Resume

Bram Van den Broeck

° 2nd of June 1979

's Herenstraat 26 - 2140 Borgerhout - Belgium
+32 (0) 495 705 956 | b.vandenbroeck@ikonoblast.be

Experience

Ikonoblast BV
Founder
2010 - current

Providing product development & innovation services as freelancer on a consultancy basis to international clients in different industries.
Industrial design & manufacturability. Production & QC.

Smarthead Innovations BV
Founder
2013 - current

Developing printed electronic membrane sensors & processing sensor data.
Smarthead licenses its proprietary IP & sensor patents.

Thomas More
Lecturer
2017

Lecture on NURBS-based 3d modeling & CAD workflow with Solidworks, for 'master after master' students in furniture design.

UA
Lecturer
2013 - 2014

Lectures & practica on NURBS-based 3d surface modeling.
CAD-oriented workshop car design with Solidworks, and Rhinoceros 3d practicum seminars, for BA & MA students in product development.

Artesis
Visiting professor
2011 - 2013

Lectures & practica on NURBS-based 3d surface modeling.
Class-A surfacing practicum in Rhinoceros 3d and seminars, for bachelor students in product development.

EMD Group NV
Product developer
2003 - 2006
Product development Manager
2006 - 2012

Managing New Product Development department for Stagg.
Operating in a globalized industrial & consumer context. Responsible for the entire development trajectory, from concept to product launch.
Overall project handling, daily management of a crisp 3-person team, planning, target costing, reporting, component design & engineering.
Regular on-site supplier visits for production follow-up, pilot runs, prototyping, tooling, QC.

Education

UA
Integral product development
Master degree | 1997 - 2002

University of Antwerp.
Master degree in 'integral product development.'
Cum laude.
Politecnico di Milano.
Lighting design. (Erasmus 1999 - 2000)
Magna cum laude.

KAA-1
Latin-Sciences
ASO degree | 1997

Royal Atheneum of Antwerp.
Latin - Sciences degree.

Skills

- **Project management hard skills. Team management soft skills.**
- **+17 years of industrial design & product development experience.**
- **Injection molding. Die casting. CNC. Vacuum forming. Roto-molding. Sheet metal forming. Consumer electronics.**
- **Solidworks. Rhinoceros 3d. Keyshot. Adobe CC. Microsoft Office.**
- **English - French - Dutch (Notions of Italian.)**
- **Driver's license B.**
- **User/UX-centric. Product-oriented. Entrepreneurial. Analytic. Open. Pragmatic. Emphatic. Up-front/Reserved. Hands-on. Go-getter.**

30.08.2020

Portfolio

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Don't hesitate to reach out for further info or with a project request.
I look forward to hearing from you!

Bram Van den Broeck | Product development & innovation
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Rotational molding

'Staggcase' is an innovative casing system for transporting & stacking drums and their hardware.

EMD Group NV
Product developer
2003 - 2005

'Staggcase' put 'Stagg' in the high-end segment and contributed to a stronger brand identity.
Proving convenience & sturdiness during international tours, 'Staggcase' became the go-to choice of several international celebrity drummers.

Aiming to create a next-level casing line, I conceived and designed the entire product range, invented its patented interlocking stacking system, and the innovative features that boosted usability.
As first-in-market, 'Staggcase' introduced vertical & horizontal interlocking case-stacking to enhance transportability, built-in wheels & extra handles on the larger-sized cases, and inter-stackable hardware cymbal cases.
Competitor brands, later on, adopted some of these handy features.

IP
Case Stacking System
Inventor
EU-patent

In the context of a joint venture between EMD GROUP & a Chinese partner, dedicated to 'Staggcase,' a rotational molding facility was built in Foshan, PRC.
For EMD's 'Stagg' brand and OEM brands, I created several other roto-molded cases that were manufactured in Foshan's facility.

Expertise

- **Market research. Competitor analysis. User & usability analysis.**
- **Concept & ideation.**
- **Industrial design. Product development. Component engineering.**
- **Rhinoceros 3d. Solidworks.**
- **Rotational molding. Injection molding. Overmolding.**
- **Project management. Target costing. Supplier Sourcing.**
- **On-site production follow-up & QC @ EMD's Foshan factory.**

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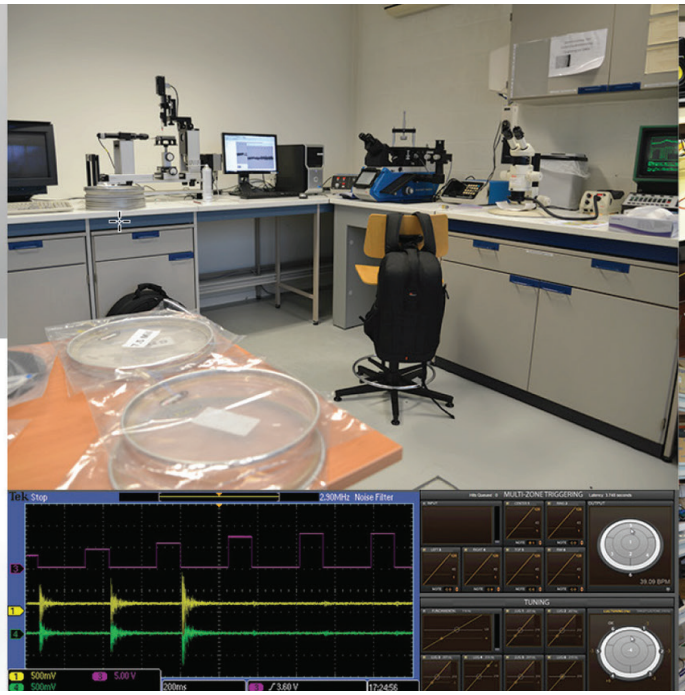
Printed sensor coating

'Smarthead' is an innovative printed sensor coating that digitizes strain & deformation of a percussion surface.



