

etos

RINSPEED

PRESSEBUCH - PRESS BOOK 2016





PRESSEBUCH - PRESS BOOK *etos*

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MASSE BASISFAHRZEUG

Länge	4.761 mm
Breite	1.969 mm
Höhe	1.297 mm
Radstand	2.800 mm
Leergewicht	1.585 kg

MOTOR

Motor	1,5 L Otto + 96 kW Electric-Plug-in hybrid
Systemleistung	266 kW / 362 PS
Systemdrehmoment	570 Nm
Kraftübertragung	Allradantrieb
Batterie	7 kWh Lithium-Polymer
Energie-Speicherung	Eva Fahrzeugtechnik

WERTE

Höchstgeschwindigkeit	250 km/h
Beschleunigung 0-100 km/h	4,4 s
Reichweite elektrisch	ca. 37 km

FAHRZEUGAUFBAU

Karosserie	CFK Struktur mit Aluminium-Crashstruktur
Plätze	2
Antennentechnik	Vites
Beleuchtungsflächen	Weidplas
Beglasung	Corning
Dichtungen	Sika Automotive
Innenraum-Design	Stahl / Strähle+Hess
Innenraum-Materialien	Stahl / Strähle+Hess / Schoeller
Sicherheitstechnologien	ZF TRW
Polymer-Lösungen	Rehau
Oberflächentechnik	Putzier
3D-Effektlackierung	Barlog
Mechanische Uhr	Carl F. Bucherer
Leichtbau-Displayträger	Aluminium - Georg Fischer
Heizung	PTC - Eberspächer
Motoren-Datenverarbeitung	Harting

BEREIFUNG

Bereifung vorne + hinten	245/45-20 + 275/40 R 20
Felgen vorne + hinten	Borbet GTX 8.5x20" + 10x20"

VERSCHIEDENES

Multimedia/Infotainment	Harman
Graphic Design	Luxoft
Bezahlssysteme	Six
Fahrtintelligenz	Inrix
Halbleiter-Lösungen	NXP
Drohentechnologie	DJI

Alle Angaben ohne Gewähr

MEASUREMENTS BASE VEHICLE

Length	4.761 mm
Width	1.969 mm
Height	1.297 mm
Wheelbase base vehicle	2.800 mm
Empty weight	1'585 kg

ENGINE

Engine	1,5 L Otto + 96 kW Electric-Plug-in hybrid
System power output	266 kW / 362 PS
System torque	570 Nm
Power train	All wheel drive
Battery	7 kWh Lithium-Polymer
Energy storage	Eva Fahrzeugtechnik

PERFORMANCES

Top speed	250 km/h
Acceleration 0-100 km/h	4.4 s
Electric range	app. 37 km

VEHICLE SETUP

Body	CFK with Aluminum base structure
Places	2
Antenna technology	Vites
Lighting panels	Weidplas
Glazing	Corning
Sealants	Sika Automotive
Interior design	Stahl / Strähle+Hess
Interior materials	Stahl / Strähle+Hess / Schoeller
Safety technologies	ZF TRW
Polymer solutions	Rehau
Surface technology	Putzier
3D effect painting	Barlog
Mechanical watch	Carl F. Bucherer
Light-weight display support	Aluminum - Georg Fischer
Heating	PTC - Eberspächer
Engine data handling	Harting

TIRES

Front and rear tires	245/45-20 + 275/40 R 20
Front and rear wheels	Borbet GTX 8.5x20" + 10x20"

MISCELLANEOUS

Multimedia/Infotainment	Harman
Graphic Design	Luxoft
Payment services	Six
Driving intelligence	Inrix
Semiconductor solutions	NXP
Drone technology	DJI

All data without guarantee



”

CES Las Vegas 2016: Rinspeed demonstrates future possibilities and raises future questions with the self-driving “Σtos” concept car.

“

ON THE ROAD WITH MY PERSONAL AUTOPILOT AND DRONE – FUTURE HERE I COME!

It's show time in the gamblers' paradise Las Vegas: For the first time ever, Frank M. Rinderknecht, boss of the Swiss idea smithy Rinspeed, celebrates a world premiere outside his Alpine home with the hybrid sports car “Σtos.” The automotive visionary says: “The digital world will provide the major and above all the disruptive innovations in automotive engineering. That is why nowadays all major car manufacturers and suppliers are present at the CES Consumer Electronics Show.”

As always, the Swiss mastermind approaches the mega topic of “self-driving cars” primarily from the perspective of the driver and the occupants, the human component. And as always, he garnishes his concept with a host of inspiring and emotionally appealing highlights. In so doing, the automotive thinker together with consulting firm EY expressly puts one question on the agenda that is bound to occupy us for quite some time: How much human component should, must or may there be in a machine? Everyone involved realizes that answering this question requires merging expectations, tolerances and acceptance. There are countless unsettled issues, for example the morals and ethics of a machine, that need to be resolved. In addition, the means for the technical realization also must be developed. Rinderknecht ventures a prediction: “This process will likely lead to an adaptive, learning and intuitive control software. But it will be a long rocky road.”

The technical highlight in the interior of the “Σtos” is no doubt the folding and retracting steering wheel from ZF TRW. As if by magic, it disappears in the dashboard in a few seconds. This creates lots of space in front the driver who can grab and read a book in comfort the old-fashioned way or can work in a relaxed atmosphere. The position of the two curved 21.5-inch Ultra HD widescreen monitors is individually adjustable to provide an even better view of the displayed contents.

A matching fit is provided by the unrivalled infotainment experience that the innovative Harman Connected Car technologies conjure up in the vehicle. Just like a personal assistant, the system thinks along, is courteous, anticipates needs and on top of that provides perfect entertainment, connectivity and maximum safety. Destinations, route selection, tourist attractions, refueling, parking, making phone calls, music, videos or personal preferences - with every mile the “Σtos” gets to know the appointments, wishes and

needs of the occupants better and in a flash proactively offers up the particular fitting selection options. This drastically reduces the number of distracting manual entries - despite significantly expanded functions. Should it nonetheless be necessary to enter a command, the “Σtos” responds promptly to voice commands, gestures, touch input, controller or the push of a button.

