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EQUIPMENT REPORT

Critical Mass Systems MAXXUM Equipment Stands and Racks

MAXXimum Performance

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If you've been to trade shows over the past two or three years in Denver, Vegas, or Munich, you're already aware of the Chicago company Critical Mass Systems. Its equipment stands have been regularly featured in some of the highest of high-end rooms—and its top-line products, the gorgeous MAXXUM rack and stand, have been purchased by several big-time industry players for use in their own homes.

Of course, you have to be made out of money to afford a MAXXUM rack, which (depending on size and finish) retails for between \$17k and \$40k. However, Critical Mass makes far more competitively priced stands/racks in its PXX and QXX Series and a variety of shelves that incorporate many of the same design elements found in the MAXXUM.

Though I've known Critical Mass Systems' proprietor and chief engineer Joe Lavrencik for nearly ten years, the truth is I that I haven't always been an uncritical fan of his work. In fact, throughout most of the past few decades I haven't unreservedly liked *any* "vibration-suppression" support system, which to my ear didn't just kill resonances but also killed the dynamic life of the equipment sitting on them. With Lavrencik's latest designs I'm happy to say this is no longer the case. Indeed, in his current Critical Mass racks and stands

Joe and his gifted engineer son Justin have found a way of stripping away resonance-induced coloration, ringing, grain, and blur without (and this is, uh, critical) any diminishment of the attributes that led you to choose your front-end and electronic components in the first place. On the contrary, their virtues are made plainer and so are their flaws, which, to me, is the very definition of transparency to sources.

For audiophiles who've been around as long as I have, controlling resonances in a hi-fi system has always been a key concern—and how to do this without throwing the musical baby out with the resonant bathwater has always been the key issue. Back in the day, when all of us listened to LPs and turntables, it was obvious that record players were picking up floor-borne and air-borne vibration. Indeed, most of us used to walk on tiptoe when we came near our 'tables, lest a heavy footfall induce record skipping. At that time the only fix seemed to be mass, and it was a rare audiophile who didn't own a thick slab of marble or granite on which he mounted his 'table, although the truth was that marble or granite slabs (even when they were suspended on shelves attached to studs in the wall) didn't really damp resonances very well. This was because damping via mass alone wasn't the answer to resonance control—just as damping via mass alone isn't the answer for a loudspeaker enclosure.

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For me, the first significant step in resonance control (or resonance dissipation) were Tiptoes—those pointy aluminum cones set beneath a component in a tripod-like pattern (or attached to the component as replacements for existing rubber feet). What Tiptoes seem to do was change the “Q” of whatever was set on top of them, typically turning a long-duration, broadband resonance that muddied up the midbass into a narrower-band, shorter-in-duration resonance that seemed to vacuum that mud away. Although the effect of Tiptoes was dramatic and predictable, it was also less than ideal, in that Tiptoes didn’t just reduce the duration, width, and intensity of ringing in the midbass; in the process they also tended to depress the “power range” of 100Hz–400Hz, producing greater clarity in the low end at the price of a leaner-than-life overall tonal balance and a slight accentuation of the upper mids. Still and all, adding narrower “Q” to the resonance-control formula was a great improvement over damping via mass alone.

I’ll skip over various cushioning pads, sandboxes, and air-bladder devices since all of them were either overly deadening or overly springy (and none of them worked consistently well) to get to the next big step forward in support systems: Stands and racks that used constrained-layer construction, in which different materials were combined to ensure that mass, stiffness, and damping were addressed simultaneously (and ideally). In theory, constrained-layer technology was *the* significant breakthrough in resonance control. In practice, coming up with just the right formula of mass, stiffness, and damping to dissipate kinetic energy as heat without also draining away the tone color and dynamic life of the product seated upon the stand or rack was a tricky proposition. This was about the time that I first began to listen to Joe Lavrencik’s Critical Mass stands, and, as I noted, while they improved clarity his early efforts tended to sit on dynamics, turning an exciting presentation into an overly polite one.

Throughout most of the first decade of this new century, I relied on Lloyd Walker’s Proscenium equipment rack (and amplifier stands). Like his table, Lloyd’s rack used and improved upon some of the better ideas of the past. In combining mass-loaded support struts (filled with lead shot) with thick, beautifully finished rock-maple shelves, and massive Tiptoe-like “Valid Points” seated on lead pucks, Lloyd was effectively making his own version of a constrained-layer-damped support-system, and the stand did indeed lower noise and increase resolution, without touching dynamics or deracinating tone colors, although it didn’t kill floor-borne resonances (or it didn’t in my loose-floorboard listening room).