Ikonoblast BV

Smarthead Innovations BV
Client
2013 - current

Flanders Make, PEM, Sirris
Co-development partners
2013-2015

IP
Printed Sensor
Inventor
Sensor Interface
Inventor
BR - US - CN - JP - MX - EU -patents

The 'Smarthead-sensor' is an ultra-thin, printed sensor-coating that quantifies a membrane's strain & deformation, without affecting its acoustic characteristics or mechanical behavior.
'Smarthead' consists of 3 main components: sensorized acoustic drum heads/sensorized electronic pads, an electronic interface to analyze sensor-signals, and digital/analog output data; to be used for tuning, multi-zone triggering, practice, amplification & recording applications.

Aspiring to create a future-proof, digital-acoustic percussion surface, I invented & patented the Smarthead-concept in 2011.
With personal funding, I focused on developing a 1st & 2nd generation proof of concept, in co-creation with a multi-disciplinary R&D team.
In 2013, VC and external funding was attracted and Smarthead Innovations BV was founded with venture capitalist Rasser | De Haan.
Smarthead deployed a patent licensing strategy and executed a feasibility study focusing on sensor-manufacturing & signal analysis, together with Evans & Remo, to validate commercialization feasibility.
End 2017, I acquired all shares of Smarthead Innovations BV and its IP.

Expertise

- **Market & trend analysis. Business development. IP licensing strategy.**
- **VC fundraising. Subsidiary fundraising.**
- **Manufacturing-feasibility study. Signal analysis-feasibility study.**
- **Co-development with multi-disciplinary technology partners, like: PEM, IWT, Flanders Make, Sirris. (Prototyping executed with leading manufacturers like Remo and Evans.)**
- **360° project management.**
- **Onset-analysis. Spectral-analysis. Technology development. Printed electronics.**

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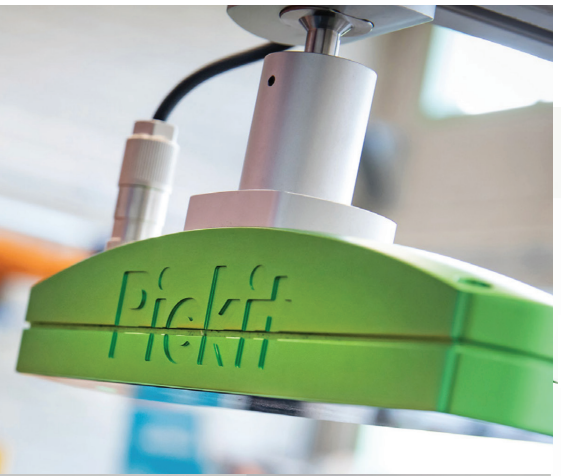
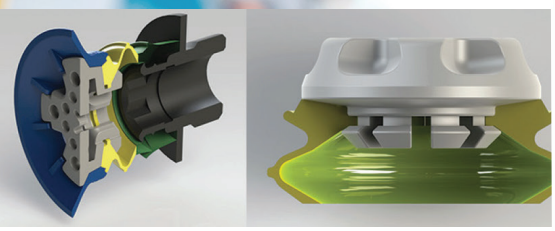
CNC & manufacturing





'Pickit 3D' is a plug & play camera that gives robots eyes to enable automation of the 'pick & place-process' in a production line.

Ikonoblast BV

PICKIT NV
Client
2017-2020

INTERMODALICS BV
Client
2014-2017

Pickit is a versatile plug & play system that consists of a 3d camera, AI-vison software, and a dedicated industrial processor that runs it.
Pickit is a one-stop solution in automation that makes production lines flexible.

To best-fit Pickit's plug & play philosophy, I focused on boosting production line-integration ease while developing its products.
To this end, I created an integrated self-supporting & lockable ball-joint allowing for full 3d orientation while remaining compact.
Various complementary flanges, brackets, and adaptors fitting the built-in ball-joint were made to robustly connect the camera to different types of commonly used robots and production line-profiles.
Over the years, I took care of several component revisions, created technical documentation, and designed graphics like Pickit's original logo.

My responsibilities cover the full project-trajectory: concept design, mechanical component design & prototyping, optimization for assembly & manufacturing, supplier sourcing & manufacturing in China, troubleshooting, on-site PC & QC, import & delivery of the finished goods.

Expertise

- **Business development. Business negotiations. Supplier sourcing.**
- **CNC. Anodizing. E-coating (CDC). Polishing. 3d-printing.**
- **Mechanical component design. Prototyping. Optimizations for assembly.**
- **Product development. Component design. Cost control.**
- **Technical documentation. Branding & graphics. Logo design.**
- **Multi-disciplinary project management.**
- **Manufacturing follow-up. On-site QC. Supply chain-handling.**

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Injection molding

'Consumer electronics & consumer goods.'
Styling & mechanical desgin of injection-molded components.

