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RØDE NTK Tube Microphone

Jan 1, 2002 12:00 PM, By Rob Shrock



One of the few things about recording that hasn't changed in the past decade is that you still need great microphones to make great recordings. Great mics often make the difference between compelling, sonically superior tracks and inferior or uninteresting ones. That is especially true when recording that most elusive of instruments, the human voice. But there's a catch: great microphones tend to be expensive.

Thankfully, one thing about recording that *has* changed in the past decade is the ratio of price to quality in studio gear. The trend is lower prices for better (or at least comparable) quality, and large-diaphragm studio condenser mics have been at the forefront. But are any of those affordable microphones really as good as the more expensive ones? Perhaps. One thing's for sure: not all of them are.

Røde Microphones' latest creation is the NTK, an affordable large-diaphragm tube mic with Class A tube circuitry and a fixed cardioid polar pattern. The NTK ships in a cardboard carrying case with a power supply, a 30-foot cable for connecting the power supply to the mic, and the M2 standmount. The mic comes ensconced in a padded vinyl zipper pouch. The SM2 shockmount (\$99) is optional.

BEAUTY AND BRAUN

Nothing about the NTK is flimsy. The components — mic, power supply, and cable — are sturdily constructed and appear to be built to last. The microphone is heavy; when using a boom, I had to weight the base of a tripod mic stand to prevent it from tipping over. It's evidently rugged, too: I accidentally clobbered my forehead with the mic while positioning it on a stand. No harm came to the NTK, but it did leave a nice bump above my eye.

The NTK looks great. The mic's cylindrical body and grille basket boast a satin-nickel finish reminiscent of classic microphones from the past. An inset brass dot just below the grille — a Røde signature — identifies the capsule's address side.

Attaching the microphone to the M2 standmount is easy and foolproof: simply unscrew a sturdy plate at the base of the mic, insert the mic base through the mount, and screw the plate back on. The mic couples to the optional shockmount in the same manner. Either mount holds the NTK firmly in position.

The microphone connects to the external power supply through a proprietary 7-pin cable rather than a standard 3-pin XLR cable. Many other tube mics also employ special cables, so that's nothing new. However, care must be taken not to damage or lose the 7-pin cable, or the mic will not be operational. (Røde claims quick turnaround in the event that you need an additional cable.)

A cool blue LED glows on the front of the NTK's power supply when the unit is on. The power supply can be externally toggled between 110V and 220V operation using a recessed switch, which supplies the necessary power to the mic and eliminates the need for phantom power. A slow-blow fuse resides inside the IEC power-connector socket. A standard 3-pin XLR connector provides signal output from the rear panel of the power supply.

PLEASING CURVES

Fine craftsmanship aside, it was the sound of the NTK that really got me going. I had my first opportunity to use the mic on recently signed Arista/Nashville recording artist Kristy Lee. I had produced Lee's original demos at my personal studio and used a Neumann KM 86 for her previous vocal tracks, pleasing everyone with the results. After her label signing, Lee came back to record a few of my songs for the label, and that happened to be during the week that a pair of NTKs arrived for review.

Experience has taught me that certain microphone and voice combinations work well and that others don't, no matter how good the voice or the mic. The best thing is to try out combinations of mics and preamps until you find a signal chain that best complements the vocalist. I already knew the KM 86 flattered Lee's voice, so before the session started, I set up the KM 86, a Neumann TLM 103, and one NTK. I ran the three mics through the same signal chain: a Neve 1272 preamp into an Empirical Labs Distressor (set to Opto mode) and from there into a Mark of the Unicorn (MOTU) 1296 audio interface.

I soon eliminated the TLM 103 — it didn't sound bad, just too neutral and polite. Although the TLM 103 sounded more up-front and personal than the KM 86, the KM 86 had more character. But when I tried the NTK, I knew after only two bars that it was the mic for the day. It had not only the up-front quality that I liked in the TLM 103 (both are large-diaphragm condensers) but also the personality of the KM 86.

Clearly, the NTK was designed to be musically pleasing rather than clinically accurate. It has a gentle presence boost from about 2 to 5 kHz and another slightly bigger boost centered at about 12 kHz. The boosts opened up the sound at exactly the right places to complement Lee's voice. In fact, Lee likes the vocal tracks so much that she wants the label to use them for the final record.

GOOD PERSONALITY

I really like the NTK's personality. The mic is not linear in its response; rather, the tonal color blossoms as the source gets louder. That makes the NTK sound just right for many sources, especially lead vocals. It also requires that you take more care with mic placement. The reward, though, is added tonal control.

