



A DESIGNER'S STORY

What does it take to build a guitar amp? Engineering nous, a good ear, patience, and plenty of guitaristic nerdism to keep everyone happy

Peavey's ValveKing amps have been a major success of recent years. Their tough build quality and components are appealing, as is their good price: We often just buy an amp and plug in. But what's in the head of someone who designs these "boxes"? We asked Paul Stevens, who is Product Design And Development Manager for Peavey amps.

What are the primary challenges of being a guitar amp designer?

"My role varies from project to project. In the past I've designed amps where I've done everything from the amp design to the cab design to writing the manual. With Peavey, it's a bigger team. With a big-selling range like the ValveKings, it's got to be right.

"Peavey is not meant to be an esoteric range. It's got to suit many, many guitar players. Yet the features have all got to be 100 per cent correct.

"So it's a team decision that involves project managers, technical people, advice from plenty of people. It's always interesting. Someone will almost say, 'we want a thousand watts but we'd like it the size of a matchbox.' Can't be done! I'm exaggerating, but amp design is working many logistics and sometimes having to say: sorry, that will not work."

Is Peavey a good place to design amps?

"It's great. The good thing working for Peavey is that the top man, Hartley Peavey, is still very much involved. He's a musician, an engineer. He's not someone from Harvard Business School or an accountant or whatever... he understands what making amps and

guitars is about. He still approves the feature set we have on any new Peavey amp. Obviously, he's got a good eye on the market. And the current ValveKings have a hell of a lot more features than before.

"The first ValveKing was really good. It was new to have an all-tube guitar amp made in China at that price. Some other companies are now following what we do."

ValveKing amps obviously rely on valves. Is that key to you in terms of sound?

"Yes. The tone of ValveKings all comes from the tubes or valves. There are no silicone parts involved in the overdrive or crunch sounds. It's all from the tubes.

"It's not easy. There are different supply issues, even geopolitical issues that means getting great tubes can vary all the time. We have to be aware of it. We are making amps on a big scale. It's not always about pondering too much, but ensuring you can get a supply reliably and consistently. As a designer, the last thing I want to do is to be having to make circuit adjustments because we suddenly have a different tube or valve. Consistency of quality and of supply is key."

What are the changes to the new ValveKings?

"Before, it was all 6L6 tubes in the power stage. Now we have EL84s in the two 20-watt models. It gives a slightly

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different flavour. Then we added the new so-called “boutique” features – like the Vari-Class A/B control. It made sense. On early ValveKings it was called a Texture control and that was on the back of the amp. Now it’s on the front and called Vari-Class. You can literally fade from Class A to Class B with your main controls.”

You now have power level controls too...

“Yes, you can switch from 100 per cent to 25 or even five per cent power at any time. When you have that level of control, the difference in power tubes is more apparent. You get to hear the amp at beyond its rated power... and that’s where the inherent overdriven sound qualities of power tubes come out.

“So, EL84s for the smaller amps was a definite choice. We also use those tubes in the Classic range. It’s always a mix of what sounds best.”

Is the basic preamp the same as before?

“It’s pretty similar to what was in the original ValveKings. People seemed to like it – bright-sounding but not too sterile. You can push it and get a bit of distortion, but not too much. But on the second channel, you get a good amount of gain and with the boost added in, you get some serious gain. On the new ValveKings we’ve incorporated a four-stage gain system, so can really get very high gain. It’s like playing a three-channel amp, albeit with the same EQ on channels two and three.”

Explain the thinking with the Micro-Head...

“It’s obviously stripped-down further. And yes, it has to fit into a certain size. That has a common EQ for both channels so that had to be tweaked. I had a lot of involvement on a design level of that amp. It had to be

new, it had to be different.... It wasn’t replacing another model, it was a new model.

“I had a lot more personal control over the Micro-Head. Whether it was how the gain structure worked, how the EQ worked. But at the same time, the basic tone had to be very similar to a bigger ValveKing.”

Can you explain exactly what the new Vari-Class control does in layman’s terms?

“It’s actually quite simple. Technically, it’s controlling one of the outputs of the phase-splitter: one of the last tubes before the power tubes. You can essentially produce more volume this way at more efficient power levels. In simple terms, it turns down one tube and the amp is being driven only like a Class A amp. Even though it’s wired-up as a push/pull amp.

“In a true Class A amp you need to have specially-wired transformers so they don’t magnetise themselves... that happens when the current is flowing through transformers only one way. But in a push/pull





The new ValveKing amps have embraced modern technology

amplifier the current is flowing alternately, so it doesn't get magnetised.

"With the Vari-Class control, the current is flowing both ways but the signal is only one side. That's the best I can explain it. So it's like having a Class A amplifier but without having to change the wiring. And that's what's allowed us not to just switch between Class A and Class B, but blend between the two.

"It's been interesting. Putting a prototype ValveKing Micro-Head on my workbench revealed a lot about harmonics. Class A will generally produce even-order harmonics, Class B odd-order harmonics. Both have their uses. But to blend is great."

Why is Class A or B important to you as a guitar amp designer?

"You get a lot of boutique amplifier makers throwing in buzzwords: 'it's Class A...' As if that's the only way. I don't believe that's true. It's not A versus B. A Fender Stratocaster is different to a Gibson Les Paul. Neither is 'better'. They're simply different.

"Pretty much every amp above 50 watts is Class A/B. You get more efficiency. But most amps under that are Class A.

"My personal opinion? A Class A/B amp will sound more aggressive. A simple Class A amp will be smoother sounding because they produce more even-order harmonics. I've analysed this. But both

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sounds are equally valid. It depends on your music taste. A Class A amp probably won't work that well for metal players. It wouldn't be in-your-face enough."

What's your view on the history of guitar amps?

"For a long time you had big tube amps. And then pretty crappy-sounding solid-state amps. Then modelling came along. People got used to having more sounds, getting used to USB ports and all that. We're trying to deliver the best of both worlds. With the Micro-Head, you can record via USB or MIDI. You can play at low sound levels with great tone. And the front end is a real tube amp. It's not a simulation. There's nothing like the real thing. Tubes give you the authentic sound that you've heard on your favourite records.

"What I like about working on the ValveKings is nothing gets in the way. If you want to ignore the technology, you can. You still get a great tube amp."