A total of eight HD exterior cameras visually monitor the vehicle surroundings completely. This makes impressive 180-degree panoramic views in front of the vehicle and behind possible and provides virtual “exterior mirrors” with an expanded field of vision that has no blind spots. People and objects in the entire vehicle surroundings are detected and tracked automatically. If they represent an accident hazard, the driver receives an appropriate warning. In tricky situations such as in parking garages, the so-called “Curb View” is activated automatically. It offers a “direct” view of the front wheels and thus helps prevent unwanted contact with curbs or other obstacles. The vehicle navigation also offers entirely new detail views. In parking garages, it directs drivers directly to a previously reserved parking space.





Along the route, it displays realistic 3D images of buildings, trees, bus stops, subway stations and other distinctive waypoints. The roads and lanes have been scanned with pinpoint precision – an essential prerequisite for autonomous driving. Linking information about the route and the cell phone reception results in the passengers in future not only knowing where and how long they can expect to make phone or video calls without interruption, the technology also allows smooth media streaming as well as efficient and targeted vehicle updates. The seamless link to the traffic infrastructure such as traffic lights or traffic management systems and to other cars, especially emergency response vehicles, lets drivers and the vehicle look far beyond their own horizon and even through obstacles. The so-called 'E-Horizon' provides innovative safety and convenience features such as precise warnings of wrong-way drivers or simply gliding along smoothly in sync with the phased traffic lights. Speaking of seeing: The gaze-tracking system of the "Σtos" permanently monitors the driver's eye movements and as a result, the vehicle not only knows what the driver has seen, but also what he has failed to see. This allows custom tailoring the displayed warnings and notifications. For precisely this reason, the electronic exterior mirrors only display an image when the driver consciously checks them. The HMI was designed and programmed by Luxoft. Georg Fischer Automotive supplied the aluminum lightweight-construc-

tion frame for the three displays.

As always, the Helvetian think tank, which following an old tradition once again commissioned the Swiss colleagues of 4erC to design the twenty-second concept car and Esoro to handle the technical realization, explores the existing digital possibilities - and demonstrates new ones. The "Σtos" is fitted with an on-board DJI drone complete with landing platform in the rear. An armada of 12,000 individually controlled LEDs can transform this platform into an electronic message board or a visual dancefloor. This technical marvel was designed by Swiss specialist Weidplas, which is also behind the rear window that has been converted into a third brake light and the brilliant seat inlays. The drone itself is capable of providing some very useful services. For example, it can quickly pick up a bouquet of flowers for the significant other ordered on the way home. And the little flyer is a lot of fun when it acts like a UFO, shooting a selfie of the ride in the "Σtos" on your local favorite route and streaming it live to friends. Heads up: that little thing has an extremely high addiction and envy factor!

The elegantly and futuristically styled "Σtos" - on the technical basis of the BMW i8 - is a sustainable but also a fast racer. The deep black and shiny 20-inch Borbet GTX aluminum rims leave no doubt about that. They give the body an imposing visual width and provide perfect handling on the track. To make the athlete as light as possible, Corning manufactures the glass roof and the "drone pad" in the rear from especially strong, lightweight and thin Gorilla glass, the same kind used in smartphones. The aluminum front structure and the carbon fiber passenger cell are joined together with ultra-high-modulus adhesive from Sika.

No question, Rinderknecht not only plays the role of the visionary, but also that of the magician in Las Vegas. And since a great show also goes hand in hand with unusual eye-catching packaging, the Swiss national uses ceramics and metal alloys in the "Σtos." They are applied at temperatures above 20,000 degrees Celsius and at supersonic speed. The result is a unique appearance, a new touch and feel and a novel functionality that are all unprecedented in automotive construction. Apart from delicately designed trim strips, the vehicle sports rims with a titanium protective edge and non-slip titanium pedals. These magic moments come courtesy of the specialists from the German company Putzier Oberflächentechnik. Touch it, feel it - it really is magic!

The inviting interior, designed jointly by innovative textiles supplier Strähle+Hess and Stahl Company, the surface specialist for leather and synthetic substrates, forms an unusual and striking compound of natural leather with a variety of characteristics, patterns, functions and surfaces yet with the equally versatile textiles and piping. This creates a sporty and yet

relaxed feel-good atmosphere, adorned with the embroidered skyline of San Francisco. As in past years, Schoeller Spinning Group supplied the high-tech threads for the interior.

The 3D effect finish of the paintwork on the front panel from Barlog plastics creates an exciting and striking visual bridge between the headlamps.

And then tradition merges with innovation: Above it all rises the mechanical Patravi Traveltec clock from Swiss Manufacture Carl F. Bucherer. It sits in a highly prominent position on the dashboard inside a rotating housing that moves automatically to wind the mechanical movement. The delicate housing resembles an airy arch. The camera integrated into the clock support pans directly to the driver or front passenger during video calls. Communication could hardly be more beautiful!

Polymer specialist Rehau developed the innovative lightweight-construction dashboard support and the clever bracket for the luggage shelf with detachable umbrella holder. A particularly efficient electrical heating system from Eberspächer provides cozy warmth in the interior. It also preheats the battery and offers a convenient auxiliary heating function. In keeping with the times, operation is by smartwatch or smartphone. The batteries of the "Σtos" are equally state of the art. Thanks to sophisticated technology from EVA Fahrzeugtechnik, they can also have a secondary purpose as a stationary energy storage unit when needed and consequently account for the requirements of the environment.

