

# **INNOVATION DAY**

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## **2019**



# **Slovenian National Innovation Awards 2019**



Innovation is the key to success. Especially in industries where the product and emotions of the customer are firmly connected. The market and customers are changing and therefore we are regularly think about the new solutions that we can offer the customer. Innovative solutions are the 'game changer'.

(Adria Mobil d.o.o.)

By innovating we create new market opportunities, set trends, maintain condition and achieve higher value added.

(Domel d.o.o.)

Innovation is the key to success as it embraces the whole: quick adaptation to global trends, introduction of new business development models, setting directions for the future and realisation of sustainable impacts on society and the environment. Companies that are quickly adapting to changes survive only with innovative ideas.

(ETI Elektroelement d.o.o. and RC eNeM Novi Materiali d.o.o.)

Innovation is the key to competitiveness and company growth, as it enables the creation of new and better products whereas the growth of the company creates an environment for the development of new innovative products.

(Krka, d.d., Novo mesto)

Innovation is one of our core values and therefore we always strive for new solutions that increase our competitiveness, and thus help to make bio-medicines more accessible to patients.

(Lek farmacevska družba d.d.)

We innovate to find new ways in medicine to improve and prolong people's lives.

Lek farmacevska družba d.d., Razvojni center Slovenija)

The meeting between a medical professional, who already had a clear vision for solving human lives in the situation of mass accident through digital technology and a team creating a mobile collaborative environment, has created a solid and connected multidisciplinary innovation core that is the source of many new concepts of collaboration.

(Mediainteractive Franc Dolenc s.p)

Being innovative means more than having good ideas. It means dedication to the customer and the market with a focus on product and process. A serious and lasting commitment to innovation thus means creating a corporate culture of innovation, ongoing risks and investments.

(Titus d.o.o. Dekani and Lama Avtomatizacija d.o.o)

Innovation is imagination, is idea.

Leon, 10 years

Innovation is happiness.

Tara, 9 years

Innovation is short circuit.

Anton, 11 years

Innovation is a mixture of happiness and unhappiness.

Zoja, 9 years

Innovation is as unpredictable as static electricity.

Anton, 11 years

Innovations are inventions that improve the world.

Tilen, 9 years

Innovations are crazy ideas.

Manca, 9 years

Innovation is a robot doing homework.

Tone, 9 years

Innovation is an idea that can help others.

Lara, 9 years

Innovations are inventions.

Vita and Brin, 10 years, Ela, 8 years

Innovation is music.

Ula, 8 years

Innovation is us, children.

Tjaša, 11 years

Innovation is a new challenge.

Jakob, 9 years

## Find the recipients of Slovenian National Innovation Awards 2019

M F H Ž K J L T Č S Z A J Ž H K E Š J K X H Č A H Ž D I O J L H  
 H L R E R H B U V L K M U F L O N A B O E K O L E K T O R K F H  
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 K A T A P U L T X Š I R I K P L J K I P I L Š Q L O E J E L O F  
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 D I H B S K B R E K O R L I S H P N J M D H R W K U O M F R I K  
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## GOLDEN AWARD

Adria Mobil d.o.o.

### Twin 2019 – The new generation

Twin campervans 2019, the new generation. Escape the ordinary in Adria Mobil's award-winning Twins. Their interior is transformed through innovative solutions, including the 'cabin loft' design and Adria's exclusive Sky Roof. The all-new interior, new layouts, innovative kitchen, smart bathrooms, and storage solutions provide more comfort and more practicality, with a broad choice of interiors and soft furnishings. Available in Supreme and Plus ranges, models are available in up to 10 layouts, and with sleeping room for up to 4 people. Our campervans are designed for living where details matter and every centimetre counts.

Innovators:

Project team Adria Mobil, Twin new generation





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## GOLDEN AWARD

Domel d.o.o

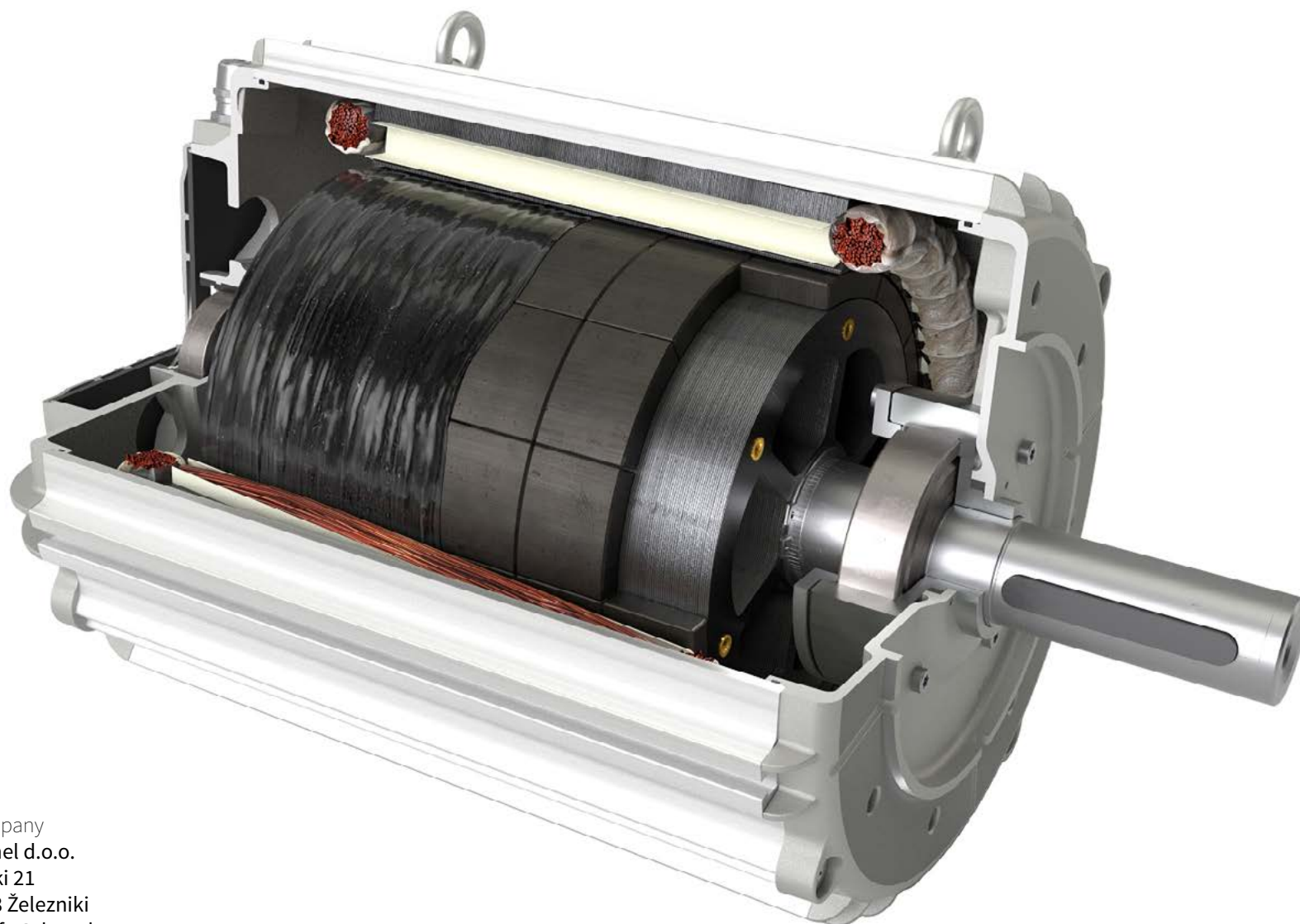
### Development of PM motor NZ 270

Electric motor drives for HVAC applications above 5 kW have great potential in energy and material efficiency. Legislation will increasingly limit the use of induction motors manufactured in the IE3 and IE4 efficiency classes in combination with frequency converters. The use of other strategic rare-earth magnets limits the cost-effectiveness of production and extends the dominance of old technologies using less efficient induction motors and frequency converters. The new Domel NZ 270 motor is a worldwide innovation in this field, where it achieves 96% efficiency with standard sheet metal, ferrite magnets, and low material consumption, which exceeds the most stringent requirements of topical European energy-efficiency legislation. In doing so, Domel is breaking into a whole new realm of high-power motors.

Innovators:

Mirko Gaser, Miran Dolenc, Sandi Dolenc, Herman Lampret, Matej Kenda, Simon Čemažar, Borut Benedičič, Franc Potočnik, Nikolaj Kosem, Matjaž Kokalj, Dušan Jauševc, Janez Luznar st., Andrej Kos, Karmen Nastran, Aleš Lavanič, Irena Bertoncelj, Irena Megušar, Janez Gartnar (Kop Commerce)





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## GOLDEN AWARD

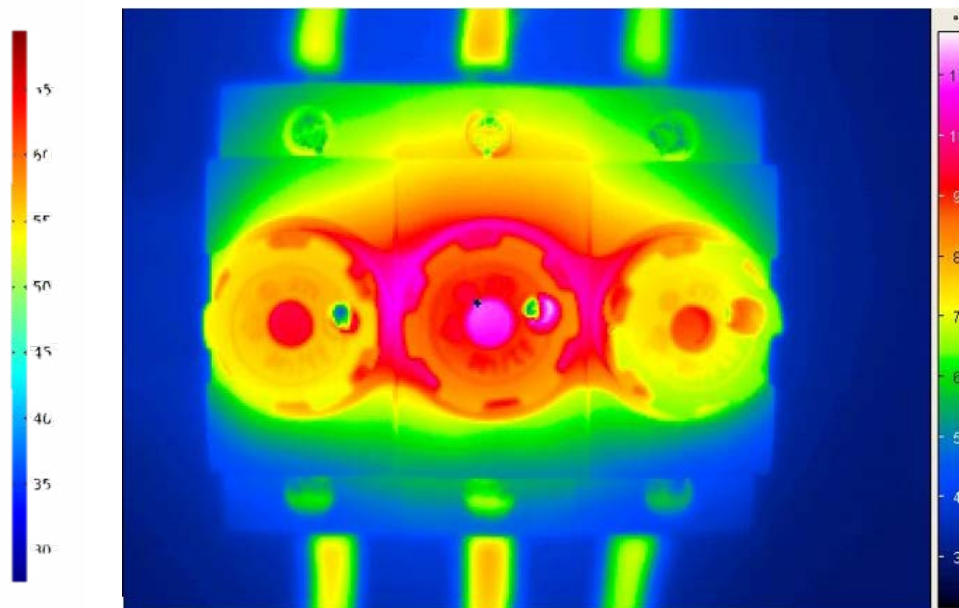
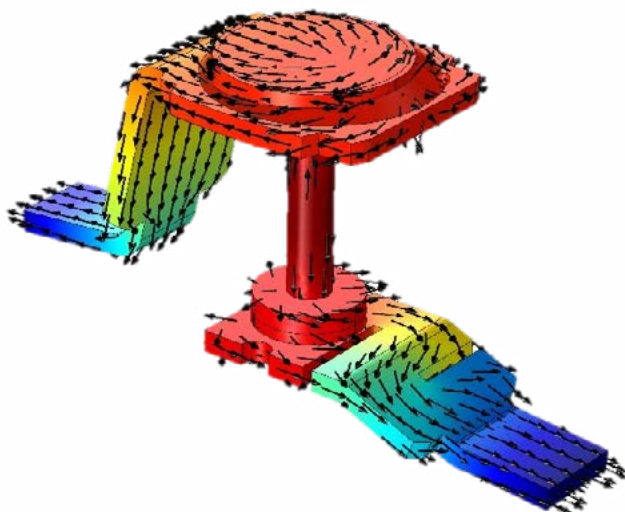
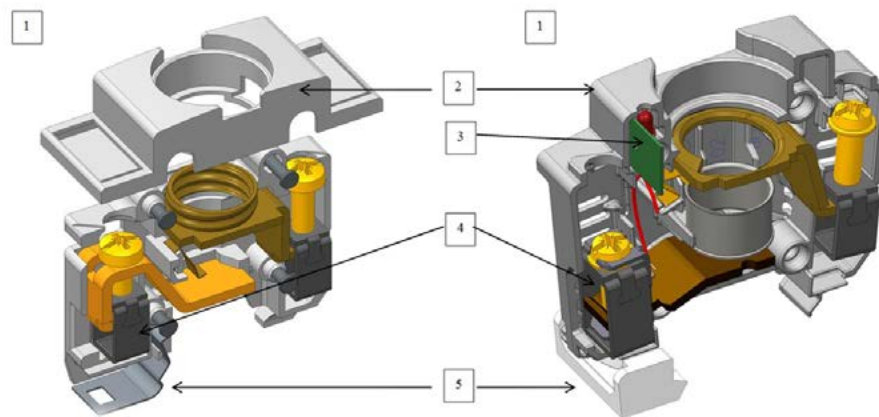
ETI Elektroelement d.o.o. and RC eNeM Novi Materiali d.o.o.

### New generation of plastic fuse bases for fuse links DO – PFB DO

The plastic fuse base PFB DO is a product innovated to meet modern market demands. In addition to cutting-edge added features and design, it offers technical competitive advantages, convincing even the most demanding customers. Key innovations include a unique housing design (substantial material savings) and a LED feature to quickly locate blown fuses, giving the use higher value added. These solutions are new on the global market and are protected by an international patent. This development is also economically supported, as it increases productivity (annually up to 10% for manual assembly), sales (annually up to 45%), and market share (up to 20%).

Innovators:

Matej Kavšek, Peter Benko, Janez Tomelj, Anže Jerman





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## GOLDEN AWARD

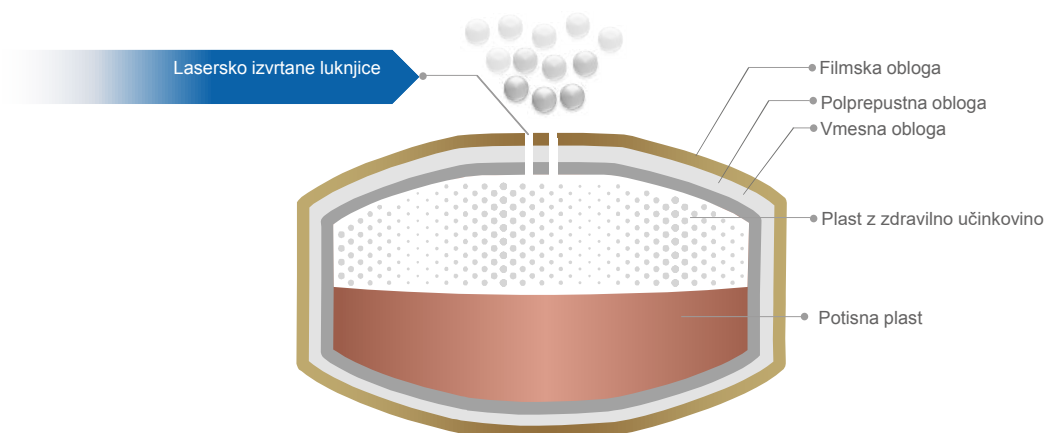
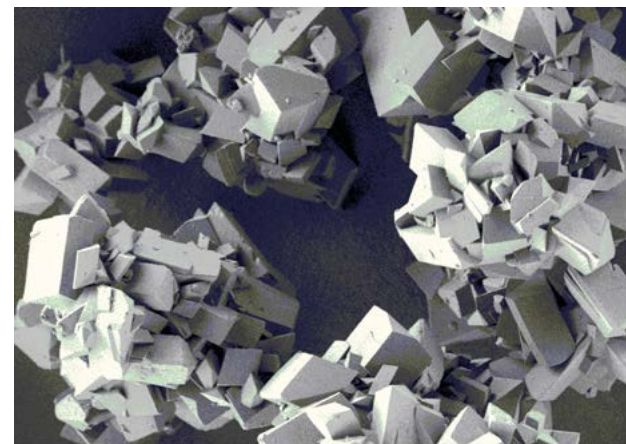
Krka, d.d., Novo mesto

### First generic medicine containing prolonged-release paliperidone based on “osmotic pump” technology

This innovation is the first generic paliperidone-containing pharmaceutical product based on a patented non-infringing osmotic delivery system available in European markets. The product involves a patented independent, prolonged-release tablet formulation. The active pharmaceutical ingredient is released from the tablet through holes drilled with a laser into the tablet's semipermeable film coating.

