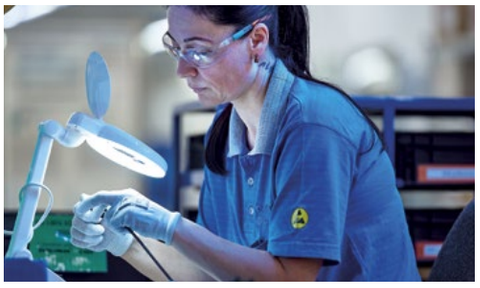


25 YEARS WITH KAYAKU

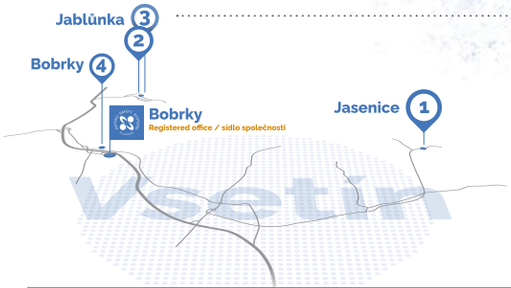
1999 - 2024

Kayaku Safety Systems Europe a.s.
www.kse-cz.com

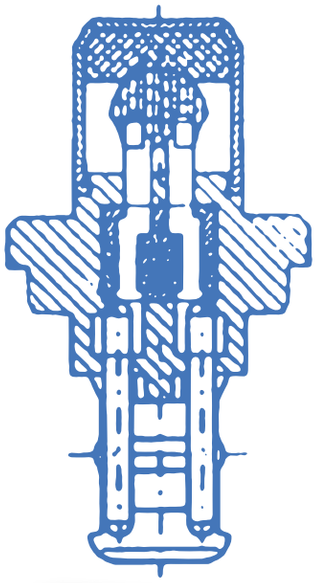
We have been protecting you on roads for 25 Years

Operating in the Vsetín region for 25 years, we have built a strong and stable company that employs nearly one thousand employees. Each day we help to reduce the impact of traffic accidents and protect the lives of vehicle drivers and passengers around the world.

KAYAKU SAFETY SYSTEMS EUROPE



History



Our beginnings

We started with the production of Plastic squibs (PLSQ) in 1997 in a production plant in the former Zbrojovka Vsetín under the name INDET SAFETY SYSTEMS a.s. (ISS). Our founder was Zbrojovka Vsetín - INDET a.s. and we only had 78 employees.

An important milestone in our history was the entry of a Japanese investor in 1999, when PLSQ began mass production. At the same time, access to Asian markets opened up.

Production of technologically related Fuseheads (FH) for external customers subsequently got under way. Three years later (in 2002), mass production of another flagship product, the Pin type micro-gas generator (MGG), began.

The product portfolio gradually expanded to include GTMS igniters (2003), Lead wire type micro-gas generators (LWMGG - as part of the acquisition of the LWMGG project from HIRSCHMANN AUTOMOTIVE GmbH in 2006), Actuators (2012) and GSH igniters (2017).

Another important step was the merger with the sister company Nippon Kayaku CZ, s.r.o., which operated from 2006 to 2011 in Jablůnka (today's Location 3). With this merger, we expanded our product portfolio to include Propellants.

1997
- Establishment of the company as INDET SAFETY SYSTEMS a.s. with its registered office in Prague and its production facility in Vsetín-Jasenice. The sole shareholder is ZV Indet.
- Production of PLSQ.

1999
- Inclusion of Japanese investors – a joint venture between Nippon Kayaku (51%), Nichimen (15%) and ZV Indet (34%).

2000
- New formation of a joint venture involving Nippon Kayaku (66%) and Nichimen (34%).

2002
- Launch of Micro-gas generator production.

2003
- Production expanded to a new location in Jablůnka.
- Launch of GTMS production.

2004
- Change in shareholder structure - Nippon Kayaku 100%.

