Focal-JMlab has grown to be the largest loudspeaker manufacturer in France and one of the biggest in Europe. Who makes the best loudspeakers – France, Britain, or Italy? Je ris mon mauvais rire. I laugh my evil laugh. Rivalry is good for consumers.

Focal made its marque with drive-units – there were Focal drivers before the eponymous JMlab speaker marque existed. The JM is the company’s founder, the dynamic, inventive, affable, youthful Jacques Mahul.

There are those hi-fi scribes – pas moi – who have said it doesn’t matter whether a loudspeaker manufacturer produces its own drivers, but Gérard Chrétien, Focal’s managing director, was happy to tell me about the many advantages of the practice. You can customize drivers for each particular speaker model, adjusting such things as the thickness of the cone material to achieve the desired frequency response without resorting to a complex crossover. The result is cleaner, clearer sound and improved efficiency. The frugal French like that – I’m talking about frugal French speaker buyers, not Jacques and Gérard.

A morning at the bakery

Focal’s W drivers are made at an office facility in St-Ètienne. The \( W \) stands for double \( V \) in French, and \( VV \) is short for \textit{verre-verre} (glass-glass). \( W \) drivers consist of a foam core covered, usually on both sides, by a thin skin of woven glass. This is sometimes called the W sandwich – but some W sandwiches are now open-faced, with a single woven-glass skin.

Gérard Chrétien explained the virtues of \textit{verre-verre}, which is used for all Focal drivers except tweeters: “The ideal cone material should be stiff so the cone can act like a piston over a wide range of frequencies. This piston behavior is especially important for delivering ample bass with low distortion. You also want low mass to allow quick acceleration of transients for the best reproduction of fine detail. And you want internal damping to quiet any ringing in the vibration of the cone material, which would color the sound.”

According to Gérard, the W cones optimize the balance among stiffness, low mass, and self-damping: “Today we can adjust precisely the response of a driver by controlling independently the mass, stiffness, and the dampening, which lets us avoid further correction via the crossover. We should not correct a mechanical problem with an electrical solution – that is, through the crossover – because the problem is still there. It’s covered up. A woven-fiber cone bonded with resin gives you the rigidity you want, but it also gives you a plasticky coloration that you don’t want.”

He picked up an older resin cone and tapped it with his fingernail. Not pleasant. The difference between it and a W cone is that older cones were bonded with resin all the way through. The woven-glass skins of the W cones are likewise bonded with...
resin, but the skins are thin and the foam core provides internal damping.

W drivers are made using more than a dozen different machines – machines, for the most part, made specially for Focal. But production isn’t automated. W drivers are largely made by hand – using the machines, of course. Workers shape the skins of woven glass to the right thickness and place them over the foam just so. Before they’re baked, the driver cones look like pie crusts – the factory is like a bakery, including the heat. Every stage of production involves precise, exacting work, including the attachment of the surround material (the cone’s suspension) and the coupling between the cone and the voice-coil assembly.

You might wonder, as did moi, how the pie-crust cones turn gray. Black ink is jet-printed on the foam before the layer of opaque glass fiber goes on the front. The result, as Gérard said, is a ‘sexy’ cone.

W drivers have evolved over time; the ones used in JMlab’s Electra Be series are said to be better than those in the previous Electra series in terms of linearity, power handling, and efficiency. Phase plugs have been – well, phased out. Eliminated.

“A phase plug is like a Band-Aid,” Gérard declared. “It’s used to cancel frequencies whose wavelength is the width of the plug – to correct problems. It takes away from the clarity of the sound.”

He mentioned another advantage of producing your own drivers. A Focal engineer can design a driver in his or her workstation in the morning, have the driver made in the afternoon, and be listening to the prototype that evening. In addition, Focal can produce small batches of drivers as needed. Did they run out of replacement drivers for a particular model? No problem, and no need to wait weeks. Look at the recipe, roll out the pie crust, fire up the oven, and bake a batch.

An afternoon with Beryllium Lady

After lunch with Jacque Mahul at a nearby country inn, Gérard took me on a tour of Focal’s main manufacturing facility, where tweeters are made, speakers assembled, and R&D is done.

Focal tweeters are unusual: they’re concave – that is, they curve inward. According to Gérard Chrétien, the usual convex dome doesn’t allow a good coupling between the voice-coil and the dome’s outer diameter. Energy is lost into the suspension, where it is dissipated as heat. With an inverted, or concave, dome, on the other hand, all energy radiates from the voice-coil and is emitted as sound. Gérard explained:

“With conventional tweeters, the voice-coil is the same diameter as the dome. At Focal, we reduce the diameter of the voice-coil relative to the dome. The lower the voice coil’s mass, the faster the dome accelerates and the better the sound – you get greater definition.”