Innovators:

Grega Hudovornik, PhD, Gregor Ratek, Ivanka Banko, Janko Štajner, Miloš Ružič, Tomaž Kapele, Tatjana Mateović Rojnik, PhD



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## GOLDEN AWARD

Lek farmacevtska družba d.d.

### Continuous and fully integrated biopharmaceutical downstream process

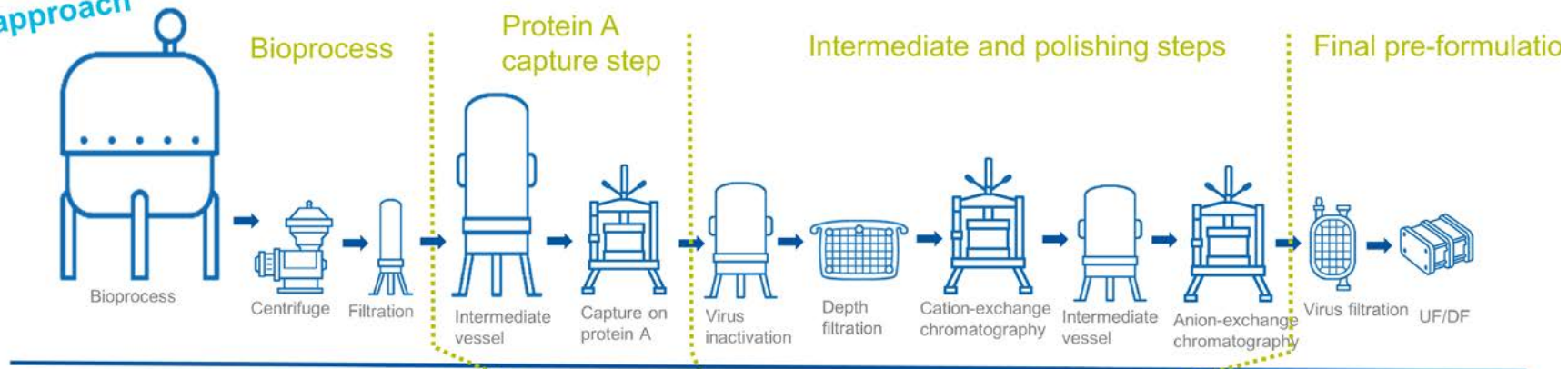
Biopharmaceuticals are highly effective medicines, but due to their complexity and high production costs they still remain inaccessible to many patients. Biopharmaceutical production is currently a series of individual steps, wherefore the nextBioPharmDSP project developed a new continuous and integrated process for purifying biopharmaceuticals on a production-level scale. The process combines continuous product isolation by efficient impurity removal and integration of advanced analytics, all resulting in significant cost reductions and increased productivity.

Innovators:

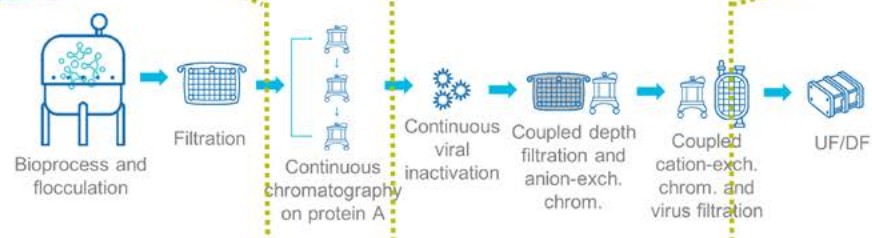
Goraz Hribar, PhD, Dejan Arzenšek, PhD, Helena Trnovec, Barbara Jeras, Linda Hribar Guštin, Jure Mohorič, Dominik Kert, Tibor Doles, Nebojša Furlan, MSc, Maja Jelenc, Tomaž Novak, Roberta Tomaš



## Traditional approach



## New process



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## GOLDEN AWARD

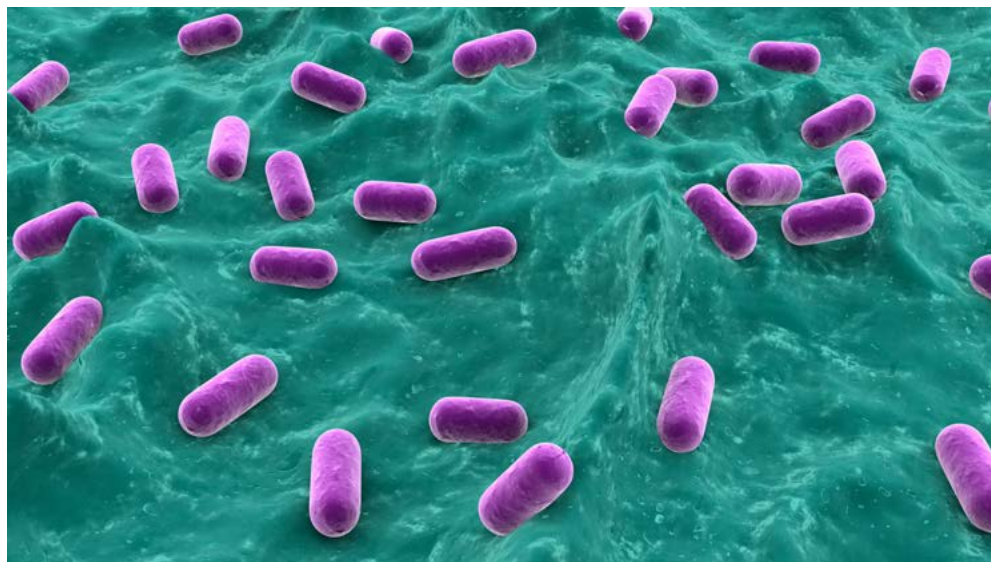
Lek farmacevtska družba d.d., Razvojni center Slovenija

### **LinComplex™: New generation of high-quality probiotic with best documented probiotic strain *Lactobacillus rhamnosus* GG**

As many as 60% of people with indigestion and/or weak immune systems use probiotic supplements, but international inspections have shown many of the products on the market not to meet quality standards and/or to be ineffective. Lincomplex™ is a next-generation premium probiotic food supplement, developed by Lek's research group and manufactured according to medical-grade standards. It contains a formula of the most researched strain in the world, namely *Lactobacillus rhamnosus* GG, along with zinc and vitamins B1, B2, and B6.

Innovators:

Gaj Stavber, PhD, Klemen Naveršnik, PhD, Melita Hribar, PhD, Katja Berginc, PhD, Nina Malešič, MSc, Dušan Gašperlin, Nataša Tanšek, MSc



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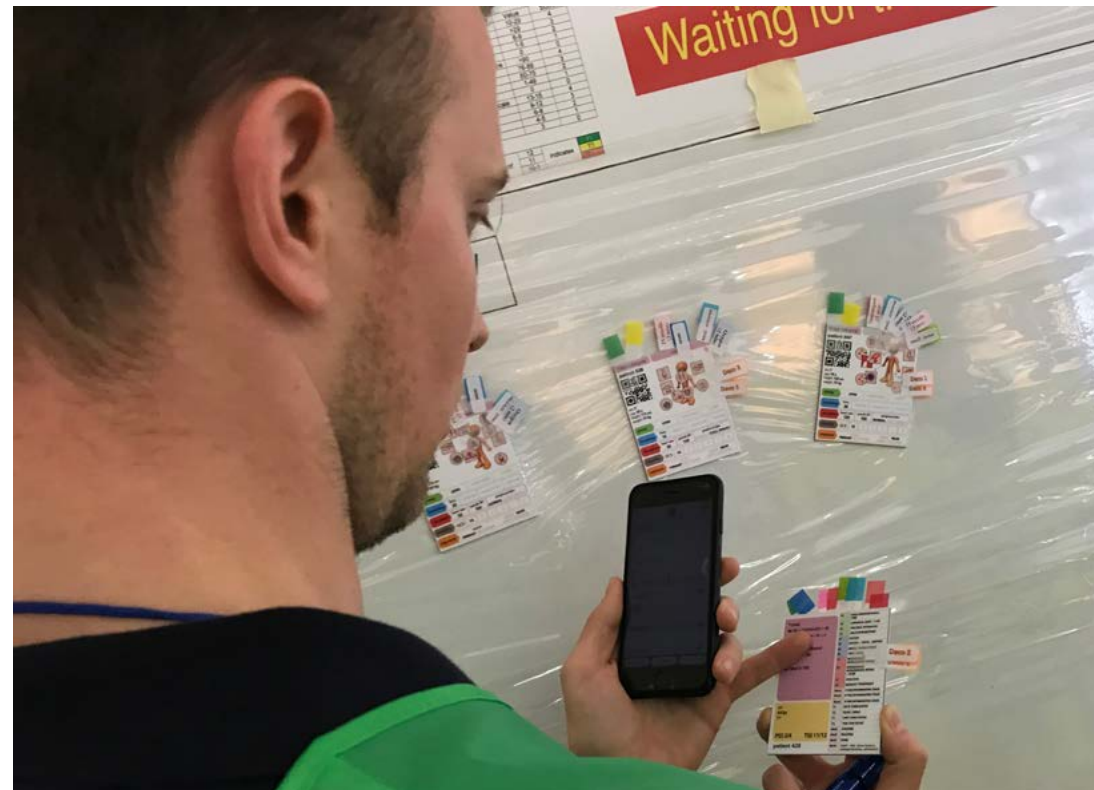
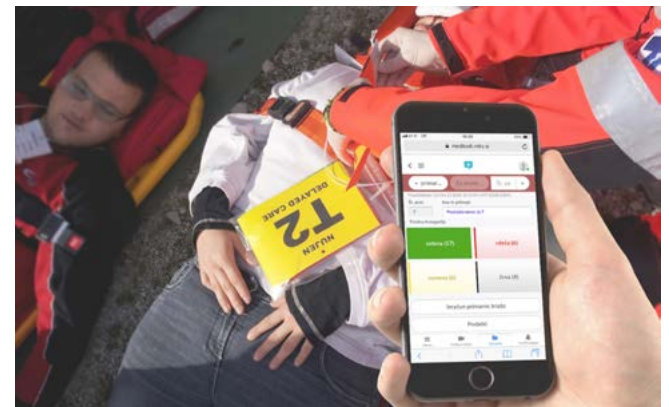
## GOLDEN AWARD

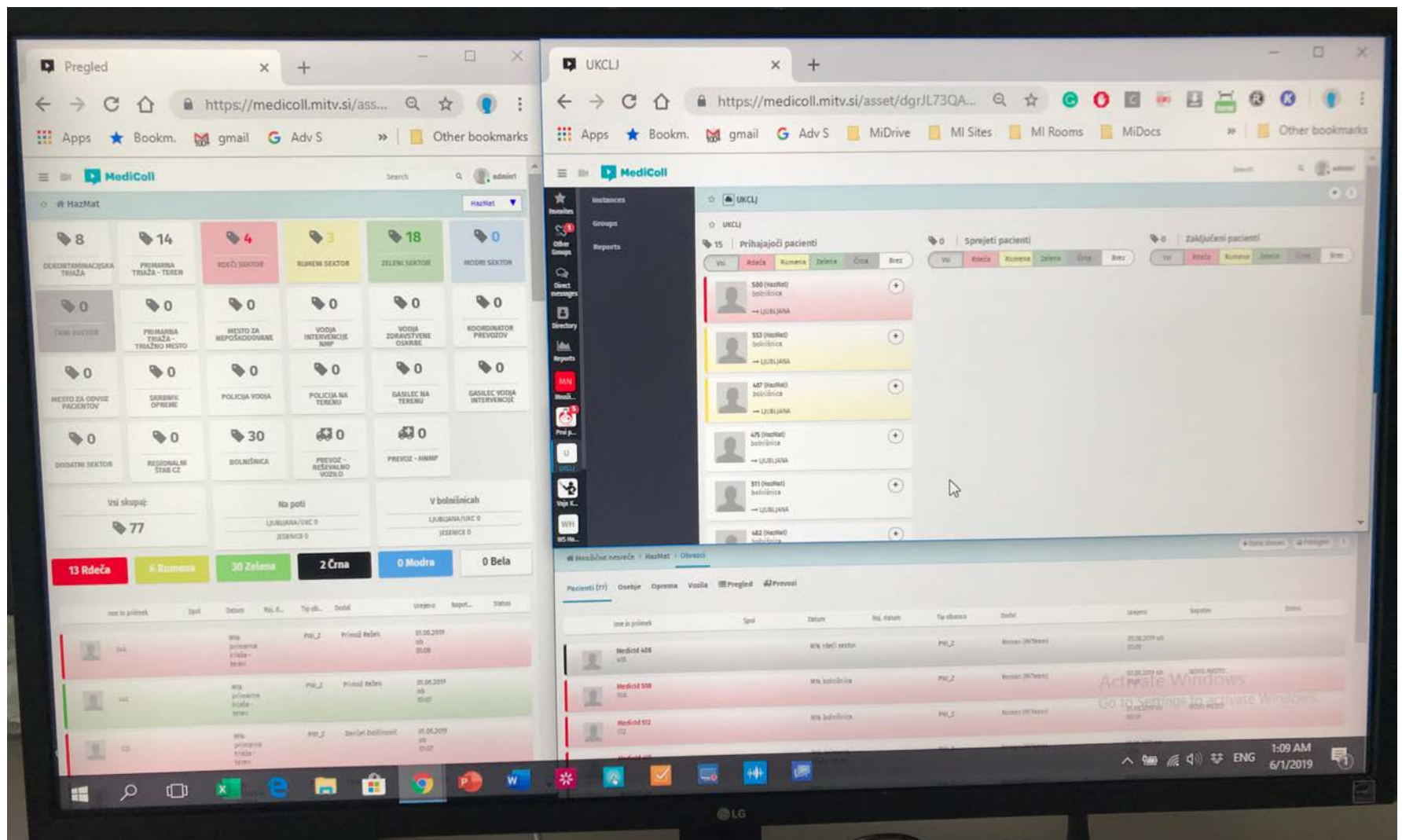
Mediainteractive Franc Dolenc s.p.

