# VUMETRE

UNCONVENTIONAL INDEPENDENT FRENCH HI-FI MAGAZINE

The French High-End

#1

## 24 tests
## 5 interviews
## 5 wine / music tastings

**EXCLUSIVE TESTS** of the **BEST PRODUCTS** made in France, **INTERVIEWS** with the **BEST FRENCH DESIGNERS**, all the news from the **FRENCH HIGH END**...


WWW.VUMETRE.COM

# DIPTYQUE AUDIO

**Gilles Douziech and Eric Poix, the creators of the isodynamic panels Diptyque Audio received us at their home and explained step by step the process that drives them and their manufacturing secrets. Proof by text and image....**

### How did you start your activity?

**Gilles:** We made our first flat loudspeaker in 2001, as part of a photographic and sound exhibition project for which I was recording the sound. We made a large 2m x 2m isodynamic loudspeaker that served as a video projection support and allowed us to broadcast fragments of stories.

**Eric:** We then made many custom-made flat-panel loudspeakers for exhibitions and installations of contemporary art. These experiences have enabled us to develop our technical solutions and then build a range of high-fidelity speakers.

### Why isodynamics?

**Gilles:** We both had listening experiences that left their mark on us with flat loudspeakers. Personally, listening to Ella Fitzgerald's voice on Quad ESL 63 panels in the 1990s allowed me to understand the

great interest of these transducers operating in dipole over a large area.

**Eric:** I discovered listening to Magnepan panels in the 80s and was immediately charmed by the sound transparency and quality of the medium. Our first experiences with isodynamic technology gave us chills from the very first notes of music, which encouraged us to continue along this path.

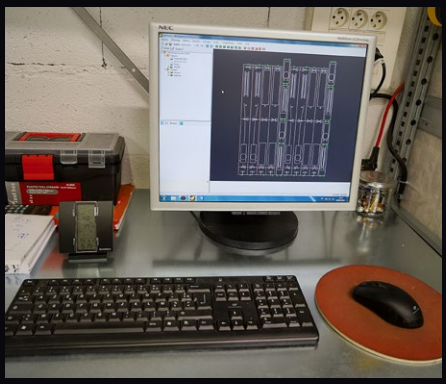
**What makes your isodynamics different from other isodynamics?**

**Gilles:** We have worked on several key areas to improve quality compared to known models on the market. For medium bass cells: we have developed a proprietary technology called PPBM (Push Pull Bipolar Magnet) which allows, with magnets of large cross-section arranged on either side of the membrane to maintain it in a constant magnetic field and thus perfectly control the transient regimes and the resistance in the bass. For tweeters we have designed a hybrid model between a ribbon and an isodynamic cell. These innovative solutions make it possible to obtain two loudspeakers that perfectly match their response curve and their speed behaviour. Filtering is simplified (6db/oct) and the music becomes obvious and natural.

**Eric:** My work consisted in designing a very rigid mechanical structure that is both rigid and neutral in its vibratory behaviour. The sandwich assembly of 3 different materials for the chassis combined with a mechanically welded frame allows to build a perfect mechanical reference and

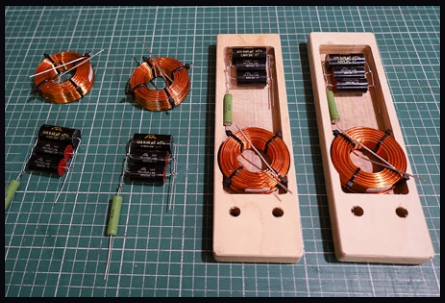
*Overall view of the workshop.*

*CNC milling machine for all MDF and plywood parts.*

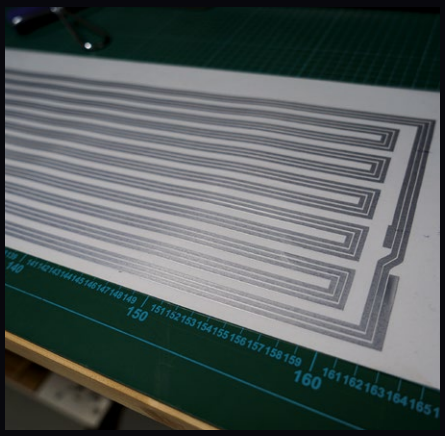


*Computer-assisted milling machine program.*

*Plywood parts after machining and manual finishing.*



*The different components of the filter, simple but at the top!*



*Ribbon diagram made from aluminum foil.*

increase the energy of the loudspeaker in its transient behaviours.

**Have you filed a patent?**

**Gilles:** We have of course registered a patent with the INPI for the PPBM technology but also protected the brand and each design of our models.

**What are the key steps in your assembly process?**

**Eric:** We must first manufacture each part and subassembly of our loudspeakers: Milling of medium frames and tweeter panels in Finnish birch, cutting and stamping of perforated grids, welding of frames, cutting of aluminium greek (coil), assembly of distribution filters...

**Gilles:** The actual assembly of the loudspeakers is divided into 5 main stages :

- Bonding of the Mylar membrane and the Greek membrane to the frame with a pneumatic calibration of the membrane tension.
- The assembly of the more magnetic grids on the frame and locking by the steel frames to form the bass-medium cell.
- Mounting the tweeter (magnets + ribbon) in its Finnish birch panel and fixing it to the medium bass cell.
- Wiring and integration of the filter.
- Measurement and tests, systematic listening to Hp and then finishing.

**You start directly from the raw material (Multiply MDF, Metal...), how do you select it?**

**Eric:** It is above all the quality of the materials that must meet our requirements, but also the reliability of their supply. From the beginning, we have attached great importance to the origin of products, their low environmental impact in terms of recycling, production and transport.

### Only materials made in France?

**Gilles:** For the most part: for example, we use very high quality MDF manufactured 150 km from home. Similarly, capacitors, resistors and chokes of «High end» quality are manufactured in France. Perforated sheets, steel profiles and magnets are manufactured in Europe.

### Is everything done at home?

**Eric:** All the parts and the final assembly are done in our workshop. We only subcontract the painting by powder coating (oven baking) to a partner 5 km from our workshop.

**Gilles:** We have invested in precision tools and a large CNC milling machine. We want to maintain our independence and our «Hightech» craftsmanship.

*Panel measurement using a house protocol.*

**Is your technology specifically dedicated to hi-fi, or are you considering other applications?**

**Gilles:** We have entered into a partnership with Bouyer, a company historically based in Montauban since the 1930s and a leader in the field of public-address. This industrialist entrusted us with an R & D project to produce new types of loudspeakers for public places. We can't say any more today but : «One day, everyone will listen to the diptych...» it reminds me of something...;)

**Eric:** Our dp77 model is designed to be integrated into structures or furniture. We have participated in numerous museography projects in partnership with sound creators such as : at the Toulouse Lautrec Museum in Albi, the Forney Library in Paris or the sound landscape listening area at the Maison du Parc des écrins...

**In what way are your respective know-how essential to the manufacture of the Diptychs?**

**Gilles:** Without Eric and his know-how in mechanics and manufacturing techniques, the diptychs would not exist!

**Eric:** Without Gilles and his knowledge of electro-acoustics and electronics, the diptychs would not exist!

**Gilles:** I also think that without our friendship, our common love for sound and our constantly boiling imagination, this beautiful project would not have been possible. ■ ■ ■