Today’s top-of-the-line Focal tweeters are made of the element beryllium – one of the rarest, most expensive, most toxic of metals. The beryllium domes are made in an airtight room with special ventilation. The Beryllium Lady, who runs the machines that form and stamp the domes, wears what looks like a space suit. Forming involves giving the right shape to the dome, starting with a square of flat foil. Stamping involves cutting the square to get the desired round dome. The two operations are tricky because of beryllium’s rigidity and hardness.

Gérard is big on beryllium. “The idea is to make tweeters stiff and light,” he said. “Beryllium is seven times more rigid than titanium or aluminum at the same mass. A Focal beryllium dome is a mere 25µm thick.” We’re talking about a tweeter only a few molecules think and weighing a mere 0.0022g. He said not to worry about beryllium’s toxicity: “Only the dust is toxic, not the solid metal – not the tweeters of your speaker when you play them!”

Beryllium domes were once reserved for Focal-JMlab’s flagship Utopia Be line. (The Be stands for beryllium.) Now, a version of the beryllium dome has found its way into the new, more affordable Electra 1000 Be series. In the Utopia Be models, a samarium-cobalt ring is surrounded by a more powerful neodymium magnet. The Electra 1000 Be tweeter uses high-temperature neodymium only; no samarium-cobalt. The entire dome assembly is fixed on an injected aluminum-alloy frame that’s curved, like each loudspeaker’s front baffle, to avoid diffraction problems.

“A key innovation with the Electra 1000 Be tweeter is how we decompress the back wave,” Gérard pointed out. “Usually we decompress the wave by a hole in the center of the pole piece; but we needed more decompression to deal with the wave from the back of the dome and from the dome’s suspension. With our new IAL system – Infinite Acoustical Loading – we are able to decompress these waves by means of a chamber whose channels are lined with foam. The back of the dome and suspension are totally open and the tweeter acts as if it is in infinite space, not closed-in at all.”

I got the idea that Focal is not into technology, or being clever or innovative, just for their own sakes. They’re into delivering real benefits to the consumer. In this case, the Electra 1000 Be tweeter’s resonant frequency is reduced to 680Hz, from 1450Hz for the tweeter used in the old Electra series. This allows the new tweeter to work down to 2000Hz.

Before we left for dinner in Lyon, I was able to audition the Electra 1027 Be speaker in Focal’s listening room and work up an appetite.

“So would you like a pair for review?” Gérard asked.

Focal-JMlab Electra 1027 Be loudspeaker

The Electra 1027 arrived chez moi 10 days later. This floorstanding speaker retails for $7500/pair and is described as a three-way bass-reflex design. The port, at the rear bottom of the speaker, is almost invisible, and has been designed to eliminate “chuffing,” as the British say.
The Electra 1027 Be measures 43.3” (1110mm) high by 10.3” (265mm) wide by 13.65” (350mm) deep. It also weighs 72.6 lbs (33kg), mainly because of its interior walls of 2”-think MDF. The front baffle is curved to avoid diffraction and the cabinet’s walls are nonparallel so as to minimize internal standing waves. Two finishes are offered: Signature, a sort of dark burgundy; and Classic, which is akin to gold cherry. The cabinets are made in the same factory, in Burgundy, as the cabinets for JMlab’s Utopia speakers, and approach the quality of that series. I must pay a visit soon. In keeping with Focal-JMlab’s philosophy, there is a single pair of custom-made, very-high-quality speaker binding posts.

The drive-units, from the top down, are: a 6.5” W-cone midrange, then that 1” pure-beryllium inverted-dome tweeter I’ve been talking about, and below that, two identical 6.5” W-cone woofers. The 1027 Be’s sensitivity is specified as 91dB/2.83V/m and its nominal impedance as 8 ohms, with a dip down to 3.5 ohms at 200Hz. The frequency response is given as 38Hz–40kHz, no variance specified. The crossover frequencies are 350Hz and 2000Hz. The tweeter works from 2kHz all the way up to 35kHz. Most conventional tweeters can’t go below 3 or 4kHz-too much distortion. As Gérard Chrétien pointed out, cross over to the tweeter at 2kHz is beneficial because above that frequency, a 6.5” midrange driver begins to lose linearity and begins to beam—that is, it becomes more directive.

Setup was straightforward. The tweeters are intended to be at ear level—fiddling with the 1027 Be’s floor spikes can help you adjust. I no longer experiment much with speaker positioning in our living room—furniture limits the options anyway, and I have a couple of heavy steel plates spiked to the floor that I never move. I do have some room to play around in with toe-in, etc.

The Electra 1027s ended up about 4’ from the front wall and 2’ from the side walls, toed-in slightly so that the tweeter axes crossed at about my listening chair, 12’ away. Of course, I experimented with different electronics, beginning Rom Sutherland’s Director line stage into my reference pair of Parasound JC-1 monoblock power amps. With the mighty Parasounds’ 400W into the JMB’s 8 ohms, the sound was effortless, as it should be. I lowered the bias on each Parasound via its rear-panel switch and let the amps run in the speakers. The Electra 1027 Be does want some run-in, especially the bass drivers: 200-300 hours minimum.