### Mobile medical emergency communications and training solution

The MiTeam Medicoll solution is a revolution in communication and collaboration among emergency medical teams. Instead of using paper, pen, and radio calls, mobile devices can now accelerate the transfer of patient data and support video consultation between hospital emergency rooms and remote emergency response teams. Much faster collection of patient data during mass incidents drastically improves medical decisions and saves people's lives. An effective overview of the course of the mass incident test and the education of participants before and after the test is provided. The Gorenjska Region has been using this solution for two years as the first such region in this part of Europe and has gathered unique experience from the project.

Innovators:  
Team MiTeam





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## GOLDEN AWARD

Titus d.o.o. Dekani and Lama Avtomatizacija d.o.o.

### Quickfit TL5 'Full Metal Jacket' dowel and FastFit insertion machine for Quickfit TL5 dowels

#### Product

The Titus Quickfit TL5 'Full Metal Jacket' dowel has outstanding pull-out resistance and provides optimal strength and performance in chipboard, MDF and solid wood. Its expanding steel sleeve ensures reliable engagement in standard 5 mm diameter panel holes. Quickfit expanding technology can be used across a wide range of furniture applications. Its self-adjustment feature provides  $\pm 1$  mm tolerance to drilling inaccuracies ensuring consistently strong joint.

The Titus Quickfit TL dowel range provides a unique solution for fast and intuitive cabinet assembly at home. For maximum efficiency the cam and dowel insertion process can be automated with the proprietary Titus FasFit insertion machine for Quickfit TL5.

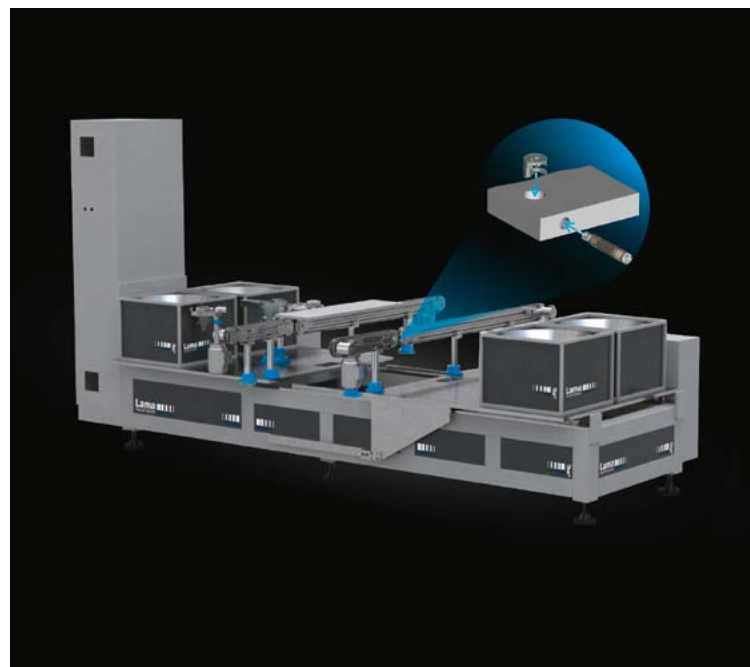
#### Process

The advantage of the FasFit machine is in the automatic insertion of expanding dowels, cams and wooden dowels into furniture panels in an extremely short time. The factory insertion of Titus cam and Quickfit TL dowel is more efficient, improves the quality of the finished product and significantly reduces the risk of quality problems and customer claims. The insertion time of the semi-products is thus approx. 3 seconds for smaller panels, and up to 7 seconds for larger multi-insert panels. The total time of panel assembly is reduced by approx. 85%.

Innovators:

Product: Rober Lukežič, Simon Križman, Veronika Mojškerc Dolenc

Process: Igor Slavec, Robert Jakin, Andrej Mahnič, Kristjan Mazi, Tomaž Lileg, Ines Ritoša



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## SPECIAL INNOVATION AWARD FOR YOUNG COMPANY

EVEGREEN, svetovanje s področja ekologije, Eva Štraser s.p.

### 100% biodegradable flower pot, made from agro waste

100% biodegradable pots are made of 60% biodegradable materials and 40% agro waste from grinding flour (wheat, rice hash, etc.).

- The challenge was overcoming the normally very high price of biodegradable materials. One of our team members helped develop an affordable solution, using agro waste as a filler. At the same time the newly developed material is ideal for use in the agro segment.
- We developed a process technology to produce new biomaterials with conventional plastic injection machines.
- We used a test mould, developed by BOKRI d.o.o, TECOS CELJE, and FTPO SG, and produced a new type of 100% biodegradable flower pots. The eco pots are very easy to use. You simply seed a plant in the pot and, when that plant is ready to be transplanted to the soil, you bury it together with the pot, right in the ground. After 3 months the pot will have fully broken down into fertilizer.

Innovators:

Eva Štraser, Domen Štraser, Karsten Brast, PhD, Roman Herlah



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## SPECIAL INNOVATION AWARD FOR YOUNG COMPANY

HighFly, d.o.o.

### Electric foil

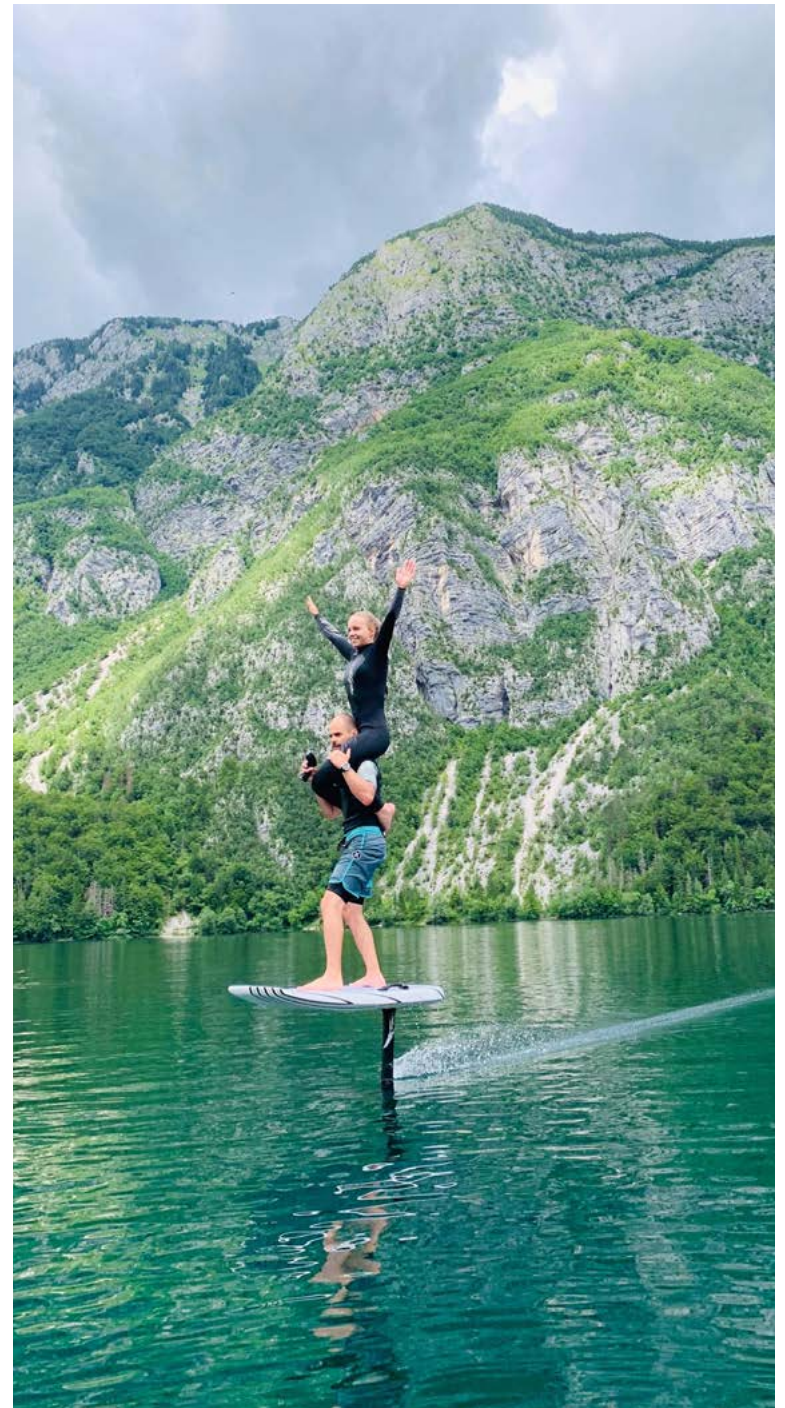
Flying Rodeo is the first electric foil on the European market and is a result of years of Slovenian knowledge and experience. This electric board rises up to 60 cm above the water's surface with the aid of underwater hydro wings, reaching up to 45 km/h while maintaining stability. It is controlled by a wireless waterproof remote and its materials are high-quality and light, weighing only 15 kg in total, which means you can take this e-foil wherever you please. It is very quiet, so it can be ridden on any water surface, it does not produce waves, and is environmentally friendly.

The Flying Rodeo experience is pure enjoyment on the water with no unnecessary emissions, sounds, or even tail wakes.

There are no obstacles to experiencing an adrenaline rush with Flying Rodeo. Not only can you ride this powered board on nearly any surface of water, you can rise up on the hydrofoil to literally fly above the water for an incredible experience, with ride times up to an hour at speeds of more than 25 km/h.

Innovators:

David Vuković, Barbara Zadravec



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## SILVER AWARD

### ADRIA DOM, proizvodnja mobilnih domov, d.o.o. Floating homes

We have developed a new and innovative product, a water-based mobile accommodation unit on a floating platform with a (walk-on) roof terrace, perfect for use in campsites, marinas, and resorts and hotel chains at the seaside, rivers, lakes, and calm canals. This innovation exceeds development specifications and statutory regulations and can be registered as a coastal vessel. This product opens a completely new niche market and combines vessels and mobile homes in a way that has not yet been properly implemented. We have taken a big leap in all technological areas at the same time (materials, construction, architecture, smart furniture, recyclability, carbon footprint, innovative and avant-garde design, and new method of use). The WoWflush system manages and purifies waste water. The product is the result of international cooperation, is patented, is highly profitable, and has been successful on the market.

#### Innovators:

Peter Cimermančič, Uroš Mavretič, Uroš Murn,  
Blaž Jakopin, Jernej Jazbec, Isabella Piluscio,  
Omar Angeli

#### Company

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[www.adria-mobilehome.com](http://www.adria-mobilehome.com)



## SILVER AWARD

BSH Hišni aparati d.o.o. Nazarje

### CleverMixx Hand Mixer with spotlight

A hand mixer with a light, the CleverMixx-Spotlight is a global innovation. Such solutions are not offered by any of our competitors in this product segment. Light from two LED diodes clearly illuminates the processed ingredients regardless of background illumination. The Spotlight targets all markets where BOSCH is present, especially the Chinese market. Let us emphasize that low-cost products are usually produced in China, but in our case, the Spotlight is produced in Nazarje and sold to China.

Innovators:

Jurij Pešec, Borut Gruber, Sonja Bürzle, Agnieszka Kosinska, Katarzyna Machowska, Jožica Pečnik, Darko Atelšek, Samo Golavšek, Roman Pačnik, PhD, Simon Knez, Gregor Ročnik, Uroš Klemše, Dejan Gosar, Aleš Plohl, Aleš Kreslin, Peter Leskovšek, Marko Atelšek, Andreja Kosmač, Jurij Goličnik, Aleksander Oblak

Company

BSH Hišni aparati d.o.o. Nazarje

Savinjska cesta 30

3331 Nazarje

[www.bosch-home.com/si](http://www.bosch-home.com/si)



## SILVER AWARD

CPPE d.o.o.

### Cryogenic pressure reactor system (CPRS)

The Cryogenic Pressure Reactor System (CPRS) is a regulated-automated pressure batch reactor system, which allows precise operation in the reactor jacket's temperature range from -196 to 200 °C, as well as under extremely high pressures. With this innovation we have overcome the problem of the direct and dangerous manual addition of liquid nitrogen directly into reaction mixtures. Furthermore, the developed system provides a precise and fast response, as well as automatic control of temperature and pressure. This is very useful for accurately controlling the reaction and separation stages for different processes used in the chemical and pharmaceutical industry. With the use of the developed CPRS the user can set the temperature of the reactor jacket from -196 to 200 °C and the pressure in the reactor up to 100 bar.

Innovators:

Alen Kljajić, Jernej Mele

Company

CPPE d.o.o.

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## SILVER AWARD

ETI Elektroelement d.o.o. and RC eNeM Novi Materiali d.o.o.

### Development of new technology for manufacturing extruded NH fuse bodies

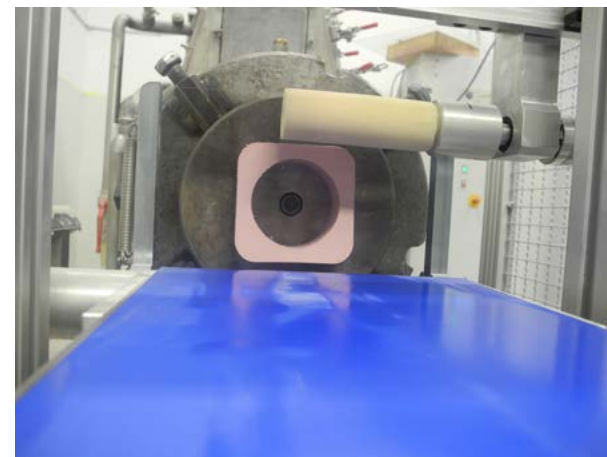
The main focus of this innovation is the automation and robotization of NH fuse body extrusion technology. Its two main benefits are the elimination of hard physical work and the reduction of human factor influences on the product's quality. It also ensures process repeatability with increased productivity. With the new generation of extrusion tools, we were able to increase the mechanical strength of NH fuse bodies by 50%–60%. By increasing product quality and cost-effectiveness, we gained access to more demanding customers and developed new products. The innovative technical solutions integrated in this innovation establish new guidelines in the technology of NH fuse body manufacturing and controlling for internal pressure. This innovation has enabled us to remain Europe's leading manufacturer of extruded NH fuse bodies and a shining example to the competition.