At the end of the decade I got the chance to try Peter Bizlewicz’s outstanding Symposium Acoustics Isis rack, which, in its pioneering use of aircraft-aluminum cups and tungsten carbide balls, introduced a new element to resonance control—roller bearings. By using constrained-layer-damped shelves in a beautifully machined aluminum rack, with both the shelves themselves and the struts on which the shelves sit separated from one another by roller bearings, Symposium’s Isis did not just turn resonant energy more efficiently into heat; it also seemed to more effectively drain that energy away without feeding it (or select parts of it) back into the items sitting on the shelves. I say this because, in the listening, there was a *marked* increase in neutrality and transparency when components were seated on the Symposium stand. It was as if the sonic presentation were “deburred”—little areas of tonal, textural, and dynamic roughness (what I assume were little resonant peaks) were smoothed down into uniformity. The presentation might have been just a touch “politer”

dynamically than it was via, oh, the Walker Proscenium rack (although nowhere near as polite as it was with Critical Mass’ first stands), but it was also much smoother and more neutral in balance and much more subtly detailed, with absolutely top-notch resolution of very-low-level detail and superior isolation from footfalls. (I still use the Symposium Acoustics Isis rack and recommend it.)

It was soon after my very positive experience with the Symposium Isis rack that I came across Joe’s MAXXUM stands at a CES show. It was obvious from looking at these gorgeous objects that Lavrencik’s thinking about equipment stands—and his method of constructing them—had greatly advanced. Where Critical Mass’ mid-2000s efforts had looked a little “garage-built,” the MAXXUMs appeared to be anything but.

Constructed of aerospace aluminum alloys, surgical-grade titanium, and tungsten carbide, the racks and stands use an X-frame architecture. In the MAXXUM multi-level racks, four thick, round, beautifully anodized and gorgeously painted aircraft-grade aluminum struts are vertically coupled to the CNC-milled, horizontal, X-shaped, aircraft-aluminum frames below and above them. The titanium bolts used to attach the struts to the frames (and to each other via openings in the X-frames and precision-tapped screw holes in the struts) are machined to such fine tolerances that unless each X-frame of a multi-layer stand is perfectly leveled, the bolts see stresses that won’t allow the struts to couple (or decouple) to each other without sticking. In the single-level MAXXUM stands, no struts are necessary and only a single X-frame is used. All MAXXUM racks and stands use massive constrained-layer Tiptoe-like feet.

In both racks and stands, Critical Mass’ shelves are mounted on the X-frames via fixed tungsten-carbide bearings. Inside the shelves is a proprietary “vibration-filtering” system that has been awarded a U.S. patent (U.S. Patent No. 7,290,759). Components are not placed directly on the shelves (or aren’t intended to be). Supplied flat metal discs go between the component’s feet and the surface of the shelf itself. (No other vibration-control devices, such as Tiptoes, should be placed between a component and the shelf’s surface.)

Although the Critical Mass MAXXUM and the Symposium Acoustics Isis share certain design features, the Isis is not built to the same tolerances as the Critical Mass stand. (Of course, it doesn’t cost what the MAXXUM costs, either.) Nor is the Isis as sturdy as the MAXXUM, which can bear up to 400 pounds of weight per component-shelf without deformation. Indeed, I ended up trying out the MAXXUM stand because Da Vinci’s Peter Brem asked me to use it under his very heavy AAS Gabriel/Da Vinci Mk II turntable. Since Brem is as much of a perfectionist as anyone I know in this industry, the fact that he extolled the MAXXUM impressed me. Plus, to be honest, the thing looked so cool I couldn’t resist.

As I noted at the start, it was immediately obvious that the MAXXUM stands were lowering resonant distortions beyond what I was used to with the Walker or the Isis, since it was immediately obvious that the resolution of low-level timbral and textural detail, transients (both starting and stopping), pitches in the bass, image outlines, soundstage depth, width, and height, etc. was greatly improved. Of course, you don’t know what you’ve been missing until you hear something better, but it was as if the myriad tiny details that go into making up sonic facsimiles of instruments and voices suddenly snapped into sharper focus, with a large concomitant increase in realism.

I’ve used some of these examples before, but the magical clarity

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with which the Raidho C 1.1s reproduced the teeny, tinkly arpeggios on Bozay's *Improvisations for Zither*, turning what had sounded like a passage that was being played *legato* (the notes blurring slightly together) into a *staccato* performance in which each note was obviously being sounded distinctly and separately, was in no small part owed to the MAXXUM stand upon which the Da Vinci turntable/tonerarm was sitting. How do I know this? Because when the MAXXUM stand was taken out and another (excellent) stand substituted, the clarity with which the arpeggio was being reproduced was diminished—and with that loss of clarity and focus came a reduction in realism.

I could say exactly the same thing about the uncannily lifelike violin on Charles Wuorinen's *The Long and the Short*. Through the Raidho C 1.1 (and Constellation electronics that are seated on MAXXUM stands), the Walker Black Diamond Mk III record player and Clearaudio Goldfinger Statement cartridge are capable of making the instrument sound realistic throughout the entire length of the performance. However, take the MAXXUM stands out from under the Constellation Centaur amp and Virgo preamp—as I did—and use excellent but less effective substitutes, and enough of that realism is dissipated to turn a gilt-edged carriage back into a shapely pumpkin.