Ikonoblast BV

Cherub Technologies Co., Ltd.
Client
2012 - 2013

Pars Pro Toto BV
Client
2015

For leading Chinese OEM/ODM manufacturers of electronic consumer goods & accessories for the music industry, like NUX and Cherub, I developed injection-molded enclosures and componentsf.
Subcontracted by Pars Pro Toto, I developed a food-container range for Belgian pet-industry accessory manufacturer Moderna.
For these projects, my responsibilities covered the different stages of their product development trajectory: I conceived concepts, styled the products, took care of their components' mechanical design, and readied part-designs for tooling.
In close cooperation with toolmakers & suppliers, design revisions were made, based on prototyping and pilot runs, to further optimize the parts for assembly and manufacturing. These co-created optimizations translated into competitive retail pricing that contributed to the products' commercial success.

Many of the designed components exploit technical gimmicks inherent to injection molding, like snap-fits, hinges, studs, welding areas, flanges, inserts, integrated buttons, concealed parting-lines, reinforcement ribs, component-mounting structures, and built-in supports.

Expertise

- **Supplier sourcing. Tooling follow-up. Prototyping. Pilot runs.**
- **Injection molding, over-molding. (PC/ABS/TPE/PE)**
- **Surface finishes & coatings. Ultrasonic welding.**
- **Product design & styling. Mechanical component design.**
- **Product development. UX-Interface design. Technical documentation.**
- **Optimizations for assembly & manufacturing. Cost control.**
- **Multi-disciplinary project management. (PCB development + Assembly line)**

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UI/UX development

'Drumtune PRO' is an advanced drum tuner app that empowers users to tune drums with their smartphone.

Ikonoblast BV

EXALTD Co., Ltd.
Client
2013 - 2020

Drumtune PRO is a one-of-a-kind drum tuning tool for iOS and Android, created for EXALTD Co., Ltd.
This project spans seven years of development. Since its first release, the app introduced several innovative features as first-in-market.

The core-technology of the app consists of a proprietary drum tuning algorithm, which I invented and patented.
Taking a limited budget into account, I conceived the app's concept and its flow-structure. I was responsible for the design of all app-features, created its UX & graphics, and developed the UI-screens. I took care of troubleshooting, web design, copy, and handled the customer support.

Ikonoblast outsources different sections of the app's coding to specialized development partners in Belgium, EU, India, and Pakistan; and manages the development process on behalf of EXALTD Co., Ltd.
This fruitful cooperation lead to the acquisition of a bit of international project management experience in software development.

IP
Drum tuning method
Inventor
BE - CN - US - patents & pending

Expertise

- **Spectral Analysis. Algorithm development.**
- **App development. (iOS/Android)**
- **R&D. Concept development.**
- **UX-design. UI-development. Graphic design. 3d-animations.**
- **Customer support. Technical documentation.**
- **Multi-disciplinary project management.**
- **Patent writing. Claim writing. IP & Licensing strategy.**

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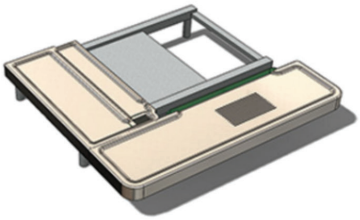
Drafting appliance

'Innovative drafting-appliance' development to cool beer to draft-temperature quickly and better preserve its freshness.



Ikonoblast BV

Verhaert NV
Client (AB InBEV)
2015 - 2016

As a mechanical design consultant for Verhaert NV, I was a member of the in-house AIC-team (Appliance Innovation Center) responsible for developing an innovative beer-drafting appliance for AB InBev.
As a team member, my responsibilities involved contributing to its structural design and developing components of the appliance's HE-system, framework & housing parts.

I helped the team with: researching solutions to optimize thermal insulation, facilitating moist & condensation control, enhancing heat transfer through selection of materials and their surface design/finish, minimizing the appliance's ecological impact, optimizing parts and structures for assembly & manufacturing, FMEA, creating user-friendliness, reducing handling-time, safeguarding hygiene during handling & servicing, and smoothing the appliance's servicing & maintenance-flow.

I supported the team by researching the usability & UX of different concepts and designing parts to meet human factor specifications & international food & safety regulations.

Expertise

- **Human factor engineering. FDA/NSF standards. HE-design.**
- **Mechanical design. Usability design. Structural design.**
- **Development of a less recreational view on beer drafting.**
- **R&D. Concept development. Supplier sourcing. Prototyping.**
- **Sheet metal forming. CNC. Powder coating. Lathing. Milling.**
- **Customer support. Technical documentation. Presentation.**
- **Multi-disciplinary team member.**