Connected cars are de rigueur nowadays. In the "Σtos," Rinspeed partners demonstrate what is possible in the area of connectivity today and tomorrow: When it comes to data, perfect transmission and reception quality is essential not only for autonomous driving. The highly advanced octagonal flat antennas from Vites integrated into the glass roof play a crucial role to this end.

Inrix Company shows how a parking space in the city center can be located quickly by analyzing real-time data. The intelligent "Mica" industrial minicomputer from industrial connectivity specialist Harting illustrates how powertrain and engine data can be recorded continuously and transferred to an independent and neutral body such as Dekra, where they can be analyzed and presented depending on the contract previously negotiated between customer and contractual partner. This also makes it possible to lend credibility to odometer readings.

NXP ensures the secure connection of the car and its passengers to the outside world with its intelligent connectivity technologies – an important aspect for the connected self-driving car of tomorrow that must reliably capture its surroundings. This includes radar and car-to-x solutions as well

as automatic payment for parking via NFC, wireless cell phone charging, smart access solutions and keyless remotes for unlocking, starting and customizing the vehicle.

SIX, the Swiss stock exchange and backbone of the Swiss financial market, shows an "on the go" payment system for secure transactions in the "Σtos." Even smaller amounts such as tips can be paid by a small swiping gesture on the exterior mirror.

The tireless Swiss national and his international partners show a first step towards tomorrow's individual mobility with the "Σtos," staged by Saarwellingen-based Vollmond advertising agency.

The Rinspeed "Σtos" celebrates its world premiere at the CES, January 5 to 8, 2016, as part of the exclusive HARMAN event in the Muse Hall of the Hard Rock Hotel in Las Vegas.

Its European premiere will be at the Geneva Motor Show starting March 1.



4erC creative
clean
car
concepts



4erC creative
clean
car
concepts

4ERC GMBH CREATIVE - CLEAN - CAR - CONCEPTS THE COMPANY OF PETER KAEGI

For 17 years, Peter Kägi is the leading project manager and the technical father of the Rinspeed motor show projects, Frank M. Rinderknecht and him connect many creative moments.

For 30 Years, the owner of 4erC works with electric vehicles, the range goes from a power of a few kilowatts up to several hundred kilowatts.

The consulting and development company 4erC works on vehicle projects for OEM and industry. Focus on: concept, project management, package, lightweight construction and fiber composite.

Do you want to invest in this area and you have open question?

Ask us.

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BARLOG GRUPPE

Mehr aus Polymer.

DESIGN AS INDIVIDUAL AS THE DRIVER

Buying an automobile is a very emotional decision. Many customers are putting more and more emphasis on individual design elements in their new car. They are used to have these options from their everyday consumer products – from mobile phone covers to coffee machines. We are talking about so called excitement factors that have an emotional impact that exceeds the real value by far but leaves the customer with a good feeling and makes the buying decision easy or subsequently justifies this decision. Rinspeed makes use of this psychological effect with their extraordinary concept cars for many years.

Still many car manufacturers do not max out the possibilities that individual design offers. Besides the color of the car paint there is only little choice of design options and changing the look of your car later on usually takes a big effort. One of the main reasons for this limited freedom of choice is the cost for customization of design elements within the framework of highly automated automobile manufacturing processes.

INNOVATION NEEDS COURAGE

One of the great challenges to automotive manufacturing in the 21st century is to cope with growing variety. Besides different drive concepts and body variants the design customization in the car's interior and exterior is playing a major role. The industry has accepted the challenge of variety management in many fields of production and is working on the implementation of new technologies under the heading "Industry 4.0". But when it comes to increasing variety for individualization of design elements the automotive industry and their suppliers are still choosing a conservative approach. One of the reasons may be that they expect disproportionately high costs. BARLOG is pioneering the industry with their innovative solutions for customizing plastic surfaces and combines individual design, value added and low cost.

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CUSTOMIZED PLASTIC SURFACES WITH 3D-TECHNOLOGY

This applies especially to BARLOG'S KEBALLOY 3D-Technology that is used to create individual effect coatings with 3D-effect. Rinspeed's new self-driving concept car "Σtos" is equipped with a front panel making use of this technology.

KEBALLOY 3D is offering completely new possibilities of customizing designs in large-volume production. Interconnected production technology enables the creation of individual designs starting from a lot size of one single piece, without additional cost for tooling, machine set-up or logistics.

A plastic part, e.g. a customized dashboard trim or a plastic front panel such as in the "Σtos" is injection molded cost-efficiently in high quantities using an engineering plastic from the KEBALLOY 3D portfolio. The material contains special fillers that allow storing information within the surface using magnetism – using the same basic principle as an old audio tape. After injection molding the desired design is incorporated in the surface by magnetic means. Using interconnected and



fully automated production technology every single part can have a different design. In the next step, the part is coated with a special metallic paint and the design, which has been invisible until this process step comes to life and gets visible. The metallic particles in the coating are oriented along the magnetic field and give the design a three-dimensional depth-effect. Finally, the part receives a top coat to complete the individual design.

INDIVIDUAL EXCITEMENT FACTORS CREATE COMPETITIVE ADVANTAGE

Cost analyses carried out by German automotive suppliers confirm that design elements created by using the KEBALLOY 3D technology offer a competitive advantage over in-mold decorated plastic parts. KEBALLOY 3D enables the individualization of mass production and creates an emotional selling proposition at the same time. The hybrid sports car "Σtos" uses KEBALLOY 3D technology for the design of the front panel. Thus, the unique design of the concept car receives an individual touch – so it really becomes one of a kind. When showcased at CES Las Vegas 2016 the "Σtos" will be in the public eye for the first time and with it the fascinating effect of individual designs made with KEBALLOY 3D.

BARLOG GROUP IN A NUTSHELL

The Barlog group is a full-service supplier for development of plastic components, production and sales of engineering and high performance plastic compounds as well as customized engineering services for various markets and customers.