2005
- Technology Centre opens in Vsetín-Jasenice.
- Registered office moves to Vsetín-Jasenice.

2006
- Foundation of Nippon Kayaku CZ s.r.o. in Jablůnka.
- Production of LWMGG starts at the Jablůnka site.

2007
- Registered office and warehouse move to Vsetín-Bobrky.
- Production of Propellant starts at the Jablůnka site.

20
- Merger with Nippon Kayaku CZ s.r.o.

25 years with Kayaku
1999 - 2024

Shinya Moriyoshi

BCS manager, ISS employee between 2012-2019

I was affiliated with ISS/KSE from 2012 to 2019. During this period, the company grew dramatically. Sales, and the number of employees and production lines, doubled. I remember we applied for Toku-pro investment every year. The most impressive one is bldg. 106. I remember I was surprised at the L-shape building since I didn't have such idea.

The expansion of production is also linked to an investment boom. New production and storage facilities were being built in Vsetín and Jablůnka. The company was renamed Kayaku Safety Systems Europe a.s. in 2018 in response to the unification of the names of the safety systems manufacturers of the Nippon Kayaku Group.

Thanks to the acquisition of VS PLASTIK, s.r.o. in 2023, we expanded plastics production at KSE.

2002 MGG

2003 GTMS igniter

2006 LWMGG

2017 GSH igniter

11 2012 — ▸ Launch of Actuator production.

2013 — ▸ Elements of production moved to Vsetín-Bobrky.

2016 — **100** ▸ 100th anniversary of Nippon Kayaku Co., Ltd.

2017 — ▸ Mass production of GSH starts.

2018 — ▸Company changes name to Kayaku Safety Systems Europe a.s. (KSE). Change in registered office.

2019 — ▸ 20 years with the Japanese investor.

2020 — ▸ Expansion of production facilities at the Jablůnka site.

2023 — ▸ Aquisition of VS PLASTIK, s.r.o.

2024 — **25** ▸ 25 years with Japanese investor.

Expansion

Petr Hruška

Pyrotechnics production supervisor,
worked in the company from 2001 to 2009

My journey at the original company Indet Safety Systems (ISS) was somewhat short, but all the more hectic. I can't help but briefly look back at my prior working life in the pyrotechnics industry. From 1974, I worked in the HS 400 Centre at the former Zbrojovka Vsetín, which engaged in the production of detonators for civilian use and special production of a military character. I was successively the head of OTK pyrotechnics in the HS 400 Centre, then a plant pyrotechnician for the Vsetín and Jablůnka plants. I then held the position of head of special workshops at I. Ráztoka from 1983 until 1992, when after the change of the political regime, everything related to military production and specials was blown to pieces. Later, I worked at ZVI as a technologist at Object 65 in Žamboška, where some attempts were made to revive the production of weapons.

I joined ISS in 2001, when I was approached by Mr Zdeněk Dančák, who told me that the company was building facility 161 for the production of pyrotechnic components, and that he had an idea of how I could work together with the new production operation. The company was launching production of pyrotechnic compositions, which were introduced and gradually innovated at facility 161 in cooperation with Japanese technologists from Nippon Kayaku at the Japanese plant in Himeji and in the USA.

This meant a switch from nitrocellulose-based compounds to partially safer viton-based compounds. From the very start of pyrotechnic component production at facility 161 I worked together with Ing. Ondřej Němčák. Everything I created until my retirement in 2009 was the result of our joint work and efforts. I offered my prior experience from old pyrotechnic composition production and a prudent approach to this risky work, while Mr Němčák contributed the irreplaceable knowledge of a young university graduate explosives expert and a big fan for the field. Our cooperation culminated in the successful start of production. Of course, other departments were also involved in the launch of production. I was privileged to work under the leadership of Presidents Hayami and later Nishida and to work with many of the staff at the Himeji plant. Finally, I must highlight the considerable efforts and joint work with production director Vojtěch Hořelka, who has always been helpful in resolving many problems. My thanks also go to Ing. Vladimír Guriča, especially in the field of technological problem solving and occupational safety. And I should also mention Ing. Jiří Václavík, whom I have always perceived as a fair person.