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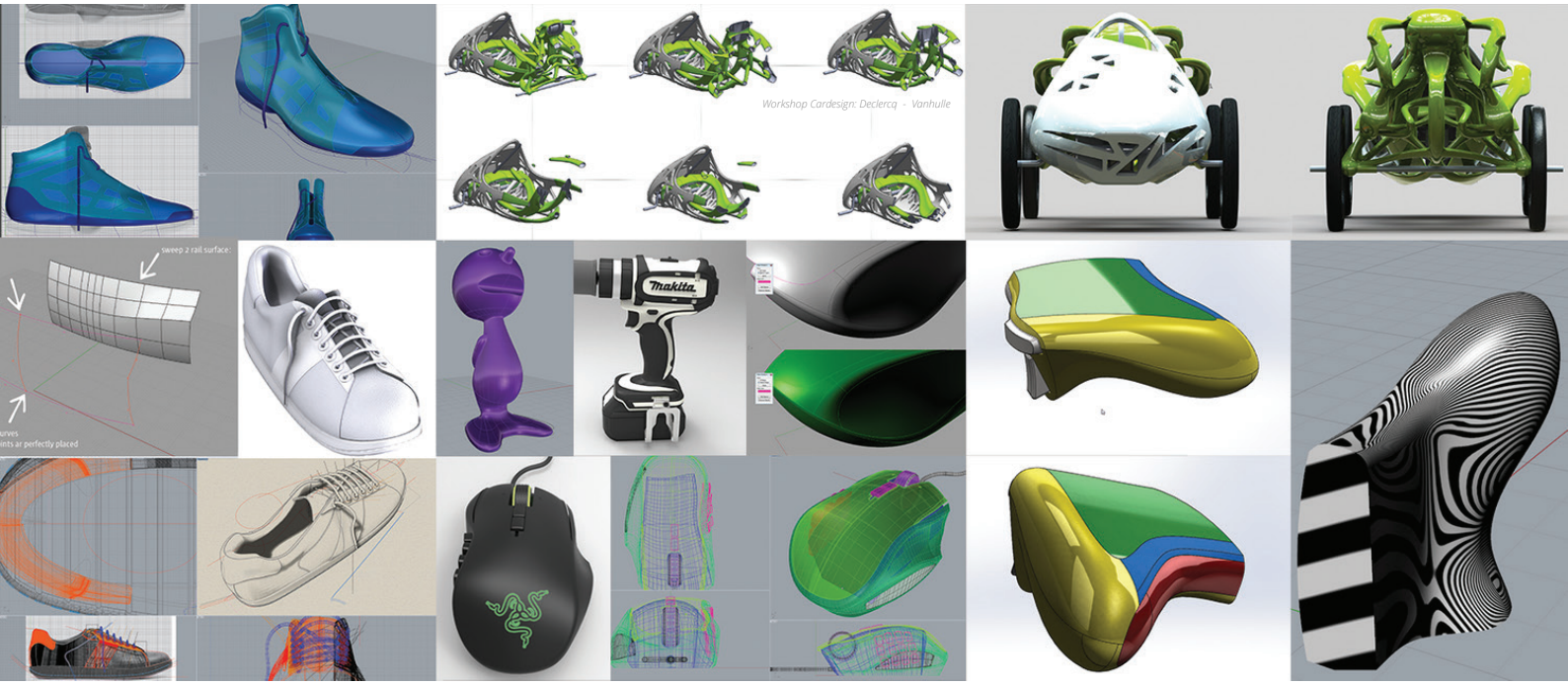
CAD Lectures

'Advanced surface styling with NURBS.' Hands-on practica and lectures to sharpen CAD skills and boost design freedom.



University of Antwerp
Lecturer
(employee)
2013 - 2014

Artesis Hoge School
Visiting professor
(Client of Ikonoblast)
2011 - 2013

For the Artesis Hogeschool and the University of Antwerp, I provided CAD-lectures, coached 3d-practica, and provided CAD support in a car-design workshop to bachelor & master level students in product development.

The lecturers focussed on class-A 3d surfacing techniques with NURBS-based CAD-modelers, like Rhinoceros 3d and Solidworks.
During the Rhinoceros 3d lecturers, the basics of 3d modeling were first introduced to gradually flow towards the teaching of advanced surfacing techniques throughout the course.

In the weekly 8h practica, exemplary cases were studied to sharpen the students' CAD-capabilities, and coach them to boost their technical 3d surfacing-knowledge.
My overall take on the practica was to 'motivate & push' the students to stimulate their design-freedom with NURBS by handing-off surfacing-insights that reduced their dependency on the typical limitations of commonly used, go-to CAD-features.

Expertise

- **Teaching. Large group practica. Lectures/Class dynamics.**
- **Product styling. Class-A 3d surfacing techniques.**
- **Rhinoceros 3d. Solidworks.**

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CNC & woodworking

'Electric double bass & electric violoncello.' Deal-breaking, yet quality- instruments were developed, incl. their stands and bags.

EMD GROUP NV
Product development dept. manager
2007 - 2009

The EDB/ECV project involved the complete redesign of an electric double bass and violoncello series to meet a sharp EXW cost.
For EMD, I managed the entire development trajectory, ranging from the initial design phase, over component engineering & prototyping, until pilot run & QC. My responsibilities covered: the conception, the styling, and the mechanical design of all components of the different instruments in the series (excl. PCB's), including the design of their accompanying stands & bags.
To reach the target cost, I designed an innovative one-piece neck with headstock. The neck's connection to the compartmented body was optimized for vibration transfer via the 'unibody-tailpiece' and the height-adjustable bridge.
The looped piezo element underneath the adjustable bridge allowed for a frequency response suitable for bowing and plucking. Special in-house sound-engineering attention went to the onboard PCB filter-tuning, dialing them into that spectral sweet-spot for bowing.
This entry-level instrument series sells well worldwide due to its sleek looks, rich sound palette, and excellent price/quality balance.