The owner-managed family business was founded in 1996 as BARLOG plastics GmbH and is located in Overath, Germany, since 2011. The company has three business units and services customers all over the world with innovative plastics solutions. In focus: the customer-oriented interaction between the business units BARLOG Plastics, BAHSYS and the BARLOG Academy. In 2014 the group had 57 employees and achieved a turnover of 27 million Euros.



“ΣΤΟΣ” AND BORBET – A RELIABLE TEAM

At Rinspeed, the borders between fiction and reality are closely allied. The latest highlight of the Swiss think tank goes under the name “Στος”. The name of the hybrid sports car says it all: Rinspeed created a vision of a self-driving car with an intuitive and adaptive autopilot that is capable of learning, together with it having pioneering infotainment on board. The “Στος” also has companions with a sense of responsibility that are also proactive and forward-looking: BORBET light alloy wheels.

Rinspeed and BORBET go together. The Swiss masterminds already placed their trust in the special design and product quality of the wheel experts from the Hochsauerland region of Germany during the “Xchange” and “Budii” projects – in the same way as more than 30 other car manufacturers around the world place their trust in BORBET as an original equipment manufacturer. With BORBET, Rinspeed also found the right partner for the “Στος” concept study. Together, they are a byword for an innovative spirit and quality, thereby ensuring an entirely new driving experience.

A PASSION FOR LIGHT ALLOYS

BORBET – the family-owned company in the fourth generation – is able to look back on more than 130 years of metalworking tradition and experience. The focus has been on the development of high quality light alloy wheels since 1977, this focus resulting in the company developing into a leading international manufacturer within a period of four decades.

BORBET’s story of success is not only based on years of experience and cumulative know how, but also on a large portion of passion: no matter whether cooperations with scientific institutes, the voluntary adherence to the most stringent certifications or internal research – BORBET does all in its power to do justice to the ongoing increase in demands. With each new product, it is the aim to combine an attractive design with the best technical quality and robust reliability.

DISTINGUISHED INNOVATIVE STRENGTH

To this end, BORBET systematically supports the further

training of its employees and promotes the development of new and innovative manufacturing processes. For example, the NatureWheel process that was developed by BORBET, combines the metal casting with the use of a mineral skeleton. This special combination results in a weight reduction that had not been deemed to be possible in the past – a milestone in the manufacturing of highly efficient and stable light alloy wheels. It is due to such innovations and in-house developments that BORBET is today one of the pioneers and trend-setters in the branch. Numerous awards such as the “Porsche Supplier Award”, the “VW Group Award”, the “Innovations Award der Messe REIFEN” or being named “Brand of the Century” mirror the wide recognition that is given to the top performances of BORBET.

UNIQUE DESIGN LANGUAGE

In addition to the technological expertise, BORBET especially convinces with its unique design language in the specialised trade and its keen sense for trends. The best example of this is the BORBET A wheel that was presented in 1987 – a timeless classic that is still in the product range today, due to the high demand.

SPORTINESS ON THE PULSE OF THE TIMES: RINSPEED “ΣΤΟΣ” ON BORBET GTX

The “Στος” offers a free choice between direct steering by the driver and an entirely autonomous driving. This is where the dynamic of a snappy sports car meets up with the relaxed harmonious cruising along with a futuristic-looking infotainment hub. The merger between sportiness and a conceptual avant-garde is also reflected in the look of the vehicle – appropriately

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underlined by the BORBET GTX. This wheel innovation reinterprets the classic wheel lines to be found in motorsports.

The 10 spokes of the BORBET GTX emanate from the horn with an initially narrow accentuation, before becoming discretely wider the closer they come to the centre. This accentuates the full size appearance of the BORBET GTX, thereby providing the vehicle with an even more dynamic presence. The carefully selected curved radius of the spokes forms a discrete level contrast to the attachment points at the hub and enriches the wheel line with plasticity and depth. This enables the elaborate surface treatment in the exclusive black glossy with a special effect to be especially accentuated by the resulting light refractions.

The carefully reduced design language forms the character of the BORBET GTX: despite the magnificent size of 8.5 x 20” on the front axle and 10.0 x 20” on the rear axle, the wheel nevertheless retains its graceful-sporty character, it therefore being a perfect companion – both for the Rinspeed “Στος” and for vehicles from here and now.



BORBET

A SUCCESSFUL COOPERATION.

CARL F. BUCHERER AND RINSPEED ARE CONNECTED BY THEIR PASSION FOR INNOVATION AND VISIONARY ADVANCED TECHNOLOGY.

The new concept car Σtos by Rinspeed is a watch winder for Carl F. Bucherer's global novelty of 2016 – the brand new Patravi TravelTec, with a diamond-like-carbon coating in a matt black hue.

It is their philosophy that binds Carl F. Bucherer and Rinspeed: The everlasting quest for technological innovation, progressive ideas and materials. The new watch model by Carl F. Bucherer in their Patravi TravelTec line is installed right in the middle of the dashboard in the latest Rinspeed concept car Σtos. This symbiosis of automobile and frequent flyer watch impressively epitomizes the growing importance of mobility. "We've been successfully cooperating with Rinspeed for many years. The realization of a shared vision relating to aesthetics and technology is crucial to both of us", expresses Sascha Moeri, CEO of Carl F. Bucherer. "Together we create movements in time."

TIME IS ALWAYS ON BOARD.

