

Royer R-122

by Russ Long

Anyone who has read my reviews with any consistency knows that I'm a lover of ribbon microphones. They capture audio impulses in a way no other microphone can. Their smooth, warm, natural sound works wonders on everything from violin and trumpet to vocals and guitars. They do have some weaknesses. Their low output requires significantly more gain than their condenser and dynamic counterparts and their impedance dependency requires that they see a fairly high impedance before they operate to their full potential. With the release of the new Royer R-122, all of this changes.

Features

Everyone familiar with the look of the R-121 will be quick to recognize that the R-122 looks identical except it is two inches longer. Its brushed Nickel finish is striking (a matte black chrome finish is also available) and it, like all Royer mics, slips into a protective sock and packs in a dark red wooden box for storage.

The Royer R-122 ribbon-velocity microphone is the first phantom powered ribbon microphone ever made. The mic's head amplifier, designed by Royer's resident geniuses David Royer and Rick Perrotta, is fully balanced, discrete, and it utilizes a specially designed toroidal transformer and ultra-low noise FET's. This head amp/transformer system makes the R-122 15 dB more sensitive than standard Royer ribbons, bringing its sensitivity to the level of the average condenser microphone. The Z-match feature provides the optimal impedance to the ribbon element and a low impedance output that allows for long cable runs with minimal signal loss. Additionally, this eliminates the possibility of damage by phantom power or electrical surges.

The toroidal transformer is responsible for the microphone's gain. This transformer produces a voltage gain across the full audio bandwidth while reducing the current. The balanced FET amplifier has a gain of less-than-one, and since its impedance is so high, it effectively imposes no load to the transformer. This allows the full voltage gain achieved by the transformer to be utilized. Since the amplifier has no gain characteristics of its own, thermal noise from the FET's and transistors is negligible. The amplifier acts strictly as a buffer and provides a balanced low-

impedance drive to the circuit's output. The amplifier can handle SPLs approaching 150 dB (well in excess of the 135 dB limit of the ribbon element), and is very quiet,

The Z-match feature is what makes the greatest difference between powered and un-powered ribbon microphones. With conventional ribbon microphones, the input impedance of the mic pre directly affects the ribbon element. If the impedance match is good, the ribbon element operates at full potential. If the impedance is too low, the ribbon element becomes overdamped and loses sensitivity and bottom end, resulting in compromised performance. A great ribbon mic will perform poorly if it isn't presented with the proper impedance. Z-match perfectly matches the impedance to the ribbon so the ribbon always provides optimal performance. In

Use

Eager to put my pair of review R-122s to work, I jumped right in recording electric guitars with rockers Relient K. The R-121 has been my primary electric guitar mic since its release so I was excited to see how the 122 compares. I ran the 122 into my Hardy M-1 preamplifier then into my GML 8200 eq and finally into my Distressor EL8 for compression. The mic performed immaculately. The top end was nice and smooth capturing all of the guitar's brightness and shimmer without ever sounding edgy or brittle, the mids were punchy and the bottom was extremely full and defined. The bottom end was where I noticed the biggest difference between the 122 and the 121. The active Royer has a slightly tighter and more defined bottom end. The 122 seems to have a top end that extends slightly beyond the 121, likely because of the toroidal transformer. The microphone performed equally well with drums and percussion. A pair of R-122's worked fantastic as drum overheads and room mics. I also had good results using the R-122 as a more ambient kick mic by placing it about four or five feet from the kick drum about 2 feet off the floor and angled slightly toward the floor. Combining this with the AKG D 112 that I placed inside the kick resulted in a massive yet controllable kick sound. The mics did an incredible job capturing the sound of shaker, triangle and tambourine I had great results using the microphone to record acoustic guitar. I've always liked the sound of ribbon mics on acoustic guitar but they often don't have the output to capture a quiet guitar performance, especially a finger-picked part. This is not the case with the R-122. For the first time ever with a ribbon I beautifully captured the sound of a finger-picked Duncan guitar using the R-122 through the Gordon mic pre, the GML 8200 eq and the Pendulum 6386 compressor. While tracking acoustic guitar with Undershade's Jason Cole, I used the R-122 in conjunction with the Sony C-800G and had fantastic results. The guitar sounded full and rich with a wonderful percussive sparkle.

As I anticipated, the microphones worked extremely well to capture the sound of violin, viola and cello. I almost always use ribbon microphones on strings and I was more than pleased with the way the microphones captured the performances of these instruments.

The microphone did an adequate job recording vocals. The Royer SF-1 and the Coles 4038 remain my favorite vocal ribbon microphones but the R-122 is a nice option.

Summary

The Royer R-122 is the new standard to which all ribbon microphone must be compared. Its high output makes the mic usable with the quietest of sound sources, the Z-match feature perfectly matches the impedance to the ribbon so the ribbon always provides optimal performance and in the tradition of the R-121, the 122 will take tons of gain allowing the mic to be used with even the loudest of electric guitar amps. Plus

- great sound
- ram tough
- great warrantee

Minus

- none

The Score

The Royer R-122 is a mic-lovers dream comes true. If you don't own a ribbon mic yet, this is the one to buy and if you already have one or more, this will be a great compliment to your collection.

Review Setup

- Apple 400MHz PowerMac G4
- ProTools v5.1 Mix+
- iZ RADAR 24 w/Nyquest 96kHz card
- Lucid Gen-X-96 Clock
- Mogami cabling
- Hafler amplification
- Alesis Masterlink
- PMC TB1 and Yamaha NS-10M Monitors
- Hafler amplification
- Hardy M-1 mic pre, Daking mic pre/eq, Universal Audio 2-610 mic pre/eq, GML 8200

parametric eq, TubeTech CL-1B compressor, Distressor compressor, Pendulum 6386 Variable
MU Compressor/Limite

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