#### Innovators:

Samo Urbanija, Franci Ocepek, Jure Raspotnik, Peter Bregar, Blaž Zupančič, Simon Železnik, Matej Prnaver, Jano Grden, Matic Kreže

#### Company

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and RC eNeM Novi Materiali d.o.o.  
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1411 Izlake  
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## SILVER AWARD

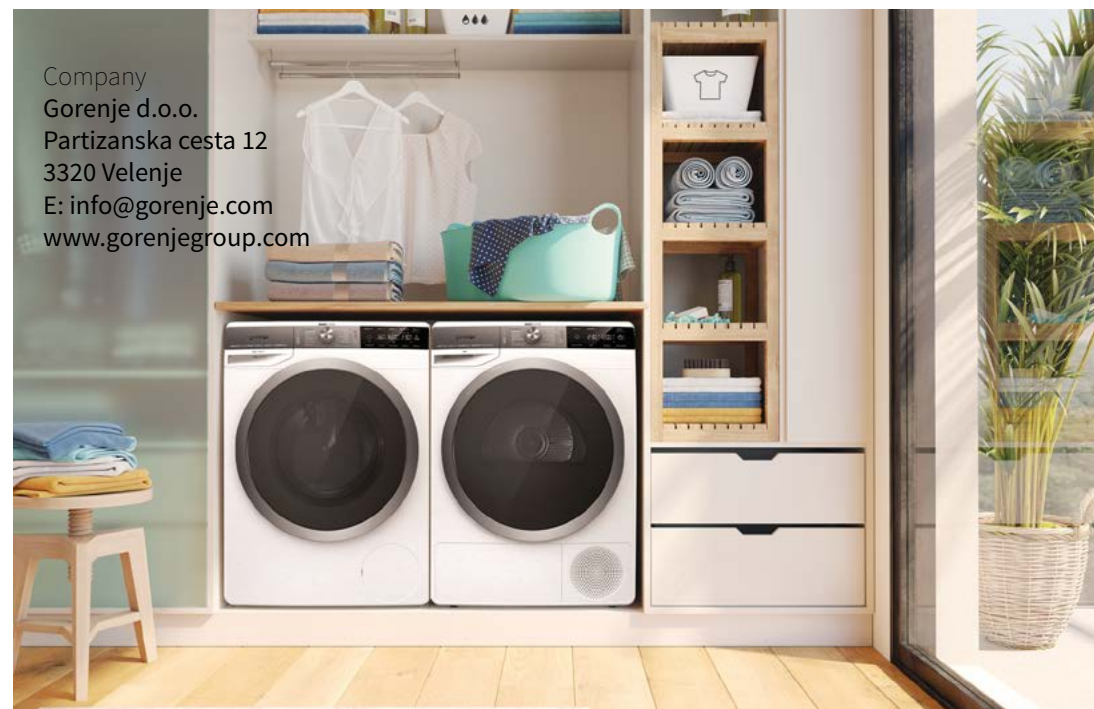
Gorenje d.o.o.

### New generation of washing machines and tumble dryers WaveActive Gorenje

WaveActive washing machines and tumble dryers from Gorenje combine cutting-edge cleaning technologies like SteamTech, which rehydrates and breaks down dirt, and IonTech, which uses the power of ions to remove 30% more stains. The uniquely designed drum, with special undular ribs, ensures the softest garment treatment ever. WaveActive dryers take advantage of IonTech technology to create odour-free environments, leaving clothes smelling fresher. SteamTech technology penetrates every fibre and makes laundry softer, rendering ironing practically unnecessary. Gorenje WaveActive washers and dryers meet the highest environmental standards and are highly energy efficient.

Innovators:

Blažka Beričić, Maja Cvejič, Goran Damijanović, Ines Doler Habjanič, Niko Dren, Aleš Gašper, Pero Gatarič, Matej Golavšek, Brigita Hrastnik, David Janota, Janez Konovšek, Uroš Koren, Jakob Koželjnik, Žiga Kričaj, Matjaž Kuhar, Polona Lesjak, Romana Leskovšek Laznik, Roman Mačkovšek, Aleš Mihelič, PhD, Adnan Mušič, Zlatko Novak, Robi Pogorevc, Lidija Pritrznik, Miran Razboršek, Jože Skornšek, Urh Sredenšek, Mitja Štimulak, Gregor Tepež, Uroš Trupej, Zoran Uršič, Matej Volk, Stojan Zagoričnik, Aleš Zaverla



## SILVER AWARD

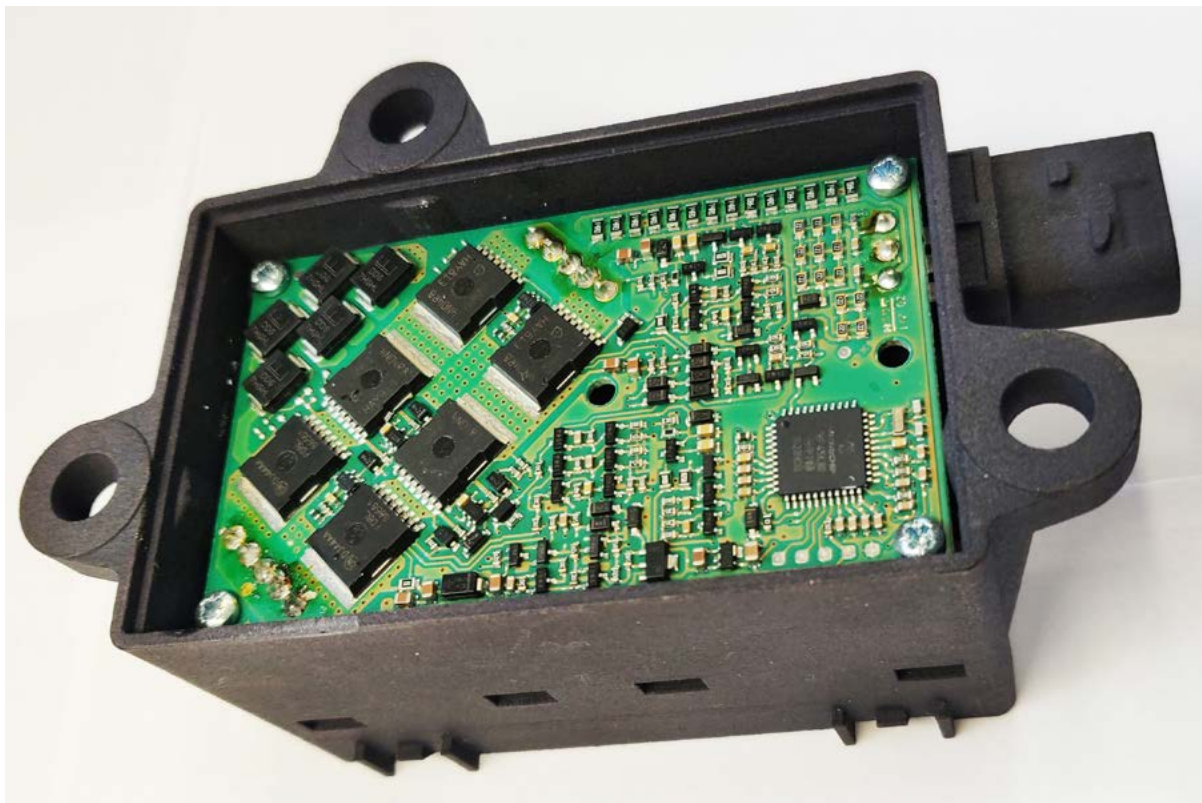
Hidria d.o.o., subsidiary Tolmin

### Pre-heater relay

The pre-heater relay is a solid state (no moving parts) relay intended for controlling air heaters in EURO6 engines. The main drivers behind the development of new pre-heater relays are MOSFET obsolescence in existing solutions, quality issues in the existing market solutions, achieving ROHS2 norms and implementing functional safety requirements according to ISO 26262 standard, introducing the duplication of protective functions (like in aerospace industry), and a novel approach in terms of current sensing and protection functions.

Innovators:

Jaka Kleč, Tomaž Munih, Jernej Rejc, Matej Ivančič, Jani Čebokli, Tilen Rakušček, Klemen Dobravec, Rok Bizjak, Andraž Gregorčič, Aleš Kranjc, Bogdana Leban



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## SILVER AWARD

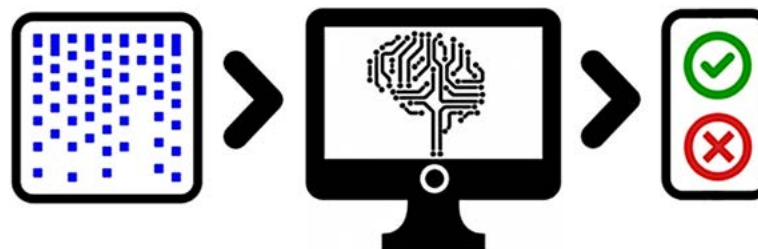
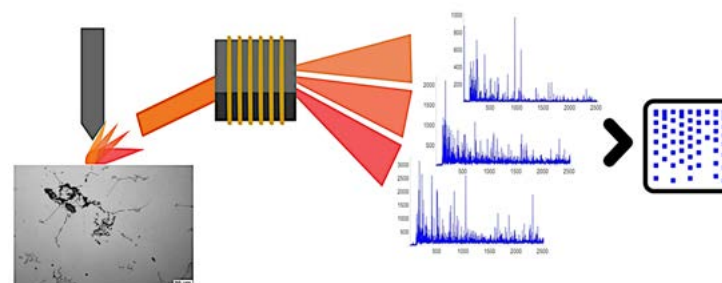
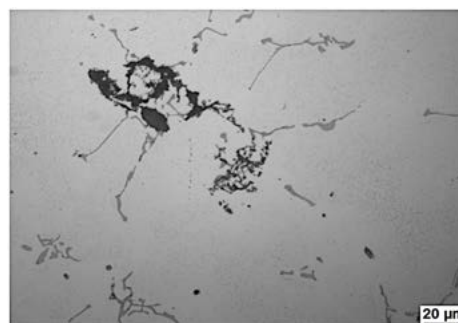
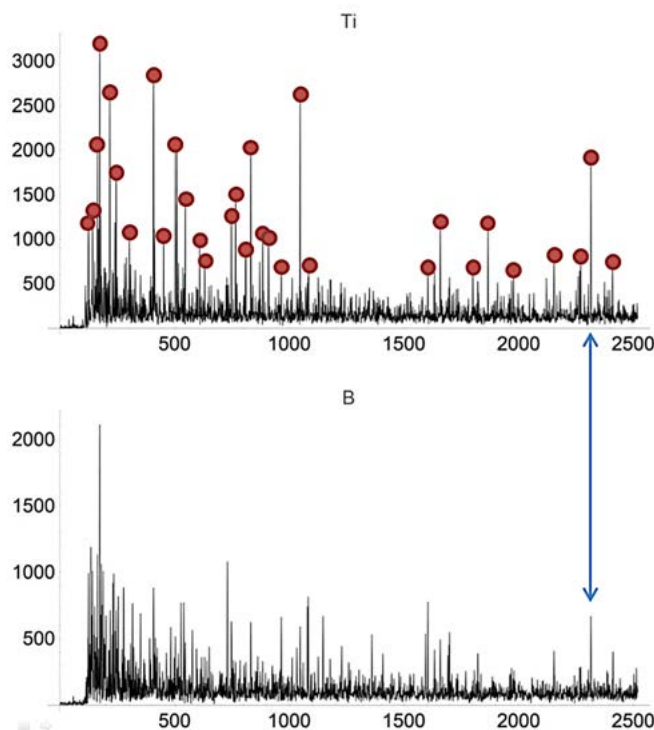
Impol 2000 d.d.

**Fast and reliable evaluation of the quality (i.e. the allowed amount of the non-metallic inclusions) of wrought aluminium alloys (whether the sample is good or bad) based on an algorithm for the smart filtration (ASF) of the optical emission spectrum (OES)**

Innovators developed a promising approach for the fast inspection of chemical composition and inclusions in wrought aluminium alloys, namely the optical emission spectroscopy (OES). However, in order to separate the peaks corresponding to particular inclusions from those of microstructural features in the matrix, advanced filtering of the OES spectrum is necessary. The methodology is based on data-driven predictions of whether the analysis sample is good or bad. It was established through systematic quality control using optical and SEM microscopy in combination with OES. The currently achieved quality of the predictions is higher than 95%.

Innovators:

Varužan Kevorkijan, Janez Langus (C3M), Irena Lesjak, Marko Degiampietro, Uroš Kovačec, Peter Cvahte, Tomaž Šustar (C3M), Lucija Skledar, Sandi Žist, Marina Jelen



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[www.impol.si](http://www.impol.si)

## SILVER AWARD

Iskratek d.o.o.

### SI3000 Lumia GPON OLT as a hybrid product (amphibian)

GPON OLT is changed into a pOLT via a software upgrade with software running in the cloud, without any hardware upgrade. "We are very proud of the first product, which allows operators to avoid an entire investment cycle when transforming their networks to next-generation access," said Janez Ōri, Director at Iskratek. "Our solution facilitates a cost-effective upgrade of the existing infrastructure, even before operators move on to fully virtualised NGPON architecture." The new OLT was revealed at the SDN NFV World congress in October 2018.

Innovators:

Andrej Kržišnik, Team ACORD

Company

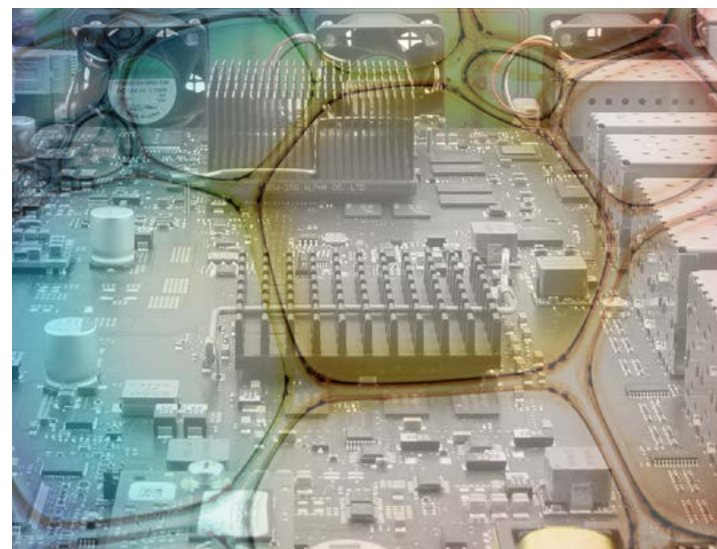
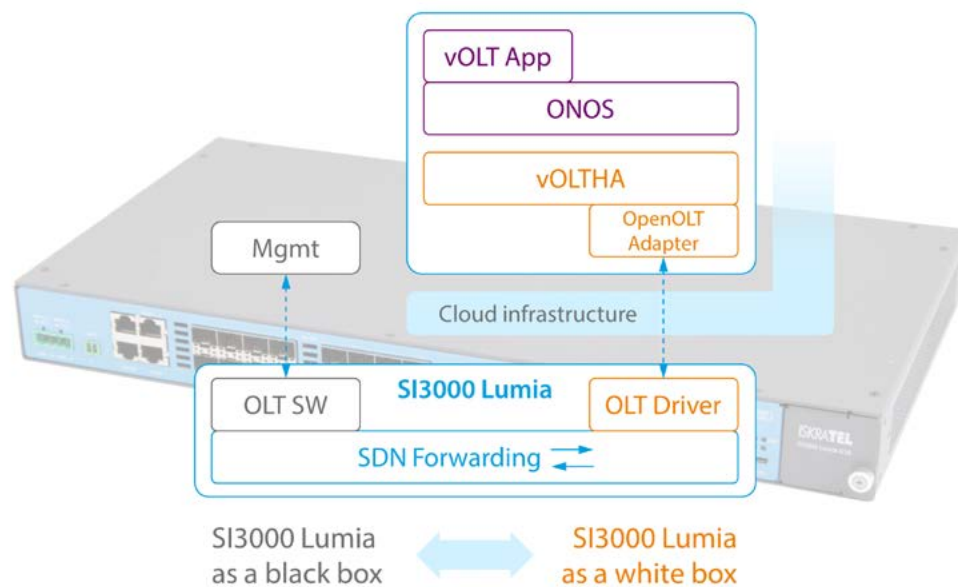
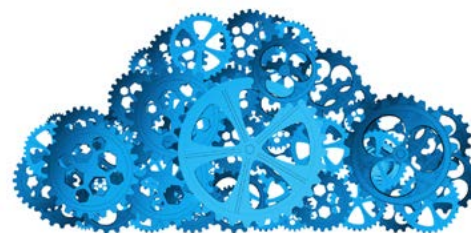
Iskratek d.o.o.