For example, having the vocalist sing really loudly close to the mic will create a fuller and more aggressive sound than when you have the singer step back from the mic: the tone becomes more neutral as the vocalist backs away. Even with the levels matched, the two tracks will sound different — and not just because of bass boosting from the proximity effect. (The effect is roughly analogous to the difference in sound you get from turning down the volume knob on an electric guitar as opposed to turning down the amp.) On really loud, belting vocals, I preferred to keep the singer closer to the microphone to maintain that aggressive edge and then simply to back off the preamp. I loved that sound.

TWIN PEAKS

Although NTKs are not sold as matched pairs per se, Røde claims that any two NTKs will perform almost identically, thanks to tightly monitored quality control and the fact that the twin-triode 6922-model tubes are stringently hand-selected. That claim was borne out in my testing.

I'm presently producing tracks for a set of female twins called Coppola, and the NTKs worked well for their voices, too. I tried a Neumann U 47 and U 67 on them first, which sounded great; however, the tonal difference between those two mics was too drastic — the twins' voices are very similar in nature, and I wanted to preserve that element. As it turned out, I was just as pleased with the sound of the NTKs on their voices. For less than the price of one vintage tube mic, I had two tube mics that I liked just as well.

The twins record their vocals at the same time while standing next to each other. The NTKs are fixed in a cardioid pattern, so I needed to experiment to find the mic positions that afforded the best rejection and phase coherency. As I discovered, the NTK provides a good bit of off-axis rejection, especially at 90 and 270 degrees, so it's a viable option whenever side or rear rejection is important.

The NTK can take a lot of level, too. At one point, I thought I heard distortion in the NTKs — the twins can sing extremely loudly at times — but later I realized I was overdriving the preamps. Although the NTK does not offer an attenuation pad, Røde claims the mic can take levels as high as 158 dB, making it usable even for drum overheads and guitar amps. Later tests showed that to be true.

One potentially negative thing about the NTK is its tendency to accentuate sibilance from some sources. For example, the presence boost that worked so well on Lee's voice (and on other instruments) accentuated sibilance from the Coppola twins. Fortunately, I solved the problem easily with a deesser (I used Waves *DeEsser* plug-in). But in the end, the NTK's tonal character was well worth having to deal with a bit of sibilance.

IVORY TOWERS

Piano is my main instrument, so I was curious to check out the pair of NTKs on acoustic piano. The vaulted ceiling in my living room makes my Yamaha grand sound pretty darned good, so I set up the NTKs and tracked them through a MOTU 828 computer audio interface in to my PowerBook at 24-bit resolution.

The resulting tracks sounded excellent. Again, the NTKs' frequency boosts gave the piano a finished sound that didn't scream for EQ after the fact. The overall sound was big, but even the low-level material sounded great. The NTK is quiet, particularly for a tube microphone, so you can crank up the preamp to capture low-level material yet still acquire a clean, rich signal.

GUITARS AND TAMBOURINES

The NTK also sounded good on acoustic steel-string guitar. The tone wasn't particularly pure, though, meaning the NTK is probably better suited for rock tracks than, say, clean bluegrass guitar tones. The NTK nicely enhanced the aggressive edge of a hard-strummed part I recorded, providing a dose of attitude that fit the track well.

The pair of NTKs also worked well on a solo nylon-string guitar recorded in stereo. Again, the sound was not as pure as that provided by some mics. But the NTK's quietness lets you get a tube sound on tender acoustic-guitar passages, without the usual accompanying noise.

I also tested the NTK on triangle, tambourine, and egg shaker. Large-diaphragm tube condenser mics are typically not ideal for high-pitched percussion, and the NTK is no exception. Actually, the egg-shaker track didn't sound bad, but the tambourine and triangle tracks exhibited some distorted upper harmonics, resulting in an unfocused yet edgy sound that I didn't care for. That is not necessarily a deficiency on the NTK's part, but a reminder that it, like most mics, is not the perfect choice for every sound source.

MORE FOR THE MONEY

Although the old maxim "You get what you pay for" generally holds true, occasionally a product comes along that gives you more than you expect for your dollars. The Røde NTK large-diaphragm tube condenser mic is such a product. Despite being priced at less than a grand, the NTK will put you on equal footing, or better, with many new and vintage microphones that cost several times as much.

I love the NTK. Like the best of tube microphones, it has a sound — call it character, attitude, or what have you — that is musical to the ears. The mic's gentle presence boost makes just about everything sound good, especially vocals, and the tone really blossoms as you hit the capsule with more level. The NTK not only sounds great but also is quiet and can handle a lot of level. Moreover, the NTK is clearly built to withstand a lot of use. My guess is that it will still sound great 40 years from now.

PRODUCT SUMMARY

Røde Microphones

NTK

large-diaphragm tube condenser mic

\$999

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FEATURES	3.0
EASE OF USE	4.5
AUDIO QUALITY	4.5
VALUE	4.5

RATING PRODUCTS FROM 1 TO 5

PROS: Big rich sound on a range of sources. Excellent on vocals and piano. Quiet. Sturdy. High SPL handling. Beefy power supply with selectable 110V or 220V operation.