Location 4, Vsetín-Bobrky


Location 3, Jablůnka

Registered office, Vsetín-Bobrky


Location 1, Vsetín-Jasenice

1937 — 1993 — 1997 — 2018

Indet Safety Systems
Nippon Kayaku Group

KAYAKU
SAFETY SYSTEMS
EUROPE

Susumu Tokutake

ISS President between 2011-2017

I was working for ISS (current KSE) from May 2011 to December 2017, a period of 6.5 years.

The reason why I joined Nippon Kayaku was that I received an offer to manage ISS, which is a core affiliated company in SSG, based on my experience at a previous company, and I decided to accept it in October 2008. Although I had originally hoped to start work for ISS earlier, the Lehman Shock caused a slump in the automotive industry that forced a delay in starting my assignment.

When I was assigned to ISS, business performance was interestingly rising due to the onset of the industry recovery and LTA for GTMS with TRW (current Lifetec), which was concluded through the efforts of Dr Bender, who assisted us as a consultant for many years, and Radim Spisar, the Sales Manager, as well as the launch of MGG for CBST-B for JSS and SPR-4 for ZF, which were realised by the R & D development capability. As such we had to maximise 29-day operational cycles, which is unbelievable when we think about it now, in order to keep up with demand, but It is a pleasant memory in retrospect.

To cope with increased sales, investment was also carried out for MGG assembling with the addition of 3 lines, and a further addition of 14 GTMS lines (#6-19). The associated expansion of Locations 2, 3 and 4 was a great memory in my life at ISS.

The acquisition of Vizocargo was additionally made to expand moulding capacity, secure storage space for raw materials and provide office working space to accommodate the increased number of personnel. I, however, still regret that I was never able to work in the new office.

Although in my personal life I had to spend some less-exciting days in Vsetín, a town in the Czech countryside, the work kept me busy and the people who worked with me helped make it a fulfilling experience. At the same time, my experience at KSE has also helped me in my subsequent work at KSM Mexico. My six and a half years in the Czech Republic have been the most memorable time of my life.

In the end, I sincerely wish all of the KSE employees good health and the continued growth of KSE as the leader of SSG.

Location 2, Jablůnka

Jan Oth

Building manager,
company employee from 2001 to 2018

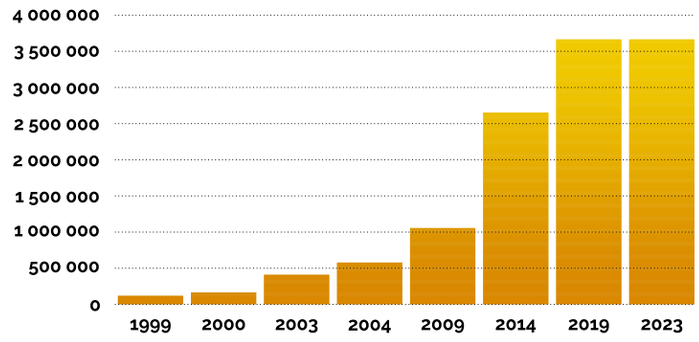
I look back fondly on my 17 working years at Kayaku Safety Systems Europe, which was then called Indet Safety Systems. I worked as a building manager. The job was varied and interesting, and every day was different depending on the operational needs. My job consisted of checking and ensuring the functionality, operation and repair of individual buildings. I started in Vsetín-Jasenice, in building No. 17, the first building of the newly established company. As the company grew, other buildings were added, such as the newly built compound production plant or the renovated and rebuilt building No. 35 for the Research and development department. The Quality department, electricians' workshop, mechanical and auxiliary workshop, and the compressor room also found their place here. In addition to Vsetín, production also expanded to Jablůnka.