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www.iskratek.com



## SILVER AWARD

KATAPULT, družba za spodbujanje podjetništva, d.o.o.

### 5KA book publisher

5KA is an innovative publishing concept. There are many talented writers in Slovenia, but many of them go unheard of because the current publishing environment makes it difficult for them, even if they have a book rich in content. Publishing House 5KA's concept supports high-quality Slovenian writers; we actively work with them and at very low risk we can dedicate our efforts to the book's quality. Through a network of educative and innovative approaches, we raise the level of reading culture, make reading more approachable to young people, and, above all, improve the quality of the Slovenian written word. This is vital for our culture.

Innovators:

Urša Poznič Goršek, Petra Škarja, Jure Knez, PhD



Company

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## SILVER AWARD

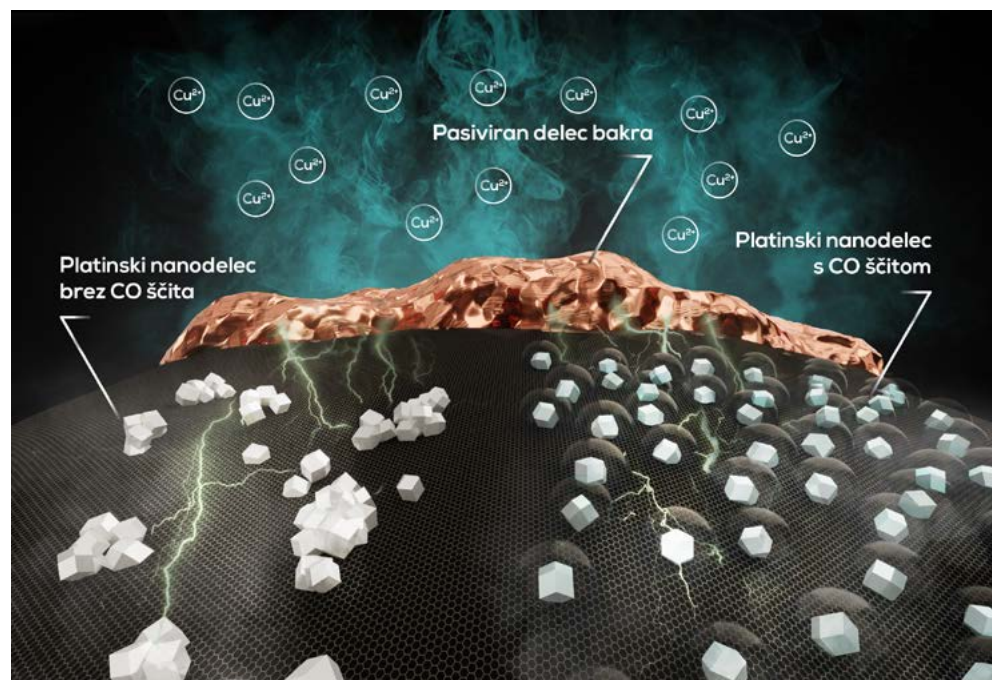
Kemijski Inštitut

### Innovative nanofabrication process for catalyst production of better and cheaper hydrogen fuel cells

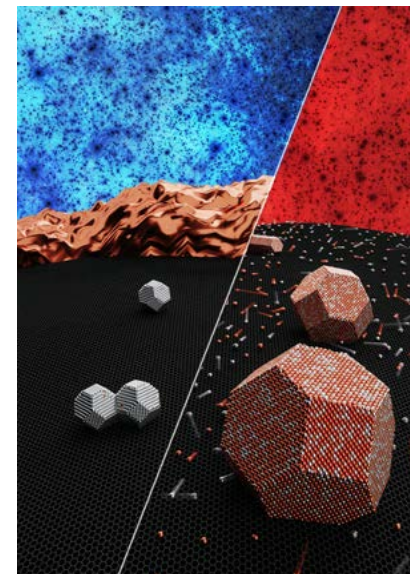
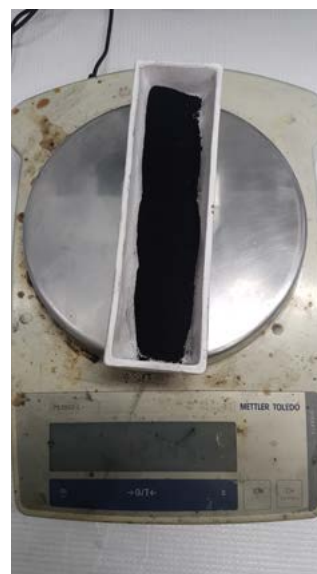
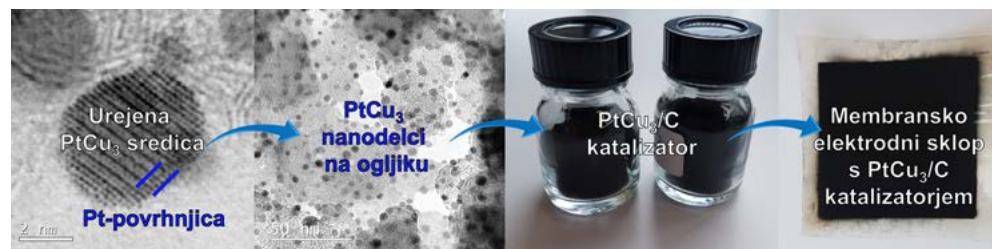
In the race to cut greenhouse emissions, hydrogen fuel cells offer a green alternative to electrical energy production by converting hydrogen and oxygen, with the help of a catalyst, to electricity and water. One of the major issues facing the wider adoption of this technology is the price of catalysts, which make up almost half of the total manufacturing costs of hydrogen fuel cells. Scientists at NIC have developed a new nano-technological process and with it a platinum-copper alloy catalyst that is cheaper to manufacture and several times more active than the best alternatives on the market.

Innovators:

Matija Gatalo, MSc, Marjan Bele, PhD, prof. Miran Gaberšček, PhD, Nejc Hodnik, PhD, Tomaž Bizjak



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## SILVER AWARD

Kolektor KFH d.o.o.

### Digital visualization in work processes

Along with global digital transformation, the time and the opportunity has come to make some changes in how we train employees and communicate key information. Video content, 3D animation, and augmented reality are essential components of this innovation, which will replace paper-based instructions and bring a new interactive way of training and delivering information. Increased speed of learning, easier understanding of procedures, the “repeat what you see” context, the speed of generation, and easy access to the material are just a few of the innovation’s positive features, which are uncovering new application possibilities on a daily basis.

Innovator:

Matej Jurman

Company

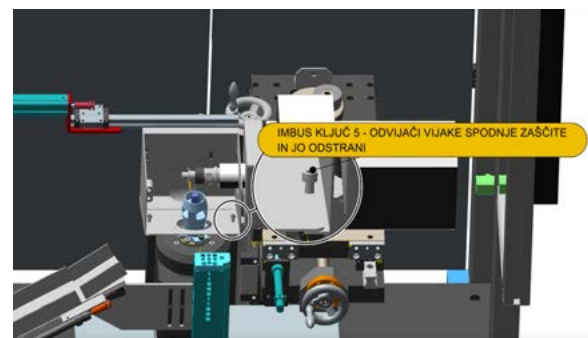
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## SILVER AWARD

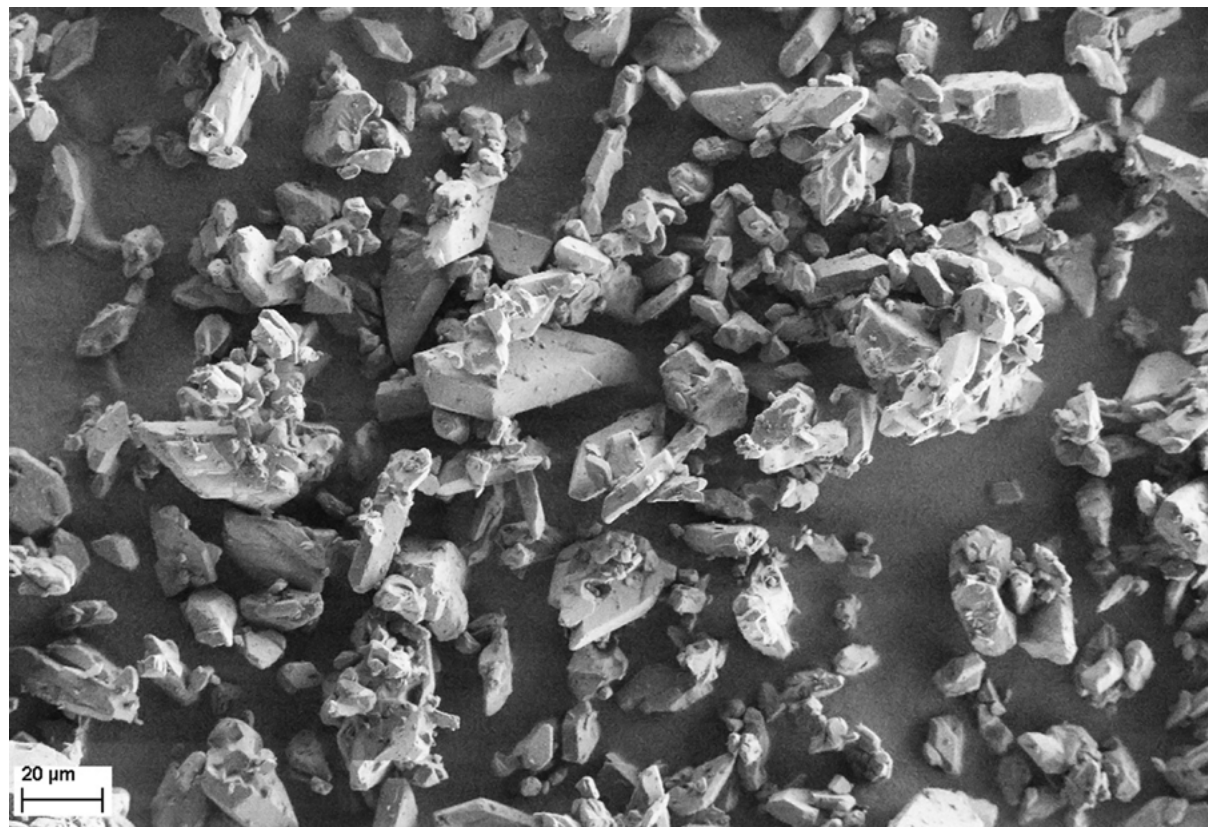
Krka, d.d., Novo mesto

### **Solid dosage form with a combination of olmesartan and amlodipine for treating hypertension**

This innovation involves the development, manufacture, and marketing of a patent non-infringing and patient-friendly single-pill combination of olmesartan medoxomile and amlodipine available as film-coated tablets for the treatment of high blood pressure. With this innovative product of clinically proven efficacy, Krka has achieved a high market share on its key markets.

Innovators:

Nina Brvar, PhD, Irena Hrovat,  
Simon Kukec, PhD, Matej Repič, PhD,  
Silvo Zupančič, PhD



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[www.krka.si](http://www.krka.si)

## SILVER AWARD

Kvadro Studio d.o.o.

### Baby seat Chair Nest

The “Chair Nest” folding baby chair is an innovation developed out of necessity. It allows adults to put their child in a safe baby chair – the “Chair Nest” – without feeling guilty while attending to their own needs e.g. while in the restroom (at shopping centres, airports, restaurants, rest stops, etc.). The Chair Nest can also be used in fitting or changing rooms. Parents can thus try on clothes worry-free, while their child sits beside them relaxed in a spacious and ergonomic seat. The product is also very useful in changing rooms at pools and other recreational centres. The chair is made of natural, child-friendly materials. Its design ensures durability, firmness, and wear resistance. This innovation is certified according to standards for baby chairs. We – for the safety of our children!

Innovator:

Dejan Rojko, MSc



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<https://kvadro-studio.com>



## SILVER AWARD

Ledinek Engineering d.o.o.

### **Production line for cross-laminated timber panels with two presses and 2K glue application**

A complete CLT (Cross Laminated Timber) production facility from one supplier in Norway. The line just recently went into the production stage and will shortly begin supplying the domestic market with high-quality CLT panels. This is the First CLT production line made by Ledinek using MUF glue for the surface bond. In cases where the input wood is not sorted, defects are marked manually on a marking station. All machines are integrated under our specially developed X-Lam manager, a PC-based control system, which also facilitates the use of wood of two different qualities, forming a complete production unit with higher value added on the final product.

Innovators:

Gregor Ledinek, Vojko Mulec, Robert Dvoršič, Marko Nikić

Company

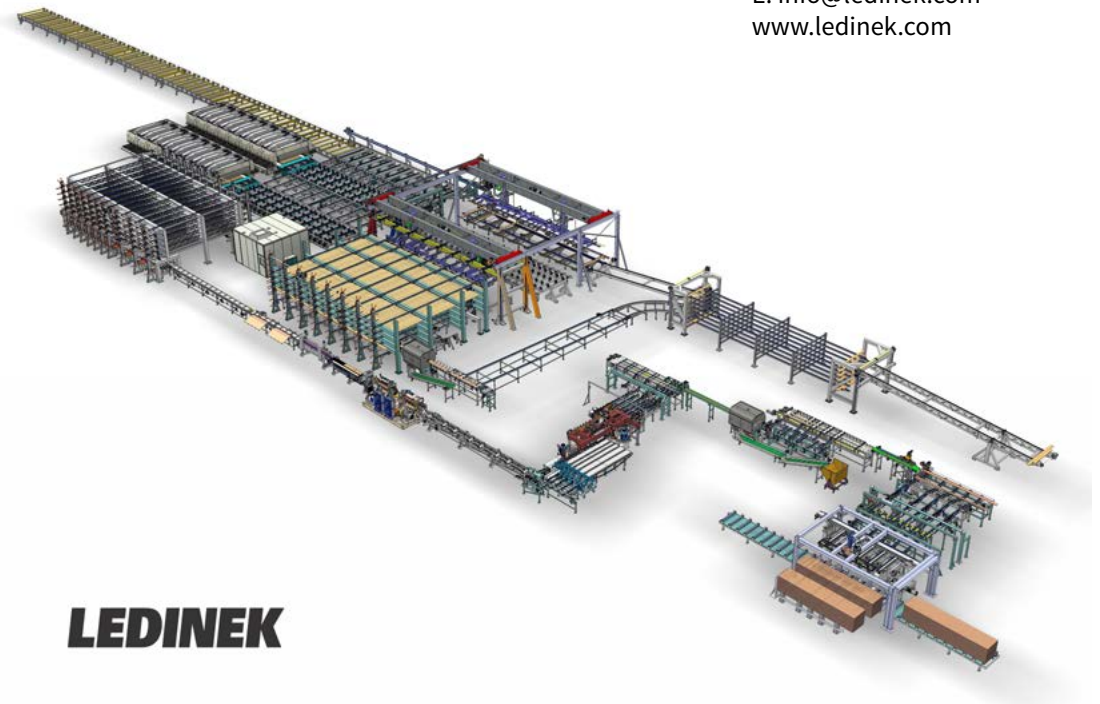
Ledinek Engineering d.o.o.