CONS: Presence boost can accentuate sibilance on some sources. No attenuation pad or highpass filter. Comes in cardboard box.

Manufacturer

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NTK Specifications

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Acoustic Operating Principle	pressure-gradient transducer
Diaphragm	1", 6-micron-thick gold-vapor-deposited Mylar
Tube	twin-triode 6922
Polar Pattern	cardioid (fixed)
Frequency Response	20 Hz — 20 kHz (±6 dB)
Dynamic Range	>147 dBA (for THD <1%)
Signal-to-Noise Ratio	>82 dBA
Self-Noise	<12 dBA
Maximum SPL	>158 dB (for 5% THD @ 1 kHz)
Dimensions	8.50" (H) × 2.28" (D)
Weight	1.68 lb.

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RØDE NT1000 and NTK Microphones

Written by: Bruce Richardson
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Last time I reviewed a microphone, it ended up being a lesson in everything that's wrong with cheap large-diaphragm condensers. The ProRec mailbag exploded a few times, but we survived. Today, I get to tell you what's right. The RØDE NT1000 and NTK break the mold, with world-class specs and a smoothness that stands alongside microphones three times the price. On top of that, they're stunningly good-looking, with an over-the-top sturdiness that would serve as well in hand-to-hand combat as in the studio.

The Long Road to RØDE

These microphones, both based on the same edge-connected 1" capsule originally appearing in the NTV, represent a culmination of a long-term vision, according to RØDE president and founder Peter Freedman.



(Left) NT1000 (Right) NTK

"We have spent so much developing these mics we are effectively betting the ranch," he says. "But hey, no one got anywhere in life by being cautious."

From his humble beginnings, yanking the cheap parts out of Chinese mics and replacing them with upscale components, Freedman's RØDE has always looked for a way to give the musician more mic for the buck. The NT2 and NT1 are the legendary results of that effort, mics which spawned many imitators. Quietly, Peter has spent the last several years and a goodly chunk of cash building one of the most advanced microphone manufacturing facilities in the world, and the NT1000 and NTK represent the most complete expression yet of his more-for-less design philosophy. They're the new generation of RØDEs, certainly a distillation of previous efforts, but just as much a departure. From the sturdy and elegant cases to the capsule mount, every element is a lesson in functional economy.

"The NT1000 and the NTK share the same transducer, the heart of the mic. It's the exactly the same capsule featured in our NTV, praised for its smoothness and rich bottom end, and is every bit as good as our flagship Classic II. With the same capsule, they have similar signatures, yet they're very different mics. NT1000 is as clean as a wide bandwidth FET design can be, with the lowest noise floor you can get. The NTK gives you the mellow tube tone, but with ultra-low noise."

The proof is in the listening, for sure. They sound fantastic. Startlingly fantastic, perhaps as good as any mic in the world. Certainly as good as any mic I have ever used, and yes that includes the obvious. But there's more. These microphones are ruthlessly whittled down to the very essence of what brings value to a mic. While delivering expensive condenser sound and serious electronics, they simultaneously explore an entirely elegant and logical product design that puts almost all the money where you can hear it and protects that investment for you.

When I tell you what they cost, you'll understand just why I'm pleasantly amazed at all this. The NT1000 lists for a scant \$395, the NTK for \$595. For this price, don't expect the Barbie lunchbox cases or shockmounts. You get a very serviceable mic stand adapter and a thick-skinned bag with the NT1000, add a hefty brick-sized power supply (with groovy blue LED) and 30 foot multipin cord for the NTK.

Read 'em and Weep

Let's talk about what you hear. Have a look at the amplification specs on these babies...

NT1000

Sensitivity: -36dB re 1V/Pa (16mV @ 94dB SPL) +/-1dB
Equivalent Noise: 6dB SPL (A-weighted per IEC268-15) +/-1dB
Maximum Output: +13dBu (@ 1kHz, 1% THD into 1k(load)
Dynamic Range: > 134dB (A-weighted, per IEC268-15)
Maximum SPL: > 140dB SPL (@ 1kHz, 1% THD into 1k(load)
Signal/Noise Ratio: > 88dB (A-weighted, per IEC268-15)

NTK

Sensitivity: -38dB re 1V/Pa (12mV @ 94dB SPL) +/-1dB
Equivalent Noise: 12dB SPL (A-weighted per IEC268-15) +/-2dB
Maximum Output: > +29dBu (@ 1kHz, 5% THD into 1k(load)
Dynamic Range: > 147dB (A-weighted, per IEC268-15)
Maximum SPL: > 158dB SPL (@ 1kHz, 5% THD into 1k(load)
Signal/Noise Ratio: > 82dB (A-weighted, per IEC268-15)

These are world-class specs in every dimension, both in what you hear (lots of wide-ranging signal) and what you don't (noise). Lacking the equipment or inclination to pick nits with the published specs, I decided to do a little comparison listening.