Expertise

- **Product development. Industrial design. Styling. Stand & soft bag design.**
- **Injection molding. CNC. Woodworking. Lathing. Lacquer coating.**
- **Powder coating. Tube welding. Cold forming. Sheet forming. Die casting.**
- **Built-in electronics & PCB.**
- **Target costing. Optimization for assembly. Prototyping.**
- **Technical documentation. Full-project management.**

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Soft goods & bags

Strengthen brand identity & unifying design-language of entire bag lines for string, wind, keys, percussion instruments & their accessories.

EMD GROUP NV
Product development dept. manager
2006 - 2010

Stagg's soft bag lines for string & wind instruments, keyboards, percussion instruments, 19" racks, accessories, and hardware were redesigned with a uniform style & to strengthen Stagg's brand identity.

I created 'style, construction & design-templates' for different price ranges to boost brand-coherence throughout all redesigned bag lines.
Hereto, fabrics, molded handles, rivets, zippers, straps, buckles, reinforcement foams, meshes, pads, bumps, reflective strips, name tags, loops, trolleys, wheels, eyelets, and zipper pullers were selected and/or designed.
Every line was redesigned with a representative level of finishes & features.

These bag lines were manufactured at different premises, at different price levels. Hence, the creation process of the lines required close cooperation with several Asian suppliers.
With this, the challenge was to successfully implement the bag lines' design & construction specs at the different facilities to meet their target EXW cost, while keeping supply chain logistics smooth and the quality within scope.

Expertise

- **Soft goods design. Construction. Injection molding. Material selection.**
- **Styling. Concept development.**
- **Target costing. Component sourcing.**
- **Technical documentation.**
- **Prototyping. On-site QC & project follow-up at the suppliers.**
- **Overall design trajectory-management.**

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Hardshell cases

'Hardshell cases' designed to boost brand coherence by unifying the design language per instrument family.

EMD GROUP NV
Product developer
Product development dept. manager
2004 - 2009

A myriad of hard-shell cases was developed for different instrument families like: string & wind instruments, keyboards, percussion instruments; and also for 19" racks, accessories, and hardware stands.

Depending on the case, specific hardware was designed, or sourced OTS.
For wind instruments, I created an inter-stackable case line to facilitate transport and provide stacking options for an entire orchestra section.
Most cases had custom injection-molded PS inner-shells with lining.
These inner-shells were made up to EMD's design specs, in co-creation with different instrument suppliers to fit and protect their particular instrument model inside perfectly.
With the exchange of the inner-shells of the cases, the same outer-shells could host various instruments in the same transport volume.
This approach kept the cases' production cost lower, as fewer different external shells had to be made to complete the series.
Together with nesting and telescopic designs, this helped to keep logistics lean and transport costs low, to attain sharper retail pricing.

Expertise

- **Hardshell design. Roto-molding. Vacuum forming. Thermoforming.**
- **Mechanical component engineering. Styling. Concept development.**
- **Target costing. Component sourcing.**
- **Technical documentation.**
- **Prototyping. On-site QC & project follow-up at the suppliers.**
- **Overall design trajectory-management.**

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Die casting / CNC

**Several innovative drum hardware lines were designed for Stagg.
Step-by-step, improving product quality and the suppliers' level/skills.**

EMD GROUP NV
Product development dept. manager
(end 2005) 2006 - 2012

For 'Stagg,' several drum hardware stands, pedals, extension clamps, and racks were developed.
The most innovative project involved creating three entire stand series covering budget-class, over mid-range, up to high-end range.
A gradual increase in features was introduced over the different price ranges to create a logical product range. The designed style-affinity between the various models created a strong & coherent brand image.

I managed the entire project, prepared design milestones, laid down the concepts, and took care of the team's daily work-planning & follow-up.
Hundreds of die-cast, injection-molded, sheet metal formed, lathed, milled, and laser cut extruded components were designed for all series, accounting for several years of development with the full team.
On-site visits allowed to revise & ready the parts for manufacturing in close cooperation with the Chinese manufacturer and the Chinese product development team. On EMD's behalf, I followed up on prototyping, performed on-site QC, supported tooling optimization.

Expertise

- **Die casting. Injection molding. Sheet metal forming. Lathing. Milling. CNC.**
- **Mechanical engineering. Component design. Styling.**
- **Target costing.**
- **Technical documentation.**
- **Prototyping. On-site QC & project follow-up at the suppliers.**
- **Overall design-trajectory & design-team managment.**

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CNC & milling/lathing

'KATANA PRO' is a direct-link driven pedal with a compression spring. It is part of a series covering Tanto, Wakizashi, and Katana models.

Ikonoblast BV

'KATANA" is an innovative kick drum pedal series created for EXA.
The pedals are crafted of lightweight anodized aluminum.
They feature ultra-fast lever action and a slick stealthy style.

EXALTD CO., Ltd.
Client
2017

To boost pedal speed, I went for a radical redesign of the mechanism.
I developed an innovative system that uses a compression spring to drive the rotating parts over a fixed axis, whereby the total rotating mass is minimized to reduce inertia.
The energy required to initiate & invert rotation is reduced significantly, which gives the pedal a 'light feel' and 'instant responsivity.'
The system is re-engineered to preserve energy better so that the beater rebounds faster for faster blast-sequences.

