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EAT Cool Dampers...

A tube damper (and cooler) that actually works!

by Roy Gregory

The tube damper: how can something so prosaic prove so problematic? On the face of it the concept's simplicity is exceeded only by its obvious common sense. Here you have a thin glass bottle containing a skeletal and far from rigid metal structure, through which you are passing a delicate audio signal. First you attach it to a chassis that generates its own internal source of vibration, then you place it in a system where it generates a significant amount of external (acoustic) vibration. Add to that the fact that the operating temperature is such that the device degrades over time and you have a less than optimum situation as regards audio fidelity.

Well, hi-fi has never been short of lateral thinkers, many of whom have translated their theories (and I use the term loosely) into various after-market accessories. Unsurprisingly, the humble valve, sticking up like the proverbial sore thumb, has presented an obvious target and many an attempt and much energy has been expended over the years in attempts to improve its mechanical lot. These have extended over the years from the disastrous (the Sorbothane tube rings that melted) to

the inventive (the excellent but unweildy Pearl Coolers) to the simple and elegant (the Sicomin and Duende Creatura rings). Of these the Pearl devices, annular copper bellows that clamp around the tube with external O rings to hold them in place were extremely effective, both cooling and damping the device, but few amplifiers had space around their valves to allow their use. The Sicomin carbon-fibre rings worked but I have doubts about their surface coverage, sufficient I suspect to raise the working temperature of the tube. I've used the Pearls wherever practical, recently augmented by the elegant Duende Creatura teflon dampers, small rings held in place by peripheral titanium springs. Now comes an alternative solution, at least as far as (the smaller) nine-pin tubes are concerned, and one that promises the thermal advantages of the Pearl Coolers without their dimensional challenges.

EAT, producers of premium valves, most notably their excellent KT88 reviewed in Issue 34 and the 300B discussed elsewhere in this issue, are now offering the Cool Damper, a device whose function should be self

explanatory. The form however, is less so. It consists of a cylindrical aluminium extrusion, finned to form a heat sink. The result is 34mm in diameter and 23mm tall and simply slips over the tube to be treated. The clever bit is on the inside faces of what is actually a hexagonal internal profile. Starting in each corner, there are three equidistant grooves extruded into the inner walls of the heat sink. Each Cool damper arrives with six teflon-carbon composite strips, one side circular to interface with the grooves in the heat sink, the other a pair of lips that extend into the space between damper and tube, thus providing mutual support. The teflon-carbon strips damp the glass envelope as well as providing a gap between the heat sink and the tube surface maximizing the chimney effect and hence the thermal efficiency. But the really clever bit is the provision of three grooves for each spacer. Move it along the face away from the corner and you move it closer to the centre of the hexagon and thus the valve wall. By this simple expedient, tubes from 19mm to 23mm in diameter can be accommodated, which covers most eventualities. If the Cool



► Damper slips down the tube in use it needs the strips adjusting. That aside, installation is a cinch. All you need to do is decide whether you want ostentatious red or the more subtle grey versions. The Cool Dampers cost £15 each and if required, a rather nice storage box that will hold up to 12 Dampers beneath its magnetically retained lid will set you back another £25. Why you'd want this item is slightly beyond me, as once you've heard the Cool Dampers in your system, the last place you'll want them is sitting in a box.

I used the Cool Dampers with the c-j CT5 and also in place of the Pearl devices which are a permanent fit on the input tubes and phase splitters of the JA30s, thus employing them both in pre and power environments. I had insufficient to try them with the EL84s in the Linear Bs but that is an attractive alternative application which I'll investigate if and when I can prise 16 Cool Dampers out of EAT/Absolute Sounds.

In use, the EAT dampers run hot, which speaks volumes for their thermal efficiency. At the end of the day I can't comment on their impact on the longevity of tubes, but Pearl have convincing data on the subject of their devices. In the end, the efficiency of any heat sink depends on its area and the Pearls, with their much deeper fins score in that regard. Whether that difference is critical is hard to say, especially when you consider that in many instances the demands they make on space precludes their use. In the case of the CT5 they would only fit if the perspex finning that guards the tubes were removed, an unlikely and visually reductive step. So the EATs score big on practicality with no issues regarding installation. Indeed, my only concern would be using them on horizontally mounted tubes where

the lack of chimney effect might actually result in the device running hotter!

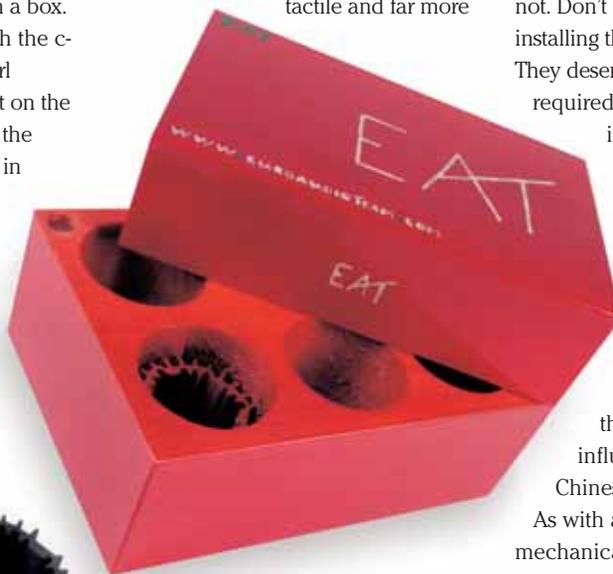
Sonically, the EAT Cool Dampers are a conspicuous success. Compared to the Duendes in the CT5, they delivered a fuller, more powerful sound, with greater weight AND definition: no trade off here between energy and definition. Playing Steve Dawson's superb soul homage 'Love Is A Blessing' (from the Dolly Varden front-man's new solo album Sweet Is The Anchor – Undertow CD-UMC-026) the bass is deeper, more tactile and far more