The Patravi TravelTec by Carl F. Bucherer is the ideal timepiece for frequent travelers. The simultaneous display of three time zones in combination with a chronograph is unparalleled. The clearly arranged dial allows for registering the different timezones at a glance. In addition, the patented monopusher makes it possible to swiftly switch

between Eastern and Western travel direction. However, at the heart of the matter, the chronometer-certified, in-house caliber CFB 1901.1 beats away. The new Patravi TravelTec also sports a new, impressive style – utter, satiny-matt black. The deep hue is achieved with a razor-thin coating called Diamond-Like-Carbon (DLC). Its diamond-like, crystalline structure and composition lend it the rich coloring. In addition, the carbon entails a high scratch resistance and shock absorption for the case. In the concept car, the Patravi TravelTec is placed in a special display case that swings from right to left in regular intervals, winding the automatic caliber back up. Σtos itself, however, is the great watch winder: When the car is in motion, the energy of the movement also powers the Patravi TravelTec. In case of an incoming call, the camera, built sideways into the special display case, swivels to the speaker. The times of the Patravi TravelTec are then displayed digitally in both driver displays, from East to the West.

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A TRADITIONAL SWISS HISTORY.

The story of Carl F. Bucherer begins in 1888 in Lucerne, at the time when Carl Friedrich Bucherer opened his first jewelry and watches store. Within a short time, his name became synonymous with exclusivity and originality. His two sons, one of them a trained watchmaker, the other a trained goldsmith, represent to this very day the union of the best of both art forms. Quality, innovation and passion mark the company that launched its first ladies' watch collection as early as 1919. What began as a small, family-owned business, turned into an internationally renowned brand by the name of Carl F. Bucherer. It has remained in family ownership, in 3rd generation. Sascha Moeri, CEO, heads a highly professional, internationally active team.

The watches by Carl F. Bucherer embody elegance and exclusivity – meaning they are in total synchronization with the times.



CARL F. BUCHERER
FINE SWISS WATCHMAKING



INNOVATIVE GLASS MAKES BETTER CARS

When most people consider automotive glass, they think of the heavy windows that have not changed significantly in decades. Corning invites you to think differently: what if better glass could enable lighter, tougher, more agile, and fully connected cars? What if glass could transform the interior of a car and enable edgy new design features, like LED backlit surfaces for drama and effect? With this year's "Σtos" concept car, Rinspeed and Corning challenge the paradigm of how glass is used in automobiles today and in the future.

Corning is driving innovation in car windows in the same way it has changed the game in many other industries. Corning is offering a new approach that reduces vehicle weight while enhancing other elements of performance. The sunroof and rear window of the Σtos concept car feature two layers of Corning® Gorilla® Glass for Automotive that combine to make a window two thirds lighter than conventional constructions. In fact, if the Gorilla Glass laminate replaced all of the Σtos windows, overall vehicle weight would be more than 25 pounds lighter than conventional glazing – helping automakers to meet emissions regulations, improve fuel efficiency and improve the overall driving experience.

Gorilla Glass can be used in other areas of the car to personalize and enhance the driver and passenger experience in creative new ways as well. Also featured in the Σtos interior as a cover glass for the display console, Gorilla Glass provides a protective surface that enables superior touch response while maintaining the optical clarity that allows the smart phone experience to extend seamlessly into the interior of the connected car.

In addition, the drone landing pad integrates a two-ply Gorilla Glass laminate with eye-catching LED lights. The laminate showcases thin, tough Gorilla Glass with a matted anti-glare surface and a dark, opaque interlayer foil. When the landing pad is activated, thousands of LED lights shine through with the Rinspeed symbol to alert other motorists of an impending launch or landing.

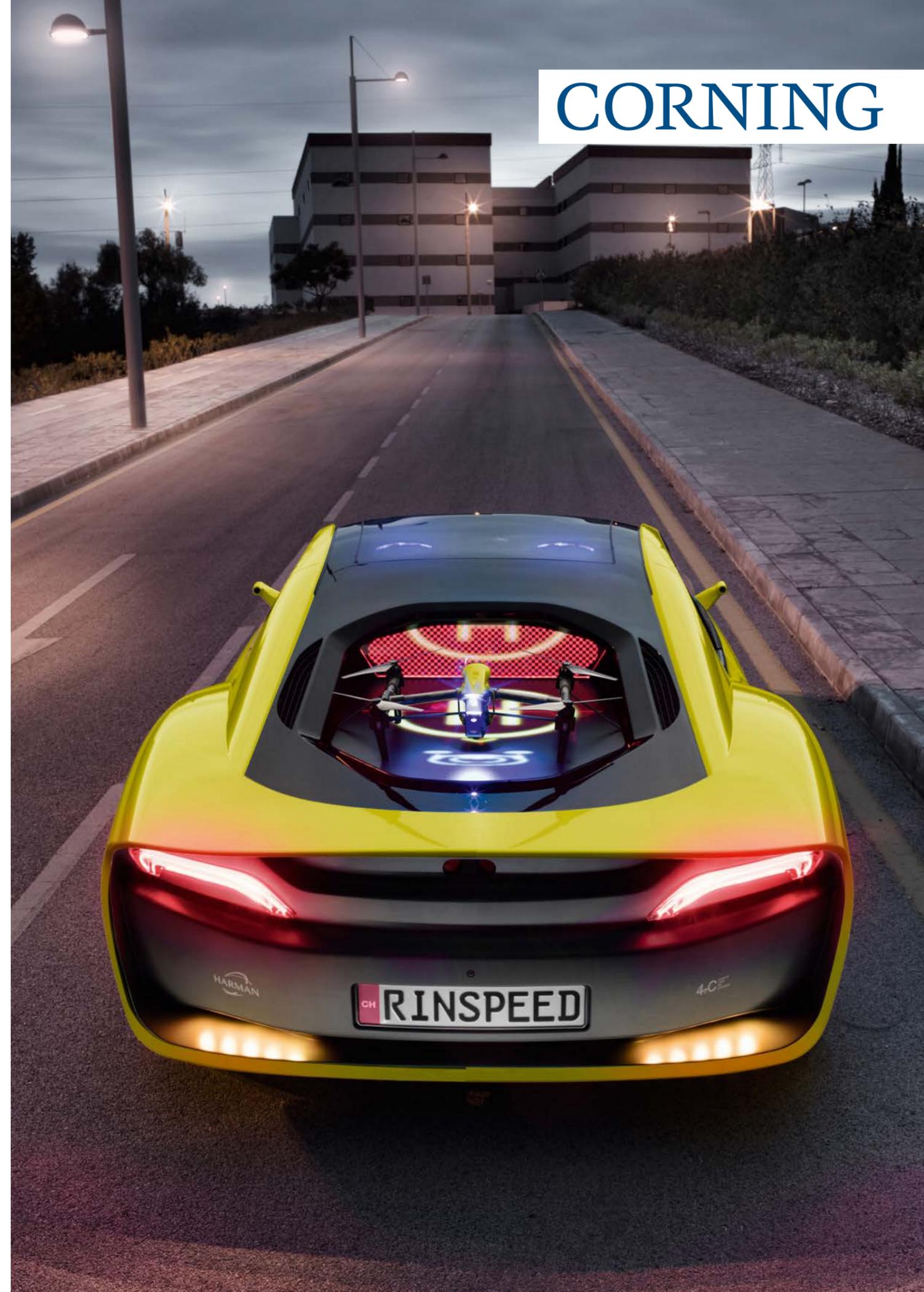
Corning and Rinspeed successfully collaborated on the Σtos concept car to challenge today's conventions and explore the possibilities when glass is used differently. The result takes the driving experience to another level