Later, I switched to other power amplifiers, including the Music Reference RM-10 Mk.II and the Cayin A-88T tubed integrated amp. Digital sources were a Sony XA-77ES SACD/CD player and a Musical Fidelity A3.5 CD player for “red Book” CDs. I listened to some vinyl via the Clearaudio New Emotion turntable, Satisfy tonearm, Aurum Beta S Wood moving-magnet cartridge, and EAR 834P phono preamp.

While 400W was nice, I didn’t need anywhere near that firepower to drive the JMlabs in our living room: 22Wpc via the Cayin A-88T’s triode mode or 35Wpc from Roger Modjeski’s RM-10 Mk.II sufficed. Three cheers for the frugal French customizers—you are not forced into heroic amplification. Maybe you’d like a nice, small amplifier from YBA, Cairn, Atoll, or Lavardin? A small Jadis tube integrated, peut être?

I won’t write the usual speaker review— you know, one where the writer pulls out several audiophile-favored discs and has an orgasm about stuff on the recording he never noticed before and invites you to do the same, as if listening to details were more important than listening to the music and the performance. Anyway, I can’t. I don’t listen that way . . .

Whatever I played—whatever the genre, whatever the era, whatever the recording quality—the Electra 1027 Be did not disappoint—even with historic recordings, whether pop, jazz, or classical . . .

The Electra 1027 Be allowed me to enjoy such recordings to the fullest. I was aware of their shortcomings while fully appreciating their longcomings—the historic importance, the magic of the moment, the spontaneity of the live performances—all that matter much more to me than the sterility of pristine, audiophile-quality sound.

Leon Fleisher’s recent recital disc, Two Hands, is a luminescent recording—a transcendent musical and spiritual experience that happens to be superbly encoded (CD, Vanguard Classics ATM1551). Through the Electra 1027s I could hear not only the subtle details of the playing but the superb ambience of the recording—the space and the place.

I put on Verdi Without Winds, with the Cincinnati Pops Orchestra conducted by Erich Kunzel (CD, Telarc CD-80364). Track 5, the “Anvil Chorus,” from Il Trovatore, can make your hair stand on end as it tests the limits of the system. The anvil—what instruments were these?—never struck with greater conviction than through the Electra 1027 Be . . .

The 1027 Be’s bass response was excellent; there was little need, in my opinion, for a subwoofer. Yes, the bass did start to fall off below 38Hz, as suggested by the specs. But there was some usable bass much further down—to about 25Hz or so. More important was the quality of the bass,. The 1027 Be was a very “fast,” responsive loudspeaker, sounding much like a full-range electrostatic. The transition from the W-cone midrange to the beryllium tweeter was seamless. It was as if I were listening to a speaker without crossovers . . .

The 1027 Be’s upper midrange and treble were special delights, and make it obvious that getting that beryllium tweeter to work down to 2kHz is important. Of course, the treble was extended and open—and this, apparently, matters even to geezers like me, because the frequencies you can’t hear can affect the ones you can. The tweeter worked with remarkable ease—most noticeable with violin recordings, massed strings, and, of course, female voices. This is from memory, but I did not hear the same openness, ease, and lack of strain with the Electra 926, which struck me as a very good loudspeaker. The Electra 1027 Be strikes me as great—not something that was built down from Utopia standards but built up to nearly reach those standards. Look at the speaker and you’ll see what I mean . . .

“A few years ago it would have been hard, maybe impossible, to find a loudspeaker this fine at any price.”
The Focal-JMlab Electra 1027 Be is a must-audition — whatever amount of money you’re prepared to spend. I know that it’s easy for me to spend your money. But maybe I can save you some. Do you really need to spend more than $7500 for a pair of loudspeakers to get almost all of what you want?

More folks will find themselves in the other situation — for them, $7500 will be more than they intended to spend on speakers. But keep in mind that you can likely drive the Electra 1027s with whatever amplifier you already have . . . As I said before, heroic firepower is not necessary. Quality amplification is.

Meanwhile, magazine cover lines — and not just this rag’s — sometimes trumpet that so-and-so has “raised the bar.” Yes, and the prices, too. Focal-JMlab has raised the bar at $7500/pair. Now that’s progress from “rue de l’Avenir” in St-Étienne. (Rue de l’Avenir means “street of the future.” It’s marketing, I know. Jacques Mahul owns the “street,” which is his factory’s driveway, so he can call it whatever he wants. I just named my driveway “rue Sam Tellig.”)

But to hear the Electra 1027 Be is to want it. I’m not sure you can escape from an audition without buying. I am not sure I can — except that one of the Utopia-series speakers may arrive soon. My wife, Marina, loves the 1027 Be’s look, too. A few years ago it would have been hard, maybe impossible, to find a loudspeaker this fine at any price. You have been warned.

Sam Tellig