I liked the fact that my work was varied and at the same time responsible, meaningful and furthermore in a good team in the Engineering department. I can say that I stayed with the company for so many years thanks to good relationships with my colleagues. My former colleagues and I occasionally meet, reminisce and talk about what's new. Time is ticking and I hope they are still happy too. I fondly remember the time when I was an employee of the company. There are plenty of experiences and events connected with that time. That would probably be a very long article to mention them here.

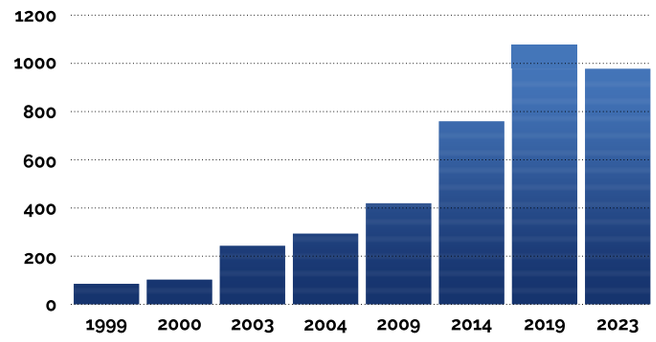
The company is successful all over the world. That can't be overlooked. As a driver and fan of motor vehicles, I see it as a very important global manufacturer of passive safety systems for cars. I perceive KSE as an important employer in the Wallachia region and with all my experience I would definitely recommend it, as it takes good care of its employees. I know that the company is also a donor to many important industries in our region, and I appreciate them for that.

Considering the trends in the automotive industry, I think safety plays a very important role and, therefore, my former company has the potential to move forward, great potential. I'll keep my fingers crossed for the years to come!

Sales (in thousands CZK)



Number of employees



Product Portfolio

IGNITERS

GTMS igniter subassembly

Standard GTMS igniter

GTMS IGNITER

GTMS igniter is primarily used in inflator airbag unit and seatbelt pretension applications. On market is delivered in various modifications and shapes, given by length of inner meal cup, respectively amount and type of pyrotechnic charge, final shape of plastic body and its color. In automotive industry is GTMS igniter also used in application for battery disconnectors, hood pop-ups, head rest systems, seat belts and actuators.

GSH IGNITER

GSH igniter is a special high performance igniter assembled from standard GTMS igniters. It consists of spacious metal cup with significantly more pyrotechnic charge or gas generant compared to standard GTMS igniter. It is used mainly for airbag applications, powerful actuators or even as a small micro-gas generator. Due to mechanical separation of pyrotechnic charges inside GSH igniter it is possible to use also chemically and physically non-compatible energetic materials.

Pin type GTMS igniter in metal holder

PIN TYPE ASSEMBLY OF GTMS IGNITER

Pin type assembly of GTMS igniter is a higher assembly unit used primarily in seatbelt retractors for reduction of webbing force or alternatively in inflator applications as a trigger and gas source for active venting. This unit consists of GTMS igniter fixed in holder, either metal or plastic, with required type of retainer, for application with high pressure reinforced also with metal insert.

Pin type GTMS igniter in plastic holder

Pin type GTMS igniter with metal insert

WIRE ASSEMBLY OF GTMS IGNITER

This assembly is a lead wire version of pin type assembly of GTMS igniter used for various types of actuators or as a subassembly for lead wire micro-gas generator. It consist of GTMS igniter and variable cable length and connector.

PLASTIC SQUIB (PLSQ)

PLSQ is unique pyrotechnic igniter used mainly in micro-gas generator for seatbelt applications. It consists of plastic body with variable shape, which also fix metal contacts, resistance wire, ignition charge and plastic cup with additional booster pyrotechnic charge.