and offers consumers a glimpse into the future. With the industry heading towards an increasingly autonomous automotive experience, it is innovative companies like Corning and Rinspeed that will help bring that vision to life.

For more than 160 years, Corning has applied its unparalleled expertise in specialty glass, ceramics, and optical physics to develop products and processes that have created new industries and transformed people's lives. Our expertise with glass and ability to solve tough problems has enabled us to create significant lifechanging innovations including the first low-loss optical fiber, mobile emissions control products and LCD glass. We introduced Corning® Gorilla® Glass in 2007 as a cover glass to help protect handheld electronics and soon realized the value lightweight glass could bring to automobiles and interior architecture. Corning continues to challenge what glass can do and the automobile industry is only the beginning.

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For more than 90 years, DEKRA has been committed to safety. In 1925, the Deutscher Kraftfahrzeug-Überwachungsverein e.V. (German Vehicle Inspection Association) was founded in Berlin. Nine decades later, it has become one of the world's leading expert organizations. Today, more than 37,000 employees work in over 50 countries. With 26 million vehicle inspections per year, DEKRA is by far the world's number one.

This is where the company's origins lie: At the start of the 20th century, the industrial magnate Hugo Stinnes and other prominent figures of German industry recognized the challenges to safety arising from rapid motorization. Together, they developed the idea of a voluntary technical inspection for motor vehicles. DEKRA was born from this idea, and the idea quickly became a success. Companies and public institutions with their own fleets became members of the association. As an expert partner, DEKRA ensured the safety and reliability of vehicles. By the start of the 1930s, DEKRA was represented by inspection stations at around 80 locations all over Germany.

After World War II, rebuilding began in Stuttgart from 1946. The

number of branches and inspection stations grew swiftly. Soon, DEKRA was represented all over the Federal Republic of Germany. It initially focused on inspections of commercial vehicles and fleets, above all those of its own members. In the early 1960s, DEKRA was recognized as an inspection organization in Germany. Since then its experts have also performed inspections on privately owned cars and thus made a vital contribution to road safety. In the late 1980s, the first vehicle inspections in France kicked off DEKRA's internationalization. Today, the company is active on all five continents.

DEKRA experts stand for neutrality, expertise, integrity and reliability. The commitment to road and plant safety, which the founding fathers wrote in the Articles of Association as their purpose in 1925, is still the central concern of DEKRA e.V. and its subsidiaries today. Since the founding years, the company now has an even more extensive and international understanding of its commitment to safety. As a globally positioned expert organization, DEKRA is working around the world for safety on the road, at work and at home. The vision for 2025 is to become the global partner for a safe world.

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On the safe side.

PLEASANT HEAT RIGHT FROM THE START – WITH EBERSPÄCHER IN THE NEW ΣΤΟΣ

Visionary ideas are incorporated into the, believe it or not, 22 concept vehicles that Frank M. Rinderknecht has to date put on wheels with his Swiss powerhouse of ideas Rinspeed. He is thus showing what the future of mobility could look like from a variety of perspectives. He appreciates the spectacular eye-catching features just as much as the concealed systems, whose effects only unfold when used. One such example is pleasant heat right from the start – in this regard Rinspeed has been relying on Eberspächer expertise for a long time now. This thermal management specialist from Esslingen near Stuttgart is one of the leading experts when it comes to ensuring the right temperature in the vehicle, irrespective of the drive concept. With its comprehensive portfolio of fuel operated and electric heating solutions, Eberspächer can offer a suitable product for any requirement.

Frank M. Rinderknecht and Eberspächer are continuing their collaboration with the hybrid sports car “Στος”, which will be presented at the Consumer Electronic Show 2016 (CES) in Las Vegas. The “Στος” interprets the mega trend of “autonomous driving”, particularly with innovative digital ideas for the driver and passengers. The Eberspächer electric heater that can be operated via an app and smartwatch/-phone fits perfectly with this concept.

WARM AIR EVEN WHEN STATIONARY

To create the right basis for a relaxed and enjoyable driving experience, Eberspächer is equipping the “Στος” with a third-generation electric heating element: The “PTC coolant heater” has an output of up to 7 kW and has an impressive efficiency value of nearly 90 percent. The device emits this heating power into the interior through stylish vents, which were developed specially for the “Στος.” By having a layout that is cleverly integrated into the vehicle, they assist in effective distribution of heated air to the windshield and into the passenger compartment.