This may not be a particularly welcome piece of news (given the MAXXUM's price), but it is a demonstrable fact (or at least it has been demonstrated to my satisfaction) that the Critical Mass MAXXUM racks and stands allow the equipment seated on them—be they analog or digital front-end components or preamps and amps—to show their truest colors. And, as I noted before, this goes for their idiosyncrasies as well as their virtues. Pegging the slight textural differences between the C 1.1's ribbon tweeter and ceramic mid/bass or the slightly "bottom-up" balance of the Constellation Performance Series electronics was made much easier because of the MAXXUMs. It's not that you don't hear these things when your sources and electronics are mounted on other stands or racks; their character is just a little more distorted by floorborne-, airborne-, and self-resonances. More importantly, you won't hear details of the music or the performance quite as clearly. Although the improvement the MAXXUMs make isn't as gigantic as, oh, a change in loudspeakers, it is big enough, in this game of inches, to make the difference between gear showing well and gear showing its very best (warts and all), and between music sounding exceptionally good and music sounding like the real thing.

Downsides? Well, first and foremost, the MAXXUMs cost a lot—and they're big. Unless you have the dough and the space, the MAXXUMs will be non-starters. However, I can offer a worthy alternative: the Critical Mass QXK racks and stands with Black Diamond Filters (shelving), which (though not as sturdy or as unbelievably cool-looking) will give you about 70% of the MAXXUMs' sound for about 60% of the money—and are not as large and space-consuming either. (If your equipment isn't *super-heavy* you will definitely want to consider the Symposium Acoustics Isis, too.) Second, the MAXXUM stands do take some breaking/settling-in time. The "filters" built into the shelves need to see some weight on them for a week or two before they start showing their best. Third, those *farchachdat* metal discs that Joe insists be placed under the feet of components sitting on the "filtered" shelves can be royal pains—at least they can if you're a reviewer and in the habit

of moving equipment in and out of your system. Unless you're very careful (and even if you are), you can nudge lightish components off the discs simply by swapping interconnects. Fourth, the spacing between shelves in the standard-configuration rack is rather narrow, making for a very tight fit for larger components (and making finding enough clearance to insert those flat metal discs under the components' feet even tougher). Happily, Critical Mass can supply taller struts (at no additional charge) that give you a lot more breathing room between shelves.

Obviously, I highly recommend the Critical Mass MAXXUM stands and racks; indeed, they are my references. For those of you with the dough (and the space), these beautifully made objects are must-auditions. Once you see them you're going to have trouble resisting purchasing



SPECS & PRICING

Type: Constrained-layer-damped multi-level equipment racks and single-level equipment stands

Price: \$16,950, MAXXUM three-level rack (one-of-a-kind three-level designs to \$40,000); \$5650, MAXXUM single-level equipment stand; \$10,870 for three-level QXK rack with Black Diamond and Black Sapphire shelves; \$4890 for single-level QXK equipment stand with Black Diamond shelf

CRITICAL MASS SYSTEMS
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JV's Reference System

Loudspeakers: Raidho C1.1, MartinLogan CLX, Magnepan 1.7, Magnepan 20.7, Estelon X Diamond

Linestages: Constellation Virgo, ARC Reference 5 SE

Phonostages: ARC Reference Phono 2 SE

Power amplifiers: Constellation Centaur, ARC 250, Lamm ML2.2

Analog source: Walker Audio Proscenium Black Diamond Mk III record player, Da Vinci AAS Gabriel Mk II turntable with DaVinci Virtu tonearm, Acoustic Signature Ascona with Kuzma 4P tonearm

Phono cartridges: Clearaudio Goldfinger Statement, Ortofon MC A90, Benz LP S-MR

Cable and interconnect: Synergistic Research Galileo, Crystal Cable Absolute Dream
Power Cords: Synergistic Research Tesla, Shunyata King Cobra, Crystal Cable Absolute Dream

Power Conditioner: Synergistic Research Tesla III
Accessories: Synergistic ART system, Shakti Hallographs (6), A/V Room Services Metu panels and traps, ASC

Tube Traps, Critical Mass MAXXUM equipment and amp stands, Symposium Isis and Ultra equipment platforms, Symposium Rollerblocks and Fat Padz, Walker Prologue Reference equipment and amp stands, Walker Valid Points and Resonance Control discs, Clearaudio Double Matrix SE record cleaner, HiFi-Tuning silver/gold fuses

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The ultimate in aesthetic and performance, MAXXUM mitigates vibration in the surrounding environment to realize the true potential of your components.

"And in a full-blown reference-class system, the Critical Mass Systems amplifier stands are an absolute necessity."

Robert Harley, *The Absolute Sound*, Issue 249

"Obviously, I highly recommend the Critical Mass MAXXUM amplifier stands and racks: indeed, they are my references."

Jonathan Valin, *The Absolute Sound*, Issue 226



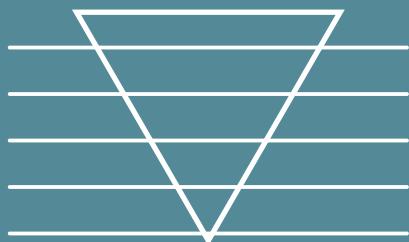
MAXXUM RACK



MAXXUM AMPLIFIER STAND



critical mass



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