full potential, the 3-Series are a different beast. Due to their graceful free-flowing suspension, they display remarkable composure from the very first track. The woofer drivers deliver weight, authority and outstanding definition; extending effortlessly into the lower midbass with convincing realism that validates every aspect of their cone and suspension design. At the opposite end of the spectrum, the tweeters remain astonishingly refined. Violins retain their natural sweetness, cymbals shimmer with lifelike decay, and every subtle harmonic emerges with clinical precision yet never sounding harsh or fatiguing. Vocal representation is wonderful, presenting as natural and lifelike without excessive coloration. From the upper reaches of the vocal spectrum around C₆ down through to the lower registers of F₂ / G₂ just below 100 Hz, voices are presented with convincing realism and well nuanced tones. The crossovers perform seamlessly, creating an imperceptible transition between the drivers and producing an exceptionally coherent presentation across the claimed 53 Hz to 22000 Hz frequency response. The overall tonal balance and linearity are simply exemplary.

Conclusion

Rocking up at your local chain-store sound-off and announcing that your system comprises of Micro-Precision components will likely return you occasional befuddled or confused glance. However once punters hear what the superb 3-Series drivers are capable of versus their modest asking price; they'll be convinced beyond doubt. Thomas and his team at Micro-Precision have spent decades earning a reputation for outperforming the competition through engineering excellence rather than marketing and aggressive funding, with the 3-Series being yet another compelling demonstration of exactly why the Micro-Precision name and reputation continues to grow.