results were consistent too across the various amps and applications. In every case, separation and detail were improved without robbing the system of energy or impairing musical flow. In fact, the cleaner, more precise bass gave a welcome boost to the pacing and momentum of tracks, further reducing the mechanics of reproduction.

The EAT Cool Dampers are one of those accessories that at £15 each are cheap enough to simply buy on a whim. Perhaps that's a good thing – perhaps not. Don't make the mistake of simply installing them and leaving them alone. They deserve the time and attention required to listen and assess their

impact properly. They're surprisingly beneficial to the point that I can't see their cost ruling them out, even in the case of the most budget conscious valve electronics – perhaps the arena in which they'll have the greatest influence. Tube outputs in Chinese CD players anyone?

As with all devices that influence the mechanical/environmental aspects of system performance, results will vary with different situations, but if they even begin to approach what I've heard here they'll deliver ample reward for the funds and time invested. What's more, they might just go some way to restoring your faith that genuine, musical benefits don't have to cost the earth. An early audition is enthusiastically recommended. ➤+

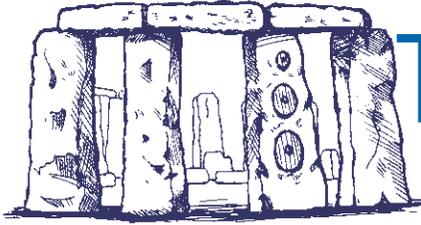


pitch precise, underpinning the funk groove that drives the track. Texture and attack on acoustic guitars is far more individual,

with better definition of harmonic structures. Voices are more natural, both tonally and in terms of diction, which with the better localization and separation allows them to project better, with greater impact and meaning. The separation of the close harmonies on the title track is breath-taking in its fragile beauty. In short, the sonic impact is wholly positive, while the promise of greater consistency through a longer working life is an added bonus. The

EAT Cool Dampers
£15 ea.

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The History Man

by Richard S. Foster

The Euro Audio Team 300B

I love transistors; they do so many things right. It's just that I finally realized that tubes do even more things right – at least sonically speaking. Right about now, a few of my long time friends are probably rolling on the floor and laughing their heads off. Clearly, I wasn't always a tube person. Sometime in the early 1990's I had this operation you see....

The last 35+ years have been quite an interesting path for me as a hobbyist. The learning curve has been tremendous and along the way one of the most important things I've learned is that tastes definitely change. Today I'm living with a system I truly love but one that a few years back I'd have bet big money I would never, ever own. I've gone from a very large listening room to a much smaller one, an equally massive set-up to a (physically at least) much more modest one. I've gone from transistors to tubes – and within the tube family, I've been able to enjoy the fruits of KT99s, KT90s, KT88s, Tung-Sol 6550s, Svetlana/Sovtek 6550s and now 300Bs. It's my recent experiences with the latter that I'm going to share, starting with the epiphany represented by Euro Audio Team's version of this venerable design.

My current amplifiers are strange little beasts. They are Manley Neo-Classic SE-PP 300s and they allow you to switch from push-pull to triode mode. Yes, you read that correctly. You can even do this 'on the fly'. In other words, mute the amps, flip the toggle and you can hear the transformer whining (in every sense of the word) as it switches from either triode to push-pull or vice-versa. If, like me, you're at a loss to understand how this is achieved then I refer you to the Manley website which offers considerable insight into the design philosophy of the amplifier. As I'm principally concerned with tubes here, that's the place to find the answer to the "what is he talking about?" dilemma I've just posed.

(<http://www.manleylabs.com/containerpages/seppneo.html>)

Let me state right now how much I love these amps. I spent considerable time listening to a variety of amplifiers to match my JMLab Micros. As we've said many times, the amp /speaker interface is one of the most critical in the system and never more so than with a ruthless little mother like the Micro.

Yet the moment I hooked the Neo-Classics

up, I knew they were a perfect match and I've never regretted that

decision. I have all the power I

need for these speakers (now the Micro Be's) and the best part is the amplifiers do not heat up my room in the hot and humid summer. There's nothing worse than an indoor barbecue with lots of glass as the cooker.

Believe me because I say that as someone with 16 KT88s running simultaneous overtime in his past.

The Manleys run a single pair of 300Bs per side (there's also a 6SL7 input tube, a 6SN7 driver tube and a pair of 5U4 rectifiers).