The electric pre-heating function is an additional highlight, ensuring operating convenience that is well thought out. This feature was included because the battery capacity would suffer if occupants in the “Στος” were to turn the heater all the way up when starting. Thanks to the practical pre-heating function, the sporty electric driverless car can already start the heating process when it is parked at home or when it is connected to the power grid on the road. The interior is pre-heated to a pleasant temperature, the windows are reliably cleared of ice in the winter and the batteries are fully charged and at the right temperature. The last advantage is especially important in order to en-



sure that the “Στος” can use its full recuperation potential right away to achieve the best possible range. This would not be possible with cold batteries.

In order to keep the temperature in the “Στος” constant throughout an urban trip, the Eberspächer PTC coolant heater can be set to maintain a temperature accurate to the degree using the climate control unit. As a highly innovative technology, the system uses its “intelligence”, so to speak. If the emphasis is solely on range, it is also possible to adapt the heating power to the battery state of charge during the trip. Automatic battery heating en route extends the range. If the climate control unit measures values that are too low, the PTC coolant heater warms the batteries to the ideal operating temperature again via the water circuit.

AUTONOMOUS HEATING VIA AN APP

Heat in the “Στος” at any time? Eberspächer offers a solution to this challenge too. The heater must ultimately know when exactly it is needed. This is precisely where the new “EasyStart Call” remote control comes into play. Its control unit in the “Στος” can be programmed from any telephone or cell phone from any distance. Programming is even more convenient with the app for Android or Apple smartphones.

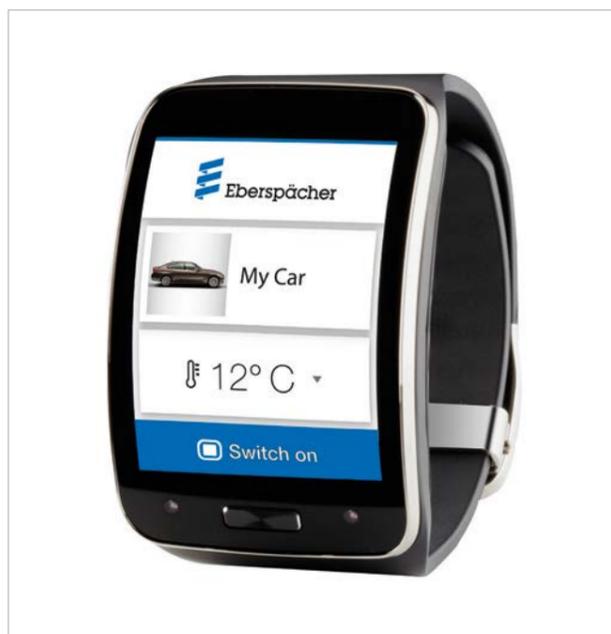
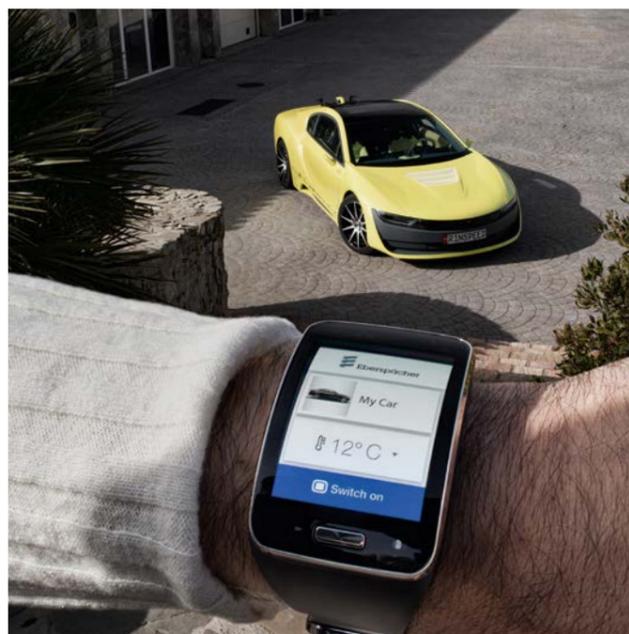
This free app communicates with the PTC coolant heater via voice menu, SMS or app, turning the touchscreen into an intuitively operable control tool for the heater in the “Στος.” Autonomy is facilitated through the ability to define fixed start and operating times in advance for the PTC coolant heater using the app’s scheduling function. This is very advantageous if the “Στος” is repeatedly used at fixed times, such as the commute to work.

And what happens if there are spontaneous “changes to the schedule”? Eberspächer thought of this too: After all, the PTC coolant heater can be operated virtually at the push of a button from almost anywhere and provides feedback on the queried information via voice output or SMS. And with the stylish Gear Smartwatch from Samsung, it isn’t even necessary to take out the smartphone first. The Smartwatch allows its wearer to check the current operating state with a glance at the wrist or to switch the heater in the “Στος” on or off by pressing on the display.

Innovative, pioneering and autonomous are the key characteristics of the heating components from Eberspächer in the new Rinspeed concept vehicle. They thus perfectly complement Frank M. Rinderknecht’s approach to the “Στος”, as it is ultimately intended that the hybrid sports car will travel largely independently, especially on everyday journeys. If fun is more important, the driver can take the wheel at any time. The heating equipment from Eberspächer is just as versatile. It reliably provides utmost comfort in day-to-day use. And – thanks to state-of-the-art control via app and connection to Smartwatches – it can be easily and quickly operated from anywhere when taking the car out for a spin.

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LET'S LEARN TOGETHER!

How man and machine are merging into a new automotive world of experience

Just a few years ago, autonomous driving was dismissed as day dreaming. Now, fully automated vehicles are using public roads on both sides of the Atlantic, albeit with special permission. Certain changes to law will be required before self-driving cars become a mass phenomenon – and above all, a number of key technical challenges will have to be overcome.