The tension adjuster is ergonomically placed, hence easily accessible.
The beater head fits different weighted parts to adjust its mass. For optimized impact spot orientation, it can rotate, tilt, and adjust in height.
A slightly different model, with a similar system, works with a conventional extension spring.

Expertise

- **CNC. Anodizing. Lathing. Milling. Duplex Coating. Plating. Bead-blasting.**
- **Styling. Mechanical design. Concept development.**
- **Target costing. Supplier sourcing.**
- **Technical documentation.**
- **Prototyping. On-site QC & project follow-up at the supplier.**
- **Overall design trajectory-management.**

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Over-molding

'Cymlok' is a quick set cymbal nut that secures cymbals on their stands with a button-operated, spring-loaded internal locking system.

Ikonoblast BV

EXALTD Co., Ltd.
Client
2010 - 2012

'Cymlok' is part of a range of quick-release items designed for EXA. Other items, designed in the same series, include a quick-release microphone clamp and quick-set clamp adapters with integrated shock-mounts to absorb contact noise during recording/amplification.

To fit EXA's goal to create items that simplify life, I focused on increasing usability and designed a quick-release mechanism to replace wing nuts. This button-operated mechanism has spring-loaded threaded clamp areas that firmly grip onto a threaded rod of a microphone stand or a cymbal stand from opposite directions.
This easy-to-use mechanism simplifies handling and further reduces the set-up & tear-down time of gear.
On behalf of EXA, I handled the entire process, from idea to sales and distribution. My responsibilities included: conception & product development, logo, packaging & web design, copywriting, technical documentation, sales & distribution, customer support, export, product photography, component engineering, supplier sourcing, purchasing, negotiations, on-site QC, etc.

Expertise

- **Injection molding. Over-molding.**
- **Concept design. Styling. Mechanism invention & component engineering.**
- **Target costing. Supplier sourcing. Tooling follow-up. Pilot-runs.**
- **Technical documentation. Packaging & logo design.**
- **Visualization. Photography. Web design. SEO. Copywriting.**
- **Prototyping. On-site QC & project follow-up at the suppliers.**
  Product sales. Distribution. Import/Export.
  Full-project handling & management. Contracts. IP.

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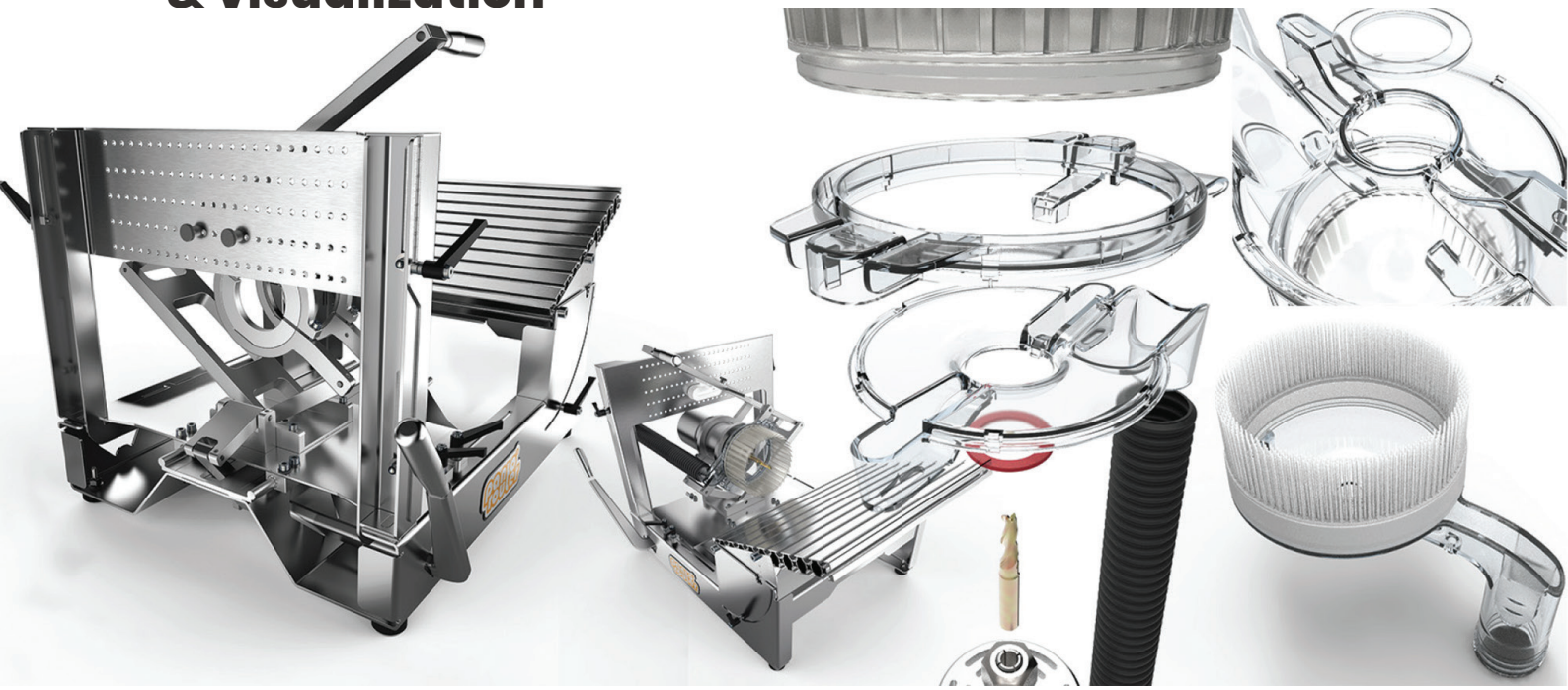
Mechanical design & visualization

'Hybrid PantoRouter' is an innovative milling machine that simplifies making wood-joints.