They deliver 25 watts in push-pull mode and 12 Watts single-ended. They

also arrived equipped with Electro Harmonix tubes (all save the rectifiers). Now, tube quality varies and some OEM suppliers are more reliable than others.

The Sovtek 6922 and 6550A are good examples of dependable product that's been around for a while and I had no reason to be suspicious of the Electro Harmonix items that issue from the same supplier.

Let me first say that I'd been living with the original tubes in the amplifiers since mid-2002. The crackle/noise issues began in 2004 and this is when I decided – with the help of my friends – that it was time to do something about the glassware. Initially, it was a noise issue with the input and



▶ driver tubes. Advice and experience has led me to a 'Black Base' Philips 5691 as the input tube (6SL7), and a Sylvania Mil Spec 6SN7WGTA for the driver tube. The crackle I'd occasionally suffered is now history. But the other (sonic) benefits made me cast a jaundiced eye in the direction of the output tubes, so, later that year when I was offered a quartet of EAT 300Bs by Ms. Jozefina Kraulcova, President of Euro Audio Team, I was quick to accept.

Changing tubes isn't a plug and play proposition. I took a day last fall and installed the EAT tubes. Biasing on this amplifier is set between 490 and 510 mVDC. Initially I turned the biasing almost off when the tubes were installed. I brought them up to level after allowing them to warm up for about an hour. I was very surprised over the next few days as to just how stable the tubes were. Only the smallest of adjustments was necessary and now I check them perhaps once a week with almost no adjustment necessary.

Well, with the tubes installed and stable, I was excited to say the least. I'd read the excellent review by Chris Binns in Issue 34 of their KT88's and so I had high expectations for the 300B. Let me also say that the visuals on this tube are quite imposing. It's about an inch or so taller than other 300B tubes I've come across and looks great!

The moment of truth was at hand and I duly cued up something familiar – the Speakers Corner re-issue of Mercury SR90153, *The Birds*. I still remember the moment the stylus hit the opening grooves... and my jaw hit the floor. The amplifiers had been literally transformed into these Fire-breathing Dragons with seemingly unlimited power and authority! I couldn't believe what I was hearing. I sat and listened transfixed to the entire side. Then it was on to the Willem Makkee re-mastered copy of The Doors' *LA Woman*. This time it was the whole record I played. And it continued like this for days. All the records I listened to were transformed. Joan Baez, on Cisco's magnificent reissue of *Farewell, Angelina* had a purity of tone I'd only dreamed was on the record. Where it had been closed in (which I only heard after the change to the EAT product) her voice now held this power and openness that was nothing short of astonishing.

I am now hearing what the amplifier is capable of delivering: pure, open, effortless sound with absolutely no apparent restraint. Only after I switched to these tubes did I realize that the Electro-Harmonix product was so weak and closed in. Now more than ever, the match that I thought I was getting for my speakers is truly secure.

These tubes, in my amplifiers, not only give me seemingly limitless headroom, there is a speed and clarity I never expected from a 300B. I listen mostly in the push-pull configuration, however I occasionally play in the single-ended mode and even then find that these tubes offer outstanding bass control. Where the Electro-Harmonix was thin sounding, suffering a bit of glare or harshness on vocal tracks, the EAT is

rich, solid and crisply defined, cleanly handling dynamic steps at both ends of the scale. I've found that in either PP or SE, the EAT tubes have a transparency and focus, a see-through quality with none of the syrupy mush and added softness one tends to associate with the number 300B. The tube is fast, leading edge transients being beautifully traced. Yes, that's right. It's got great dynamic swing and fabulous control, wonderful neutrality and is amazingly even from bottom to the very top. There's no pear shaped sound here, no flabby bottom or rounded and rolled off highs. It's a very natural and musical product, one I'd expect to give years of listening pleasure. If it lasts as long as the solid construction suggests it should, then the sonic benefits make it an extremely cost-effective upgrade on stock tubes.

To be fair, this is not my final word on the 300B. Impressive as the EATs undoubtedly are, the huge gap in performance between them and the OEM Electro Harmonix tubes makes me wonder how they stack up against the other audiophile offerings out there. I now have another three quartets in house and you can expect the news shortly as to how the EAT compares to the Western Electric 300B and Gold Dragon's 4300BC and 300BM.

The difference is that now it's a matter of interest rather than musical necessity. The EAT 300B has been a 100% totally reliable product. Whilst initial impressions with the alternatives suggest that there are definite differences in presentation I really couldn't be happier and I have absolutely no reservations in recommending this tube to anyone looking for a great sounding, reliable 300B. As a benchmark it sets the bar awfully high. ▶+

Manufacturer's Technical Specifications:

Valve Type:	300B Triode
Amplification Factor:	3.9
Filament Voltage:	5 Volts
Filament current:	1.25 Amps
Cathode:	Oxide, directly heated
Maximum Anode Dissipation:	36 W
Transconductance:	5 mA/V
Maximum DC Anode Voltage:	450 V
Measured Value If:	1.1 A
Price:	£582/pair

UK Distributor:

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Manufacturer:

Euro Audio Team
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