In essence, the recurring question is, how much human input does the machine (car) need? In theory, we have understood and accepted the idea that the robot takes charge of the steering and that the driver becomes a passenger who sits back and enjoys the ride. But how will the new division of labor between the human being and the fully automated vehicle work in practice?

First of all, the car's interior will need to be redesigned. Ultimately, that means that the steering wheel will disappear from the interior – though only on request and when the time is right. The steering wheel will go because it is a significant impediment to enjoying the advantages of a robotic car. Watching TV or working on a laptop is only convenient if there is no steering wheel to get in the way of screens or even hinder or prevent their use.

Screen resolution and distance will also have to be adjusted to the person sitting in the car. To date, screens have tended to be small and placed at a distance from the people in the car because the steering wheel determined the space between them and the dashboard. The absence of the steering wheel as we know it today can make room to bring high-definition screens closer to the people sitting on the front seats.

This is already being implemented technically in Rinspeed's new concept vehicle named Σtos. In Σtos, the two screens are dynamic and the steering wheel can retract from the interior, giving the passengers full use of the space. This brings a new dimension to living and working in cars. The drone integrated in Σtos, another first, can run errands on the way home – buy flowers for the wife or a hamburger for a meal on the run. Cars or mobility will no longer be a limiting factor.

Instead, this new form of individual mobility in cars will open up a new world of experience for people.

But the question always remains: How much human input does the robotic car need? Are people afraid of being dominated by a machine in the shape of a car? Or are they afraid of the machine making mistakes or bad decisions? The right software is vital in this context. It has to be intuitive and adaptive, i.e., not programmed statically. The software of the future needs to learn continuously and ultimately work in a similar manner or perhaps just a little better than the human brain. People still cause accidents on the roads, so the robotic car needs to be more attentive than car-driving people. So, if and when cars can steer better than people, should people be allowed to drive ever again? If autonomous driving is implemented stringently, the answer to this question will have to be no. And this answers the question we asked at the outset: The self-driving car must not be modeled on human beings, who as car drivers pose a great threat to themselves and each other.

Does this trend push software and software development beyond their limits? All the signals relayed to the robotic car by sensors, cameras and GPS not only have to be captured accurately, but also interpreted correctly.

People have eyes to see signals, which are then processed in their brains. The brain learns continuously – this will be the software's job in the robotic car. Like a chess computer that learns a little more after each of its own moves and its opponent's moves. In this way, millions of driving responses will be linked and new driving patterns created.

This brings us to the next question: If a machine takes over the thinking and the steering wheel, where does this leave the emotional factor that is so important when driving? It's quite simple, the emotions associated with driving will be relegated to the realm of leisure. On the weekends, people will regain control of their vehicles – if they so desire – and drive over a stunning mountain pass, for instance. As when playing

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chess against a computer, people also like to measure themselves against the machine.

Let's imagine a specific situation: On a closed-off race circuit, it's no longer racing drivers pitted against each other, it's the professional driver against the robotic car. The driver and the robotic car are together on both circuits and both can learn from each other without getting in each other's way or ending up on collision course.

So the challenges for the automotive value chain are clear: the importance of software development will increase exponentially, while drive technology and design, i.e., hardware development, will remain important, but will no longer be the sole argument for using cars. Of course, this opens up entirely new opportunities for IT and internet companies to gain control of the cars of the future – and thus capture future mobility customers. The games industry could also take advantage of these cars of the future – by developing new games that have people and machines facing each other on closed-off circuits.

So robotic cars and driving pleasure are not mutually exclusive, but combine to form a new automotive world of experience – with less human input at the wheel but with more people in cars simply being people. Ultimately, this will give us an enhanced, multidimensional automotive value chain.





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SWISS MADE

ESORO – your experienced and innovative engineering partner for product developments, clean car developments and lightweight composite parts.

As the concept vehicle Σtos with adaptive and intuitive autopilot and drone on board represents the megatrend of ongoing electrification and implementation of the digital world, it will the first time not been presented at Switzerland's Geneva motor show first, but at the CES in Las Vegas, the place to be also for the leading automotive manufacturers and suppliers.

Σtos is the 17th project, ESORO realized for Rinspeed. ESORO has been responsible for the manufacture of the composite exterior body panels which include an innovative drone landing pad in the rear of the car. ESORO has also been responsible for the development of the steering wheel, which in autonomous mode folds up elegantly and retracts completely into the dashboard to enable the curved widescreens to move closer to the driver to provide a better view. Additionally, ESORO implemented and adopted several different technologies and innovations of the project partners. Last but not least, ESORO was responsible for the final assembly of the interior and exterior of the Σtos.

ESORO has now 25 years of experience as engineering partner for product developments, concept vehicles and components focused on lightweight construction, alternative drivetrains and mobility. During this time ESORO has gained a well-deserved reputation for excellent efficiency and innovative solutions, which is demonstrated by numerous prototypes and serial products.

Since 1990 ESORO has been working intensively in the field of conception, implementation and tests of clean car concepts and drive systems. ESORO is thus one of the few companies in the world with well-founded experience in development and operation of electric, plug-in-hybrid and fuel cell drives. These activities are our core competence. ESORO therefore realizes EV projects in close cooperation with well known OEM's starting with the initial conception and the prototype through to the serial project phase. ESORO is also developing fiber reinforced components from initial conception up to pre-production samples. In-house specialists optimize the component properties and characteristics throughout the entire development process. Important steps are non-linear, orthotropic Finite Element Analysis and crash simulation. Another development from ESORO is the E-LFT production technology developed for Weber Automotive. E-LFT makes large scale production of high-strength and lightweight composite parts affordable. E-LFT composite parts weigh more than 30 percent less than comparable steel parts. For the development of the smart fortwo tailgate, which now has been produced