Ikonoblast BV

'Hybrid Pantorouter' is a machine that copy-pastes and/or scales templates and mills them into wooden workpieces. A panto-router allows to create fitting positive & negative joints, consistently and repetitively.

SCL BV
Client
2016

I was asked to create 'a vacuum cap, suitable for injection molding that is easy to install, clean, and remove for mill/bit changes.'
To meet the specs, I developed a see-through 3-piece system.
The 'main body' of the vacuum cap has a removable 'top part' that holds two types of silicone 'brushes' that limit milling debris's outflow.
These silicon 'brushes' are easily removable from the 'top part' via a subtle press-fitting undercut to be rinsed or put in a dishwasher for cleaning. The fin-structure silicone brush is translucent to increase the visibility on the workpiece during milling.
The 'top cap' is outfitted with magnets and snap-fits to make it easily removable from the 'main body' for convenient mill/bit changes.
Next to the injection molding parts design, my further consultancy responsibilities included creating 3D visualization and providing advice to enhance the machine's structural rigidity during prototyping.

Expertise

- **User & usability analysis.**
- **Industrial design. Product development. Component engineering.**
- **Injection molding. CNC. Sheet metal forming. Anodizing.**
- **Product visualization. Prototyping.**

Portfolio

Below is an impression of projects I worked on & the expertise I bring along to add value to your projects & team.

Don't hesitate to reach out for further info or with a project request.
I look forward to hearing from you!

Bram Van den Broeck | Product development & innovation
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CNC & woodworking

'Instrument design' involving the creation of headstocks, bodies, necks, saddles, bridges, etc.








EMD GROUP NV
Product developer
Product development dept. manager
2004 - 2010

Different headstocks, bodies, necks, saddles, bridges, etc. were designed for various classical guitars, electric guitars, and bass guitars for EMD's in-house 'Stagg' brand.

When creating 'Stagg-guitars,' the scope was often to mimic the style of iconic-guitars to create an entry-level 'look-alike' to allow beginning musicians to play a similar-looking instrument as their idols, without the price tag attached to it.
In such cases, the challenge was to create a pleasing design that evoked the iconic-guitars' vibe and met their technical specs without infringing on their protected design-elements.

Later on, in addition to Stagg's guitars, EMD launched separate brands to host guitars with unique personalities, looks, and characteristics that were sold at different price tags.

My responsibilities included designing the instrument's parts and assisting with the follow-up on their prototyping before they hit the shelves.

Expertise

- **Market research. Competitor analysis. IP.**
- **Styling.**
- **Industrial design.**
- **CNC. Woodworking. Lacquer coating. Finishes, inserts & bindings.**
- **Prototyping. Optimization for manufacturing.**

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Consumer electronics

'monolith' is an innovative foldable e-drum that offers ultimate positioning freedom and a triggerable module.

Ikonoblast BV

NUX Co., Ltd.
Client
2014

'monolith' is a foldable electronic drum kit created for NUX, a leading Chinese manufacturer.
Much design effort went into minimizing the time-span and the number of handlings required to fold the kit into a compact transport volume.

All clamps can be locked/unlocked by a single bolt. They rotate, swivel, and tilt on an elastomer ball-joint, creating lots of freedom to position pads and cymbals. The ball-joint can slide over the tube when the clamp is unlocked, and firmly engages with the rack tube's grooves when it is locked.
The elastomeric material of the ball-joint absorbs vibration energy to reduce contact noise and avoid cross-triggering.
The drum brain has an integrated smartphone holder, and its edge doubles as a triggerable pad thanks to built-in piezo sensors. The kit's cables route through cable gutters integrated in the extruded aluminum rack tubes, concealed by an integrated silicon sealing-strip.

After the hand-off of the project's mechanical design concept, final engineering and target costing was taken care of by the NUX engineers.

Expertise

- **Market research. Competitor analysis. User & usability analysis.**
- **Concept & ideation. Mechanical component design. Interface design.**
- **Industrial design. Product development.**
- **Die casting. Injection molding. Sheet metal forming. CNC.**

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Die Casting

'OEM Drum kit parts & hardware.' Nothing too fancy, just decent state-of-the art, for the price range, with a few minor improvements.

Ikonoblast BV

Glamor Music Co., Ltd. (Gretsch / Odery) Client 2015

'Glamor' is a Chinese hardware and fasteners manufacturer, which is also an ODM supplier for renowned drum brands like Gretsch & Odery.

Glamor contracted Ikonoblast to develop a range of injection-molded, die-cast, and sheet metal parts for a 'travel drum kit,' and for OEM 'drum kits.' I created a range of suspension brackets, tom mounts, floor tom leg brackets, single-sided & double-sided lugs, wing nuts/rods, drum keys, kick drum clamps, center brackets, kick drum leg stoppers, gaskets, bumpers, and single & double tom-holders with L-brackets & ball joints.