Slivniška cesta 18

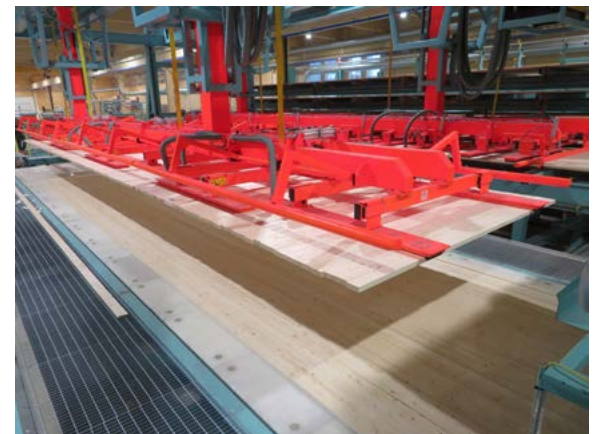
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# LEDINEK



## SILVER AWARD

Mahle Electric Drives Slovenija d.o.o.

### Electronic control unit for vehicle electric drives

The most recent electric drive controller produced by MAHLE, with designation MC-040, is a result of the new approaches to the company's hardware and software architecture in industrial applications. Its compactness and outstanding flexibility facilitates the production of electric drives with regeneration and other associated vehicular function sets with very adaptable software. The product is the fruit of collaboration among several of MAHLE's R&D teams and the know-how that these teams gained in joint R&D projects with Slovenian academic institutions and R&D Centres.

Innovators:

Jurij Podržaj, PhD, Gregor Babič, Saša Nedeljković, Ambrož Vrtovec, Tadej Fegic, Sandi Ferjančič, Matic Hajdič, Kristjan Saksida

Company

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## SILVER AWARD

Muflon d.o.o.

### Removable wallpapers

Newly developed Muflon modular wallpapers are different from traditional wallpapers on the market. The vast majority of wallpaper currently found on the market is made in a roll of about 0.5 x 5 m with no adhesive applied, so users have to administer some glue before affixing the wallpaper. Muflon's new modular wallpapers are made 30 x 30 cm, and with them users can create design solutions for their own walls from pre-imprinted design solutions (widgets), changing it after a certain period of time by redistributing the building blocks. The adhesive is already applied to the wallpaper, so they are ready for immediate wall application. The wallpaper is made of special material that allows you to air out your wallpaper, while still ensuring easy removal and reuse.

Innovators:

Barbara Sušin, Irena Kampuš, Matjaž Verdev, Nataša Plauc



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[www.muflon.si](http://www.muflon.si)



## SILVER AWARD

Numip d.o.o.

### Highly effective venturi element for the pharmaceutical and process industry

The NuVE venturi element is a highly effective tubular element enabling a simplified, cost-effective solution for sampling bypass execution in purified fluid installations. Its role is differential pressure generation and consecutive fluid circulation in bypass with velocities enabling turbulent flows. NuVE solves the problems of currently available venturi (so-called Dynaflux) elements, which achieve very limited characteristics. Highly efficient NuVE type venturi elements exceed competitive products in generated pressure difference and bypass flow velocity by factor of 5 and more.

Innovators:

Matej Pleterski, Domen Zorko, Žiga Jeraj, Jože Umek

Company

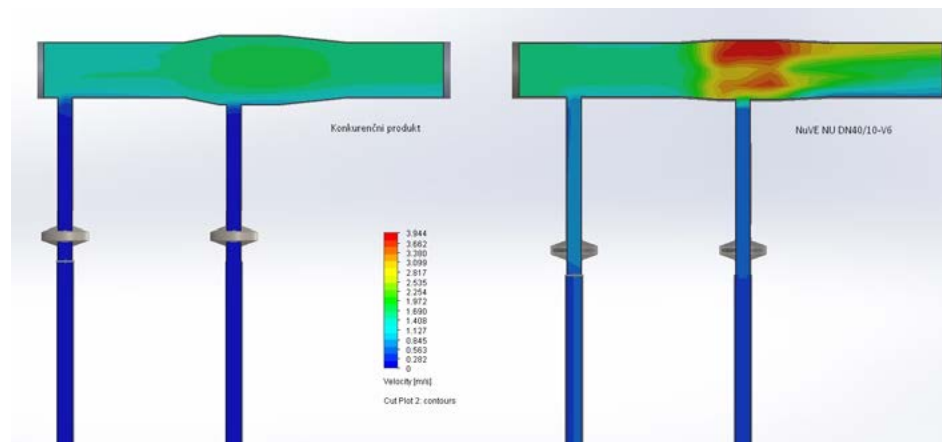
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[www.numip.si](http://www.numip.si)



## SILVER AWARD

Paeyball, podjetje za storitve, posredništvo in trgovino, d.o.o.

### Multifunctional table for fun sports, training, and activities

Paeyball is a multi-purpose table for all generations to actively enjoy sports entertainment and socializing at home and outdoors. It is also intended as an additional training tool for maintaining the physical shape of athletes of various disciplines and ages. The table can also be used for outdoor activities and simply as an additional table for the home. It is completely foldable and can be easily adjusted to three heights, also allowing children to play and adults to play in a sitting position.

Innovators:

Marko Hanc, Tomaž Hanc, Jože Verban

Company

Paeyball, podjetje za storitve,  
posredništvo in trgovino, d.o.o.

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[www.paeyball.com](http://www.paeyball.com)



## SILVER AWARD

Podkrižnik d.o.o.

### Electric outboard motor for boats – E'DYN 1120

The E'DYN 1120 is the first outboard drive system under E'DYN ("Electric Dynamic Nautic") trademark. The system is a complete propulsion system for the electric nautical system and is intended for the first installation in various vessels. The E'DYN 1120 system consists of memory, Lithium-ion battery, outboard drive, control electronics, wiring, display and torque arm. In addition to the stable and high-performance system infrastructure, an outboard motor is a key innovation. It has an integrated high-efficiency electric motor, a closed cooling system, has low weight, is very quiet, and allows the use of various propellers. Driving the E'DYN 1120 enables end-users a quiet, dynamic, reliable and environmentally-friendly ride on the water surface.

Innovators:

Simon Kulovec, PhD, Matija Hriberšek, PhD,  
Gorazd Hlebanja, PhD, Tomaž Kastelic, Matej Kramer,  
Blaž Selišnik, Matej Bregar, Andrej Rihter, Matevž Reberčnik,  
Miha Erjavec, Uroš Cerkovnik, Aleš Turk, Timotej Kraner,  
Rok Zdolšek, Andrej Štok, Erik Dobrovč

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## SILVER AWARD

Roto Group d.o.o.

### Waste water treatment plant SBR-Q

The SBR-Q municipal wastewater treatment plant is a market innovation, as an upgrade to the existing biological wastewater treatment plants with so-called SBR operation or cyclical wastewater treatment. It is intended for the treatment of waste water from facilities with a constant flow of water, such as tourist facilities.

The owners of such a treatment plant can completely rely on its operation and limit their inspections to only once per year. The treatment plant's operation can be continually monitored remotely from a mobile app. This saves costs associated with contacting customer service departments and unnecessary pumping of treatment plants. As a result, the cost of maintaining municipal wastewater treatment plants is reduced and their service life is increased.

Innovators:

Aleš Žekš, Matjaž Pavlinjek, Vito Žalig, Nuša Pavlinjek, Suzana Temlin Sukič



Company

Roto Group d.o.o.

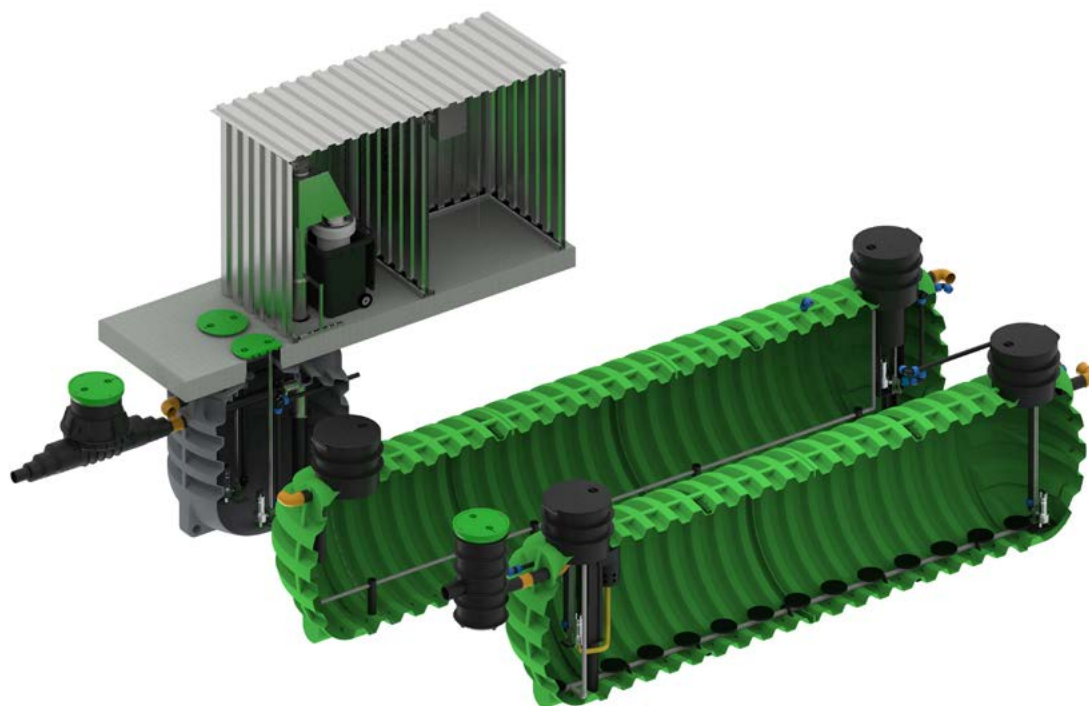
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roto-group.eu



## SILVER AWARD

SIJ Metal Ravne d.o.o., Ravne na Koroškem

### Advanced cold work tool steel SIHARD S671 – DURAWEAR

This new air-hardening, cold work tool steel SIHARD S671 is the result of our own development. Its superior properties were achieved through an innovative alloying concept with titanium, which is a worldwide innovation. SIHARD S671 steel features 30% higher abrasive wear resistance and with comparable hardness and higher toughness than the standardized steel SIHARD 2379 (AISI D2, W.Nr.1.2379), which is commonly used worldwide. In addition, it has 120% higher relative edge retention (chipping resistance), 70% better relative galling resistance, and comparable relative adhesive wear resistance. These qualities make it an ideal replacement for SIHARD 2379 steel in all its applications.

#### Innovators:

Tatjana Večko Pirtovšek, PhD, Peter Kirbiš, Jernej Turščak, Marko Peršič, Gašper Stopar, prof. Bojan Podgornik, PhD, Alen Šapek, Iztok Šušterčič



#### Company

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## SILVER AWARD

Tajfun Liv d.o.o.

### Foldable crane with linkF mechanism

ZK cranes are distinguished by a special innovative link, “linkF”, between the first and second boom. This link makes the LIV120ZK crane the market’s first to enable such drastically improved kinematic and lifting capacities. This solution leads directly to higher productivity in loading and unloading logs, waste, recyclables, and other materials.

Innovators:

Branko Gril, Boris Jerman, PhD



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## SILVER AWARD

TEVEL d.o.o.

### Wi-Fi sensor module for gas detection

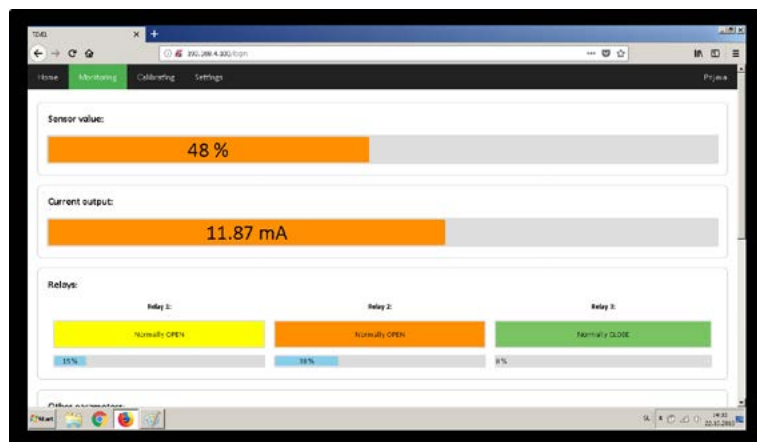
The gas detector DEG/DTG was designed on a new and modern platform. It is a brand-new, modern approach to using such sensors. The detector is intended for explosive and toxic gases in industrial environments. It is made with protection against explosions, facilitating broad application opportunities, not only in the usual industrial environments, but also in environments where increased safety is required (zone 2). Besides the standard industrial analog current output of 4 mA – 20 mA, the innovation's essential feature is its connectivity. It is equipped with a Wi-Fi interface that allows for device management, calibration, and customization parameters. The user interface is easy and provides live monitoring, which allows the user to view and monitor the current value of gas concentration and other key parameters.