I rang Rip to see what new and exciting mics we had in the house. Turned out we had a Shure KSM-44 and an Alesis AM-62 - a couple of hot little mics for sure. Both have gotten some good buzz, and both outprice these RØDEs by more than just a bit. The Shure lists for \$1340 while the Alesis lists for \$1499. To be fair, the Shure and Alesis are both multipattern mics, and the RØDEs are one-trick cardioids, so the price differential is somewhat hard to quantify.

But still, they were perfect foils for my purposes. I slapped them into cardioid mode with no pads or rolloff (the RØDEs have no switches whatsoever), hung all four in an array with identical preamps, then proceeded to scream, sing, whisper, bang, toot, and whack.

The RØDEs were total contenders. Matter of fact, they were champions.

The NT1000 was the clear gain-to-noise king, significantly quieter than the already quiet Shure KSM-44. Wow. The NTK was neck and neck with the Shure, within a fraction of a dB. Another wow. Remember, we are comparing a sizzly hot tube mic to a very quiet FET design. The expectation would be for the Shure to be significantly quieter. That makes the NTK is a stunningly quiet tube mic, perhaps more notable an accomplishment than the virtually silent NT1000.

The Alesis AM-62 was far behind the pack, being significantly noisier for less overall gain than any of the other three. Matter of fact, it was just not in the same league in any respect. Its sound was not what I'd call pretty or polished, and it lacked the quality I'd call "expensive smoothness" that the two RØDEs and Shure had in spades. I have a "vintage" Groove Tubes MD-1, and the Alesis "GT" is not even close to the quality of tone, and downright pathetic aesthetically compared to its gorgeous machined-stainless predecessor. Downright shocking, considering the price tag.

I can almost hear Lloyd Bentsen saying, "Sir, I knew Groove Tube. I worked with Groove Tube, and you are no Groove Tube."

[But that's another review.](#) Back to the stars of the show. Impressive performance is one thing, but it's the sound of these microphones that has me going. They are, in a word, awesome. The NT1000 has a lovely weighty presence about it, just ever so slightly much brighter than the KSM-44 in the highest mids. Vocals sat dead-still with sparkle and remarkable presence. Some hand drums I recorded came through in the mix with clarity and power. I wouldn't hesitate to throw up a pair of these mics for drum overheads in a room that could deliver the goods. They'd punch your lights out.

I recorded a Melodica solo that bit through a thick mix like gangbusters, without once getting the shrill quality that so many mics give the instrument. Everything I recorded with this microphone

came out sounding exactly like I imagined it would in the mix, with no perceivable coloration of tone. Just a nice, big signal that takes compression and effects beautifully.

If you ever wanted a textbook example of what different amplification models can do, plugging in the NTK, with its identical capsule and high-end valve circuitry will get you there. As neutral and clean as the NT1000 sounded, the NTK takes that sound and builds a fire under it. What I noticed immediately was the expansive airiness and slightly excited quality overall. Where the NT1000 made my voice sound exactly true in the monitors, the NTK made it better than true. It gave me the feeling that I could hear the air rushing past my tonsils and the spit on my teeth. Not that it was harsh in any way at all, but just slightly bigger than life and slightly closer-sounding for the same distance to microphone. Imaging-wise, it gives a vocal a bit of spread and fullness without losing a bit of punch.

Some tube designs sound almost compressed. Not this one. The NTK will take serious maniacal screaming abuse and deliver up as much signal as you can use. The tube circuitry in this mic doesn't top out until well past the threshold of pain.

Don't get the idea that we're talking about a hyped sound. Matter of fact, if I had to pick a single word for the NTK, it would be smooth. Actually, smo-o-o-o-o-v. I would love to hear Barry White through this microphone. Hell, I sound like Barry White through this microphone. My wacky crummy voice took on this sheen that had air for days, yet for all the high energy there was no modulated sibilance whatsoever. I even stood there hissing like a snake till I got dizzy and needed a beer. It wasn't going to happen.

I got an amazing flugelhorn sound out of the NTK from about thirty inches--full and mellow, with a nice airy sheen and no muddiness at all. If I leaned in a little, and played soft, I got a great intimate whisper of a sound. That's a good sign. Flugel is one of those instruments that you struggle with. As beautiful as they sound, they bring out the worst in microphones. You either get too distant, which thins out in the mix, or too close, which thins out in the mix because you have to back it down to get the presence right. The NTK gets the sound you need to make the mix. That's usually the realm of far pricier mics.

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