For the travel kit, I created a system that opens the kick drum's shell to store the toms inside of it for transport. The sliding system also allows the drum's shell-depth adjustment to modify the interaction between the batter head & the resonant head; for a boomier or a drier kick drum sound.

Based on Glamor's feedback, the parts were optimized for manufacturing & assembly to attain a sharp EXW cost.

Expertise

- **User & usability analysis.**
- **Concept & ideation. Styling. Product development.**
- **Industrial design. Mechanical component design.**
- **Die casting. Injection molding. CNC. Lathing. Milling. Sheet metal forming.**
- **Project management.**
- **Target costing in co-creation with manufacturer.**

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Die casting

'Effect pedal' enclosure. This project is a redesign of a simple & robust, old skool pedal to make it more versatile & cost-effective.

EMD Group NV
Product developer
2005

For EMD, I developed a universal effect pedal casing-concept fitting different PCB's and with removable plates that can receive different colors & prints.

The casing tooling is conceived with interchangeable die-inserts with retractable pins that follow different hole templates for the position and quantity of the potentiometer shafts on a PCB.
The use of different die-inserts for different production runs makes that a variety of different effect pedals is producible with a single mold, which allows cost-effective manufacturing of the entire pedal series.
The EXW pricing is kept sharp, as the tooling investment spreads over a more extensive product range.

The internal PCB is easily accessed for repair/maintenance via the bottom plate. The recessed LED is integrated into the pedal latch's hinge via a dedicated socket that doubles to keep the hinge nut centered.
This project was a product-redesign that answered EMD's market reality, offering end-users a decent and functional product at sharp pricing with minor usability improvements and clean looks.

Expertise

- **Market research. Competitor analysis. User & usability analysis.**
- **Concept & ideation.**
- **Industrial design. Product development. Component engineering.**
- **Die casting. Sheet metal. Injection molding. Overmolding. Powder coating.**
- **Project management. Target costing.**

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Mechanical design

An myriad of stands was created, for various applications. All stands needed to be 'compact' when folded, and 'stable' when set-up.

EMD GROUP NV
Product developer
Product development dept. manager
2003- 2012

To support EMD with brokering price-breaking quantity-deals on a wide range of stands, conquering its spot next to the leading brands, I helped optimize the designs of several stands, or I created new stands for the product range.

Over the years, a vast amount of entry-level stands was created. Some of them were very basic; some were a bit more innovative in their approach. Developing these products was a game of achieving entry-level pricing and maxing out the quality attainable within the targeted EXW cost.
The creation of a customized range of standardized stand components, like knobs and support feet, boosted Stagg's brand coherence, establishing a more solid brand-identity throughout the product range.

Projects were first designed in Brussels. After that, they were prototyped & readied for production in short sprints in China with the involvement of the Chinese supplier(s) and manufacturer(s), allowing for on-site revisions to optimize the stands for manufacturing. With this, cost control was quintessential, and co-creation with the manufacturer(s) and stakeholders via on-site prototypes proved fruitful to stabilize product quality.

Expertise

- **Market research. Competitor analysis. User & usability analysis.**
- **Concept & ideation.**
- **Industrial design. Product development. Component engineering.**
- **Sheet metal forming. Injection molding. Laser cutting. Welding.**
- **Profile extrusion. Powder coating.**
- **Project management. Target costing.**
- **Regular on-site production follow-up & QC @ suppliers' factories.**

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Consumer electronics

'DT-10' is an innovative, one-button drum tuner.
The device applies a consequent laser-focus on ease of use.

Ikonoblast BV

Cherub Technologies Co., Ltd.
Client
2012 - 2013

IP
Hoop Clamping Mechanism
(Actual) Inventor
CN-patent

Cherub, a world-leading instrument tuner manufacturer, contracted Ikonoblast to design a high-end drum tuner. On Cherub's behalf, I handled the entire concept-design process: concept development, component design, packaging design, segmented LCD design, UI-behavior design, and elementary consulting on the algorithm.
During the initial concept design phase, I focused on UX & usability to simplify the tuning process. I created a button-operated clamping mechanism that accommodates different hoop sizes, incl. kick drum hoops. This patented mechanism automatically activates the device when it's clamped onto a drum hoop. I designed a one-button tuner interface and its operational-flow.
I conceived a simple LCD-UI with animations that indicate which direction the drum key should be turned when tuning. Simultaneously, the LCD's back-light-color changes to show whether the instrument is in tune or not.
Drum tuning requires energy-expensive calculations and generally takes quite some time. To spare the user from frequent battery replacements, I conceived the DT-10 with a USB-chargeable LiPo battery.
In a second phase, I provided on-site consultancy to revise the parts' designs for manufacturing, in co-creation with Cherub's skilled engineers.

Expertise

- **Market research. Competitor analysis. User & usability analysis.**
- **Concept & ideation. Mechanical component design. LCD design.**
- **Industrial design. Product development.**
- **Die casting. Injection molding. Sheet metal forming.**
- **Firmware behavior design. Packaging design.**
- **Project management. Target costing. Optimization for manufacturing.**
- **On-site design follow-up. Prototyping. Pilot run & QC.**