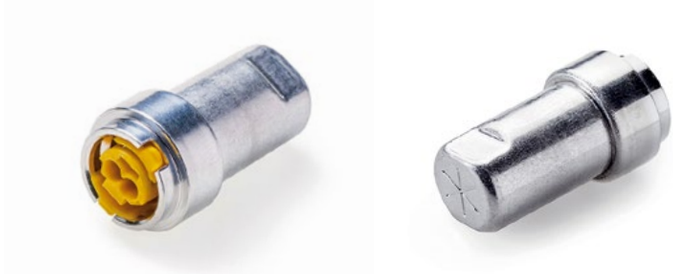
Standard PLSQ

PLSQ with metal cup

GAS GENERATORS

PIN TYPE MICRO-GAS GENERATOR

Pin type micro-gas generator is higher assembly of igniter with propellant loaded in metal cup. It is primarily used for seatbelt pretensioners as a gas generating unit and active venting for airbag applications. It consists of variable shapes of metal cup, retainer and propellant, either general smokeless powder or environmentally friendly green propellant.



LEAD WIRE TYPE MICRO-GAS GENERATOR

It is a lead wire version of higher assembly of igniter with propellant and cup, used for various range of seatbelt pretensioners. It consists of variable wires with appropriate connector and variable size of cup and amount of propellant.

ENERGETIC MATERIALS

PROPELLANT

Propellants are pyrotechnic mixtures of components able to generate large amounts of gas in very short time through its combustion. They are produced in variable tablet shapes and sizes, and are used in airbag inflators or as green propellant in seatbelt pretensioners.

OTHER HIGHER ASSEMBLIES

ACTUATOR

Actuator is pyro-mechanical device consisting of igniter, piston, and body, optionally can be also with lead-wire harness. It is used for wide range of safety applications, such us pedestrian safety systems, active headrest systems, battery disconnecting devices and automatic fire extinguishers.

Pull type actuators

Actuators with wire harness

CANISTER

Canister is a pyrotechnic product mainly used as airbag subassembly, it consist of energetic materials and hermetically sealed metal container.

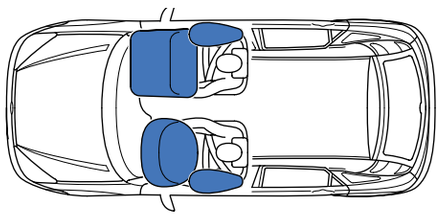
APA actuator

R&D

Own development
Prompt response
Own patents
Responsible design
Top laboratory
ISO IATF16949

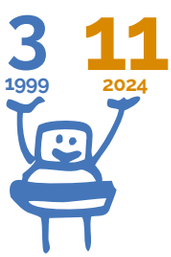
Car of the Year 1999
Ford Focus first generation

The winner of the prestigious Car of the Year poll had **4 airbags and 2 seatbelt pretensioners** in its best equipment. At the turn of the millennium, this was above average equipment.



At that time in the Czech Republic...

...At that time, Skoda Auto was already producing the first modern Skoda Octavia. Also the Mlada Boleslav-based company's 'flagship' car struggled with passenger safety. The first-generation Octavia scored four stars in tests. **It had only 1 driver's airbag in its standard equipment.** The chest area of both front-seat passengers proved to be a problem. Despite the 2 pretensioners difficulties were evident in the seat belts.



Today, an average of 11 pyrotechnic applications can be found in every vehicle produced and sold on the European market. But some of the most modern luxury cars have over 20 pyrotechnic products on board.

Technology Centre

In 2005 we opened a multi-purpose Technology (R&D) Centre in Vsetín-Jasenice. Here we focus on the research and development of pyrotechnic initiators and energetic materials. In total, the Technology Centre employs forty employees, mainly specialists in the fields of polymer technology, explosives and pyrotechnics, electrical engineering, construction and mechanical engineering. Most development projects have a global reach. Our company is well equipped for energetic material testing and product testing, including long-term tests. Within our production you can find specialised analysers, detectors, testing devices and software applications for easier result processing (ballistic analysers, ESD spark generators, optical microscopes, an electron microscope, speed camera, X-ray spectrometer, industrial X-ray with micro focus, blasting machine, DTA, laser welding device, hydraulic press, software licences for rich analysis and management, among others).