Innovators:

Nejc Žepič, Matjaž Javoršek, Dejan Vincek, Maja Rozman



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## SILVER AWARD

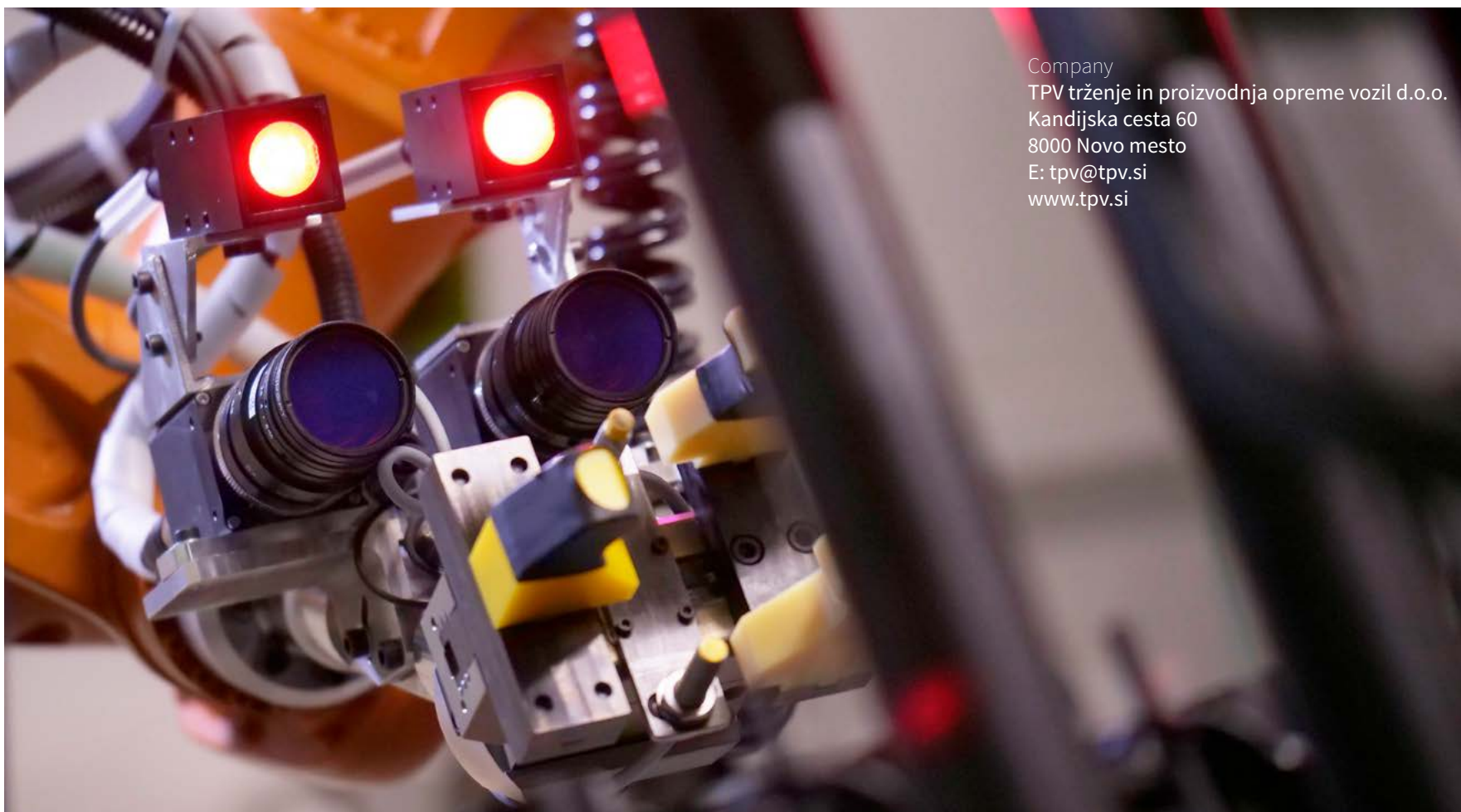
TPV trženje in proizvodnja opreme vozil d.o.o.

### **Smart factory module for unloading products from e-coating hangers with integrated automated quality control**

For the purpose of continuous improvements aimed at increasing productivity, improving quality, ergonomics, safety, and cost-cutting, and with intent to achieve the objectives of industry 4.0, TPV has developed a smart factory module for unloading products from e-coating hangers, integrating automated quality control of products after e-coating. This innovation combines all necessary operations into a single one and replaces repetitive operator movements incurred during any work on high-series products and subjective evaluations of control points with a sophisticated and technologically advanced solution.

Innovators:

Mišo Pereško, Domen Murn, Miran Ferenčak, Jernej Knežič, Aleš Hribar, Tatjana Lamovšek, Aleš Mohorčič, Andrija Puškaš (Pro EL d.o.o. Zagreb), assist. Frpf. Drago Bračun, PhD (University of Ljubljana)



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## SILVER AWARD

Vilko Pustotnik and Aljoša Tušek

### Ultra-Light Hyper Car with front-axle drive using an external rotor electric motor without a power converter

The subject of the invention is a technical system connecting an electric motor, a safety clutch with a disc brake, an internal joint, a shaft, and a homokinetic joint with a shaft for attaching a wheel hub. The innovation enables the direct transfer of power from the electric motor to the drive shaft/vehicle shaft. The system can also be used to power a machine, boat, or any other technical device. The presented powertrain enables 100% power utilization from the electric motor to the wheel of the vehicle, as it has no built-in elements that would reduce efficiency, as the case with current technical solutions that use gearboxes and differentials. The energy generated by the vehicle's normal braking can be transmitted via a wheel and a shaft to an electric motor, which, in the event of braking, acts as a generator and converts it into electricity, storing it in batteries.

Innovators:

Vilko Pustotnik, Aljoša Tušek



Company

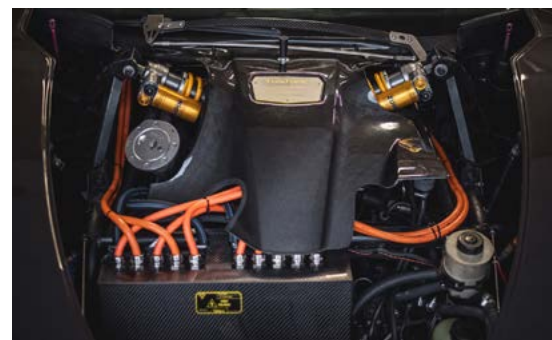
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## SILVER AWARD

Vivapen d.o.o.

### Automated machine for 3D shape screen printing on fountain pens

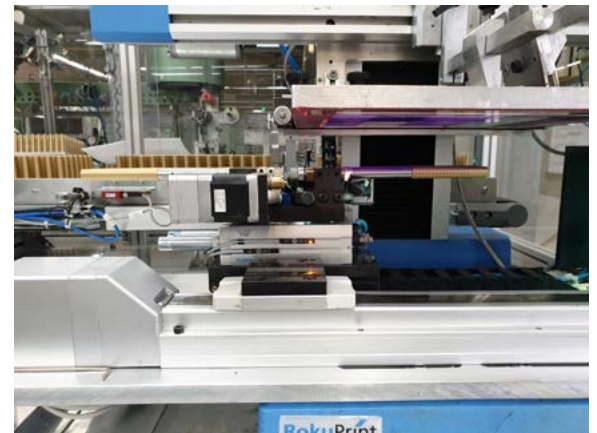
For a customer's product, a fountain pen, we developed an automated process solution for screen printing 3D dots on the pen's triangular shaft. The solution aided in avoiding difficult re-insertion into the tool for dot injection in the second component and eliminated the possibility of scratches on the lacquered surface during insertion. With the correct choice of lacquer and UV-drying process, we ensured the dots' excellent adhesion to the surface. The process is automated from the beginning to the end, where at the same time two rows of dots are applied to two shafts on one side, and on the other finished shafts are removed and raw shafts are mounted on the holders. We also standardized packaging for internal transport, which allows us to get a quicker overview and speed up further assembly through simpler handling. We connected the machine to the System SKRBNIK, which shows OEE in real time and reports downtime. The solution enables fast colour changes, fewer errors, and an overall expedited process.

Innovators:

Vivapen automatisisation group



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## BRONZE AWARD

KOVINOPLASTIKA LOŽ d.o.o.

### Deep drawn stainless steel sink with small radius R15

Dishwashing sinks primarily use two types of bowls. Traditional containers in the lower and middle segments have bowls with a large radius. Higher-quality bowls and sinks are made with a design-complete small radius, which are still practical for cleaning. These bowls have until recently been manufactured only via demanding, wasteful, and costly production. The purpose of this innovation was to produce form-like bowls in an energy- and cost-effective way.

Innovators:

Development team R15



Company

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## BRONZE AWARD

Stilles d.o.o.

### Stilles brass imitation

Stilles's development team has invented a material that replaces the metallic alloy of patinated aged brass – STILLES Painted BRASS EFFECT. The visual effect of the brass is highly aesthetically complete; it can be applied to surfaces of any size and of various products or materials. We kept a natural look and an old velvet effect, eliminated magnetic radiation, and improved acoustic and thermal insulation. A holistic approach to solving the particular client's wishes led to the development of sophisticated, aesthetic equipment for interiors that have a velvety, old-fashioned, and prestigious touch. We thus once again followed our basic mission – to give timelessness to timber and other materials.

Innovators:

Development team Stilles

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## BRONZE AWARD

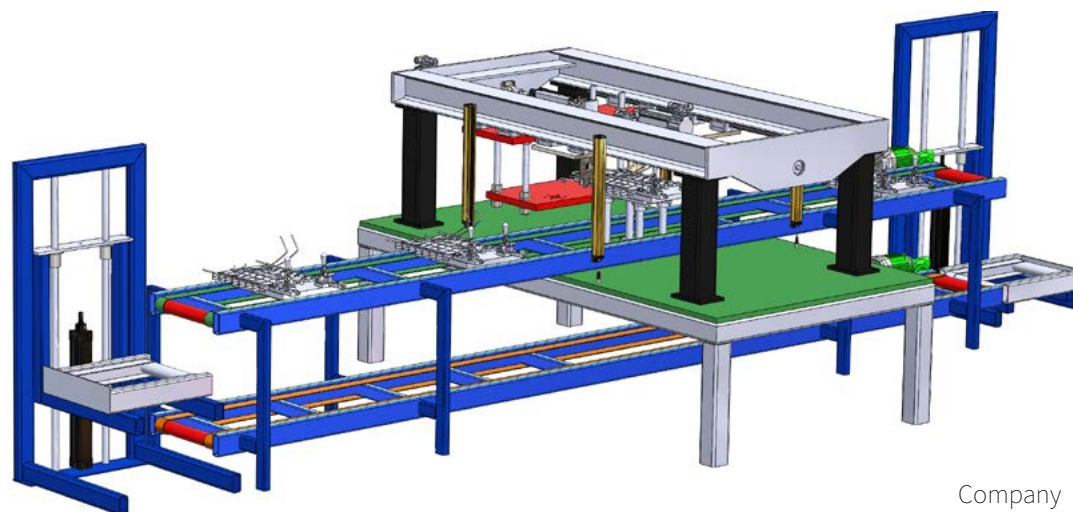
Šumer d.o.o.

### FEDERMATTE – line 2

Innovations most often happen when we look for solutions to improve our processes and products. Thus, we developed an innovative process of automated wire wrapping for the production of a suspension element for the seat that is built into the prestigious BMW 7 Series. The advantage of the new Flax line is the 45% increase in OEE (Overall Equipment Effectiveness) and considerable material and energy savings. The solution is the basis for entering the segment of manufacturing more sophisticated suspension elements for seating technology and consolidating the company's position in this specific segment on the global market.

Innovators:

Development team Flax



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## BRONZE AWARD

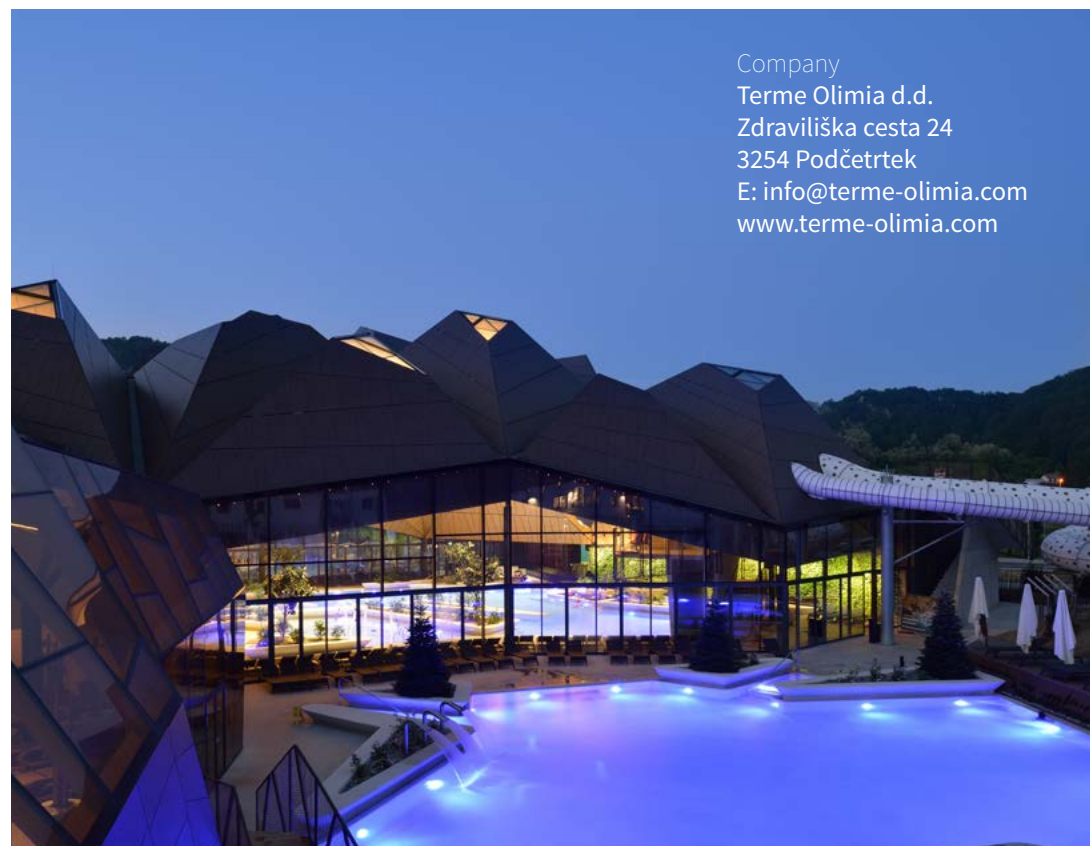
Terme Olimia d.d.

### Termalija FAMILY FUN

Termalija FAMILY FUN at Family Wellness Termalija offers the ultimate world of water adventures and fun for all generations; the wild Fun & Splash slides, a beginner's climbing wall above the pool, a WATER OASIS with an indoor and outdoor pool, an amphitheatre and space for playing with water guns and climbing nets, BABY FUN with a sand pool and family rest area along with special rooms for nursing, changing, and preparing baby food. The fun outside the pool will be provided by the multidimensional experience in the 7D cinema, modern gaming consoles, interactive floor, and Oliland for the youngest visitors.

Innovators:

Enota d.o.o., architectural bureau



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## AWARD FOR CONTRIBUTION IN THE FIELD OF INNOVATION

Codex d.o.o.

### Codex Agent Management System

Codex AMS is a web application/web information system that supports Codex agents anywhere, anytime, and on any device with a full customer overview. The app provides sales agents in the field with customer information, sales discounts management, order reviews, sales analysis, open invoices, sales commissions, and information on achieving sales plans. Codex AMS helps companies optimize their sales agents' work. Codex has recorded a 90% downturn in agents' phone calls to the company's headquarters and an 81% reduction in overdue payments since using Codex AMS.