Competence

Production takes place in four locations in the heart of the Wallachia region. We have managed to link the historic tradition of pyrotechnic production with modern industrial trends. We use the power of fully automated assembly lines, including laser metal welding and robotisation in plastic injection moulding. Our inspection of processes and products is 100% automated. We are involved in the development of new technological solutions while paying attention to keeping the burden on the environment to a minimum. Our main goal is high-quality, 100% reliable and safe products. We have a sophisticated system of employee training, from the training of employees in pyrotechnical operations to DO-JO training and sharing experience within the Nippon Kayaku Group.

Sustainability

„Each piece is produced by our skilled employees.“

Sustainable future

Environmental protection is important in our activities. We develop environmentally friendly products focusing, among other things, on the circular economy and reducing energy consumption. Our activities are ISO 14001 compliant and sustainable. We introduce technologies to reduce our carbon footprint, reduce water consumption and install renewable energy sources.

„We are ...
... reducing industrial waste.
... setting up rainwater retention basins.
... installing solar power plants.“

Employees

Safety and Quality

The safety and health of our employees at work is our top priority. We place high demands on our employees in terms of their expertise and the activities they perform. Requirements for workplaces, machinery and tools are subject to strict regulations and internal standards. Workplaces are adapted to the employee needs and equipped with maximum emphasis on ensuring occupational safety. We not only pay special attention to quality and safety in production, but also to the products themselves. Our products must work at all times and under all circumstances. Faults of any kind are not permissible.

The long-term and successful operation of the company also depends on continuous improvement, which involves all employees through the Japanese Kaizen system. We apply modern lean manufacturing methods such as 5S, SMED, Basic MOST, Poka-Yoke, Kanban, lean logistics, and many others.

„In addition to job security, our employees enjoy a range of above-standard benefits."

Koji Yoshioka

Sales & Marketing specialist, ISS employee between 2012-2019

I fondly remember my time in the Heroldsberg office in Germany. I often went to ISS on business trips, and I remember how friendly and comfortable the ISS staff and the couple who ran the guesthouse where I stayed were. The Christmas party, which I only attended once, was fun!

GALUSKY NA KAYAKU

The 'Galusky na Kayaku' team within the Bike to Work challenge consisting of: **Radek Zgarba, David Stibora, Martin Šalák, Alena Hromadová**

The 'Galusky na Kayaku' team wishes the company good luck and continued success on its 25th birthday. We have all been working on GTMS for about 15 years. The work is interesting and there is always something to learn. We not only appreciate the benefits for us, but also the support of Vsetín Hospital, the Vsetín High school of mechanical engineering, sports and direct support for families in need. We work together, we ride our bikes to work, and we get together with other colleagues in our free time. Our family members also work in the company.
And so once again: Happy birthday, Kayaku!

„Kovářovy Kobyly" team

Corporate Social Responsibility

We support charities, educational institutions, cultural activities and sports activities. We are involved in challenges and projects such as Bike to Work, the hill climbing cycling event (VKV), Let's Clean up the Czech Republic, Czech Cancer Awareness Day and Pink Ribbon Day.

Pink Ribbon Day

Štěpán Pisklák

Engineering specialist, has been with the company since 2 January 2017.

How has your job description changed since you joined the company?
I started out at location 2 in Jablůnka as a setter in GTMS production. After a while, I sent my CV to QA Dept., where another candidate was chosen, but I then succeeded in an interview for ENG Dept., also at location 2 on the new SPR8 project. I have been in this position since November 2019.

From your point of view, how has the company moved forward over that time?
The company grew a lot at the time I started working here. There are more buildings, more machines and lots of new people coming in every month. The last few years, when COVID and other unpleasant situations came along, the growth may not have been as visible, but you could definitely see stability in the company, which was extremely important, and I believe that new projects and growth will come again.

What do you appreciate about your work?
What I like most about my current work is the variety. While I don't like banality, the routine work must also be done. Yet there are always new requirements that need to be addressed. There are innovations in both machine software and hardware, so there is always something going on.

How do you perceive the company as a regional employer?
Here I think the view of most people both inside and outside the company should be obvious. KSE is a reliable employer with plenty of benefits and exceptional conditions.

Would you recommend the company to your friends and family?
First of all, I would ask the person what they want out of the job and share my personal experiences. But in general, I would definitely recommend it.

From your point of view, are KSE products useful to the society?
From my point of view, the products are definitely useful. Anyone who doesn't believe that can look at what the numbers say. It will be hard to find arguments against them.

Is KSE useful to its surroundings?
KSE is involved in lots of projects with the town, hospital, culture and other events. So, I think it's useful. It motivates its employees with various bonuses and projects such as giving blood, a hill climbing cycling event, Bike to Work and more, which are ultimately useful for the surrounding area.

What is your relationship with your colleagues like?
This is a crucial thing for me, because you really spend a lot of time at work. I'm lucky enough to enjoy going to work among my colleagues.

Do you come into contact with colleagues from our sister companies?
I occasionally get in touch with them when I'm dealing with work issues that overlap. I have also been lucky enough to go to a sister company in person.

Do you go to training events and on business trips?
Of course. Such events will come up, and if there is an opportunity to go somewhere, I will gladly take it. My colleagues have had the opportunity to visit, for example, sister companies in Malaysia or Mexico, sometimes for several months. I have personally visited a supplier of production lines in Switzerland and been to a conference of our parent company Nippon Kayaku right in Japan. It was a great experience to see the country and the capital Tokyo with my own eyes.

Do you socialise with colleagues at work and outside of work?
I do a lot of activities, so even at work you come across colleagues with common interests. I meet some of them on the ice, and with others I go out on a motorbike or bike ride. Sometimes we walk up the hill from work, sometimes we cook something. We do a lot of such things.

How do you perceive the company benefits?
The company benefits can't be perceived in any other way than positively, and I'm glad that we have so many of them. I take advantage of them all. From convenient mobile phone tarifs for my family and me, to e-Benefits for sports and cultural activities, as well as contributions to retirement savings, subsidised company meals and more.

In your opinion, does the company have prospects for the next 25 years?
It's all about people, and if there are people at KSE who have prospects and want to push the company forward, it will naturally be directed that way. The field of safety features for both cars and other possible means of transport and devices that we may not even know about yet is certainly wide, and safety systems will not decrease, quite the opposite.

„The company benefits can't be perceived in any other way than positively, and I'm glad that we have so many of them. I take advantage of them all. From convenient mobile phone tarifs for my family and me, to e-Benefits for sports and cultural activities, as well as contributions to retirement savings, subsidised company meals and more."