Innovators:

Karmen Banko, Denis Kohek, Mateja Šlebinger, Simon Prajndl, Aleš Horvat, Sebastjan Dominko, Viktorija Klemenčič, Dominik Kotnjek, Tatjana Lang, Andrej Gibičar, Dušan Grkinič, Tadej Titan, Igor Banfi, Božidar Glišić, Dinara Sandalini, Dominika Walczak Sankovič, Ian Samuel, Jordi Brito, Martin Tokárik, Mitja Hajdinjak, Nenad Bartol, Raul Dohan, Yiannis Koukorinis, Sendi Anželj (Reman IT, d.o.o.)

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## AWARD FOR CONTRIBUTION IN THE FIELD OF INNOVATION

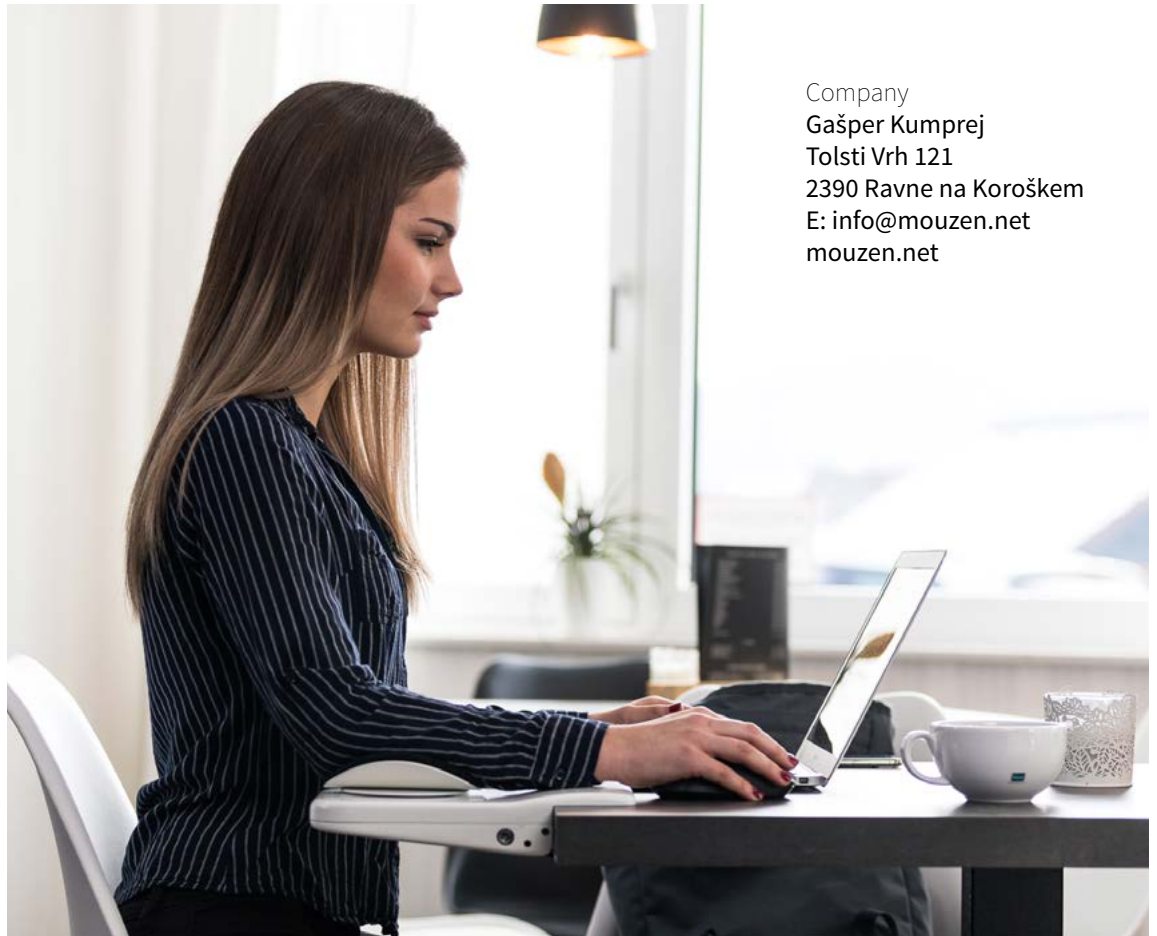
Gašper Kumprej

### Ergonomic armrest

The Mouzen armrest was in design for 3 years and was tested on users who were already suffering the pain of prolonged use of computers. Inappropriate wrist movements are causing more and more people pain from computer mice, and the consequences are mostly visible in the longer term, with increased risks of developing carpal tunnel syndrome. Mouzen armrest is currently in its seventh prototype with the patented ErgoFlow mechanism, which holds the arm in a natural position and allows movements in all directions while helping the user maintain an upright posture. Mouzen is one of the first companies to also integrate outstanding design in addition to movement technology. Mouzen armrest is optimized for easy portability and ease of use by setting the table to a maximum thickness of 5.5 cm in less than 10 seconds.

Innovators:

Development team Mouzen



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Gašper Kumprej

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mouzen.net



## AWARD FOR CONTRIBUTION IN THE FIELD OF INNOVATION

Kopur d.o.o.

### **Production of composite panels and 3D products from recycled material in electro-heating tools**

The product's binder is polyurethane-based, which requires only moisture and the right temperature to react. The existing activation of the polyurethane adhesive reaction is the dosing of steam into the mixture itself, thereby stabilizing the product. After the activation process is completed, approximately 40% humidity is stored in the product and the humidity should be reduced by drying as required.

Our case, however, uses an electrically heated tool to cause a binder reaction. We minimize the required amount of water to reach the end plate with the maximum moisture content required. This both obviates additional drying and decreases the reaction time. The advantages are reduced energy and water consumption. Our new, innovative thermal process causes a reaction or the evaporation of water into steam. The tool can be heated to a higher temperature than that obtained by steam dosing, so the water evaporates more quickly and forms a reaction. The reaction is simultaneously formed on all particles of the mixture.

Innovators:

Marko Smrtnik, MSc, Jože Gaberšek, Samo Veršnik, Dušan Goršek



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## AWARD FOR CONTRIBUTION IN THE FIELD OF INNOVATION

Zavod ORON

### Young creative potentials

The ORON Institute is the publisher of the ORON Notranjska TV programme. We bought professional TV production equipment through the LAS tender for three primary schools. We organized media workshops, where children filmed 27 TV shows. We broadcasted them on our channel and published them online. This project gave children the professional equipment and needed knowledge for creative presentation of positive stories, education and employment opportunities, school projects, organization activities, etc.

Innovators:

Janez Sterle, Miha Razdrih, Oliver Topić



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## **PECIAL AWARD FOR DEVELOPMENT AND INNOVATION COLLABORATION OF BUSINESS SECTOR AND INSTITUTIONS OF KNOWLEDGE**

Feelif, razvoj sistemov za slepe in slabovidne, d.o.o.

### **Feelif devices for blind and visually impaired people**

Feelif has developed a technology for the blind and visually impaired, to allow them to feel shapes and photos on a touchscreen. We have developed three products; one smartphone and two tablets. The embossed transparent grid and the combination of vibration, sound, and visual information make it possible for the blind and visually impaired to orientate themselves on a screen and identify the shapes and images displayed. We have developed several applications in the field of entertainment, education, and practical day-to-day applications to help blind people enter the digital world. This innovation was developed in collaboration with the Centre for Education, Rehabilitation, Inclusion and Counselling for the Blind and Partially Sighted Ljubljana, the Inter-Municipal Society of the Blind and Partially Sighted Celje, Technology Park Ljubljana, the Dutch organisation Dedicon, and the British organisation the Royal Society For Blind Children.

Innovator:

Željko Kharmayer

Company

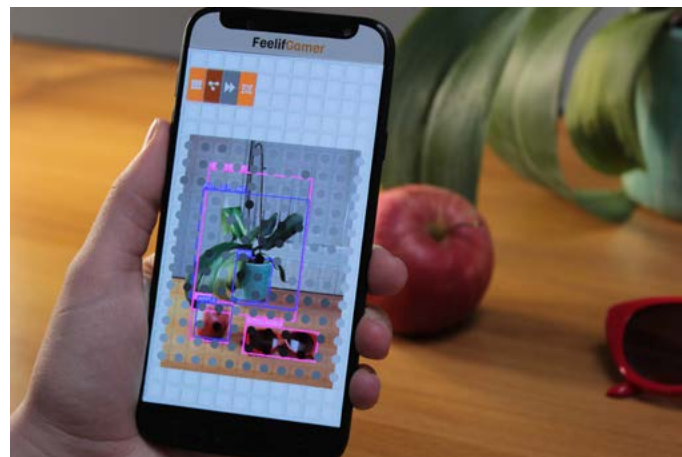
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**SPECIAL AWARD FOR DEVELOPMENT AND INNOVATION  
COLLABORATION OF BUSINESS SECTOR AND  
INSTITUTIONS OF KNOWLEDGE**

M Sora d.d.

**Window reinforcement for redistribution of load  
FlowCORE**

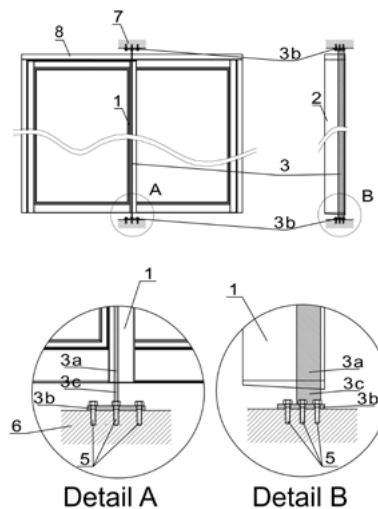
The FlowCORE innovation system by M Sora is a new approach to reinforcing window frames with the capabilities of producing wooden windows up to heights of 6 m and more. Unreinforced windows can be produced only up to 3.5 m due to stress caused by wind. FlowCORE does not have a significant effect on thermal or aesthetic characteristics, but is completely invisible and adaptable to each customer or architectural requirements. Through innovative reinforcements, the wind load from the glass surface is redirected and allowed to flow freely to a reinforcing core, and is further redistributed to the building, hence the name FlowCORE. This innovation was the product of strong collaboration among us, the University of Ljubljana's Faculty of Civil and Geodetic Engineering, and the Biotechnical Faculty's Department of Wood Science and Technology.

Innovators:

Development team M Sora d.d.

University of Ljubljana, Faculty of Civil and Geodetic Engineering

University of Ljubljana, Biotechnical Faculty, Department of Wood Science and Technology





### Innovative Slovenia

The Chamber of Commerce and Industry of Slovenia runs the Innovative Slovenia programme to promote as well as nurture and support the entire process of innovation – from the concept to the implementation. Through various activities we aim to foster the innovation culture and thereby contribute to the success in domestic and foreign markets.

The Innovative Slovenia Programme encompasses the following activities:

- **INFORMING** about innovation, company performance, research and development.
- **PROMOTING** innovations and innovative companies through various communication channels.
- **TRAINING COURSES** throughout the year which provide participants with a broad range of skills and knowledge ranging from specific and specialised to general topics. The lecturers are eminent professionals from Slovenia and abroad.
- **CONFERENCES** focused on emerging and future technologies and, in order to promote development collaboration, the engagement of enterprise with companies and organisations in Slovenia and abroad.
- **EXHIBITIONS** of development and innovation achievements of Slovenian industry and institution of knowledge “FUTURE” covering all nine focus areas of the Smart Specialisation Strategy of the Republic of Slovenia.
- **CONNECTING** stakeholders of innovation ecosystem and connecting corporations and innovative startup companies with an aim to establish strategic relationship.
- **INTERNATIONALISATION** of innovations and development, organising delegations, R2B and B2B meetings.
- **COUNSELLING AND MENTORSHIP** focused on providing companies with advice and assistance in various fields and areas related to innovation.
- **PROMOTING YOUTH** and developing creative and innovative potentials of young people.
- **AWARDING INNOVATION** through the competition for the best innovation with 23 years of tradition at regional level and 17 years at national level.

## Chamber of Commerce and Industry of Slovenia Innovation Awards

The Chamber of Commerce and Industry of Slovenia Innovation Awards are awards for innovation with the longest tradition. This year we celebrate the 23<sup>rd</sup> anniversary at regional level and 17<sup>th</sup> anniversary at national level. The Chamber of Commerce and Industry of Slovenia awards product, process, marketing and organizational innovations. The Chamber of Commerce and Industry of Slovenia innovation awards are selected in two stages. At the first level, 13 regional chambers open regional calls for innovations. The applied innovation projects are evaluated according to the criteria which apply to the regional as well as the national level. All innovations that meet the call requirements are considered, and the best are awarded. At the second, national level, the best innovations from all thirteen regions of Slovenia, are competing for “Slovenian National Innovation Awards”. Winning the national award is demanding as innovation must address two main criteria and nine sub-criteria:

### EXCELLENCE:

- the problem and its solution,
- the dimension of innovation,
- “state of the art” in the field of innovation,
- protection of innovation and
- innovation team.

### IMPACT:

- user,
- market,
- financial impact and
- sustainable impact.

The innovations presented in this catalogue walked the way through both stages and met all the above criteria at the highest level.

Many thanks to all regional chambers  
for your outstanding contribution  
to promote Slovenian innovation.



Koroška gospodarska zbornica



Posavska gospodarska zbornica,  
Krško



Regionalna zbornica Postojna



Regionalna zbornica  
Gorenjska



Zasavska gospodarska zbornica



Severno Primorska  
gospodarska zbornica,  
Nova Gorica



Zbornica  
osrednjeslovenske regije



GOSPODARSKA ZBORNICA  
DOLENJSKE IN BELE KRAJINE



PRIMORSKA  
GOSPODARSKA  
ZBORNICA  
Chamber of Commerce  
and Industry of Primorska



regionalna gospodarska zbornica celje  
del sistema Gospodarske zbornice Slovenije



SAVINJSKO-ŠALEŠKA GOSPODARSKA ZBORNICA



ŠTAJERSKA  
GOSPODARSKA  
ZBORNICA

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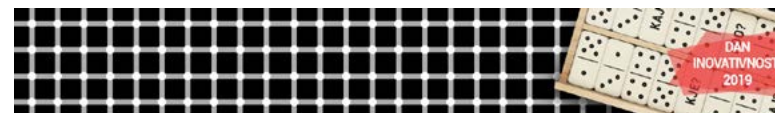


REPUBLIC OF SLOVENIA  
**MINISTRY OF ECONOMIC DEVELOPMENT  
AND TECHNOLOGY**

**SPIRIT  
SLOVENIJA**

PUBLIC AGENCY OF THE  
REPUBLIC OF SLOVENIA

**I FEEL  
SLOVENIA**



Congratulations to all innovation award winners!

**Slovenian National Innovation Awards 2019**

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