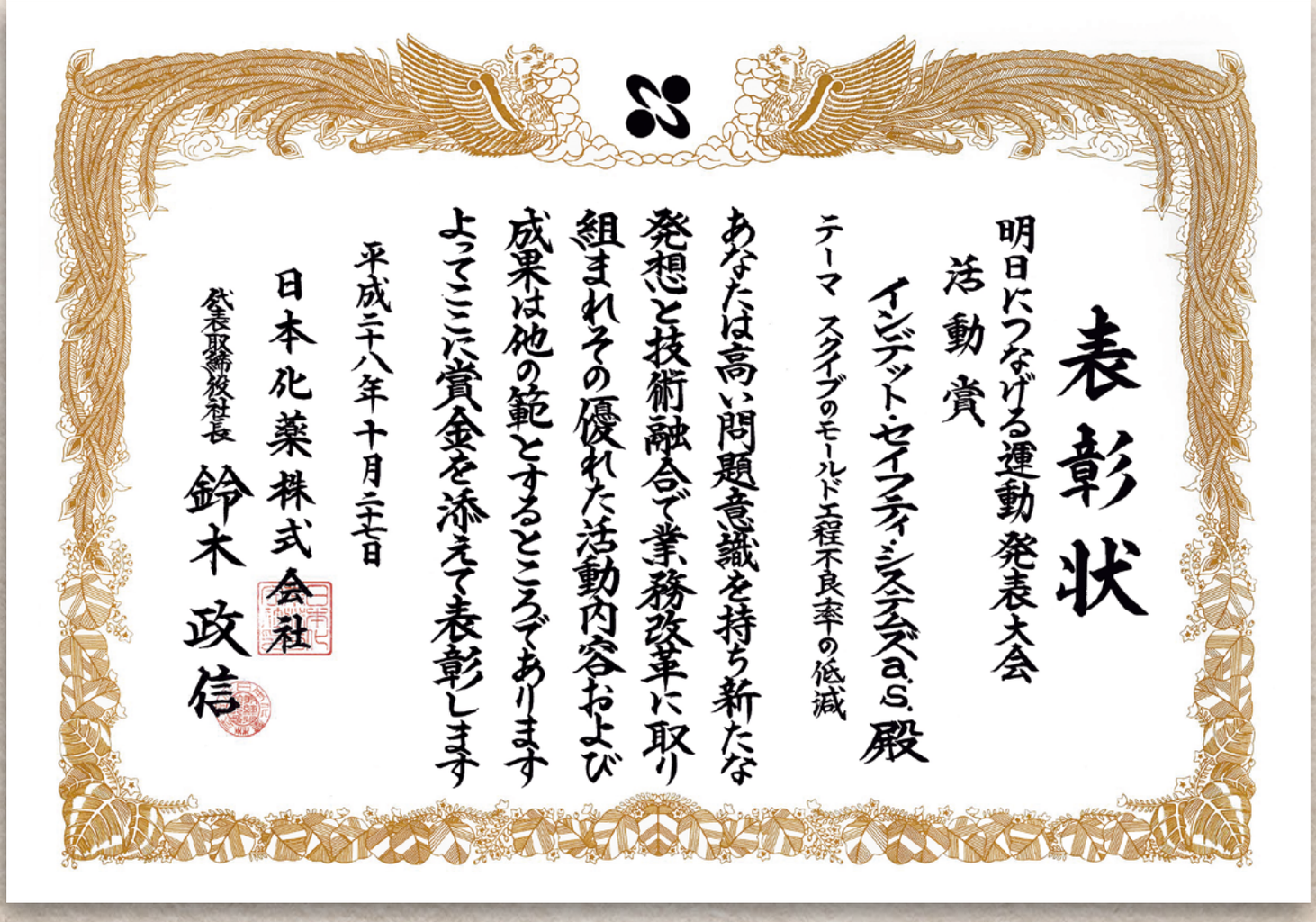
KAYAKU SAFETY SYSTEMS EUROPE

4 production locations
Automation
Emphasis on safety
100% quality
System engineering
Reliability
Employee benefits
Sustainability

Award of the President of Nippon Kayaku, Mr Masanobu Suzuki, from 27 October 2016, for Indet Safety Systems' activities aimed at reducing scrap in the production of Plastic squib.

"Your excellent work, combining new ideas and technologies with a great knowledge of the subject matter, has led to a reform of production with great results. You have become a role model for others, and have earned my appreciation and thanks."

Masanobu Suzuki



表彰状

明日につなげる運動発表大会
活動賞

インデット・セイフティ・システムズa.s. 殿

テーマ スクイブのモールド工程不良率の低減

あなたは高い問題意識を持ち新たな発想と技術融合で業務改革に取り組まれその優れた活動内容および成果は他の範とするところでありますよってここに賞金を添えて表彰します

平成二十八年十月二十七日

日本化薬株式会社
代表取締役社長 鈴木政信

(N.B.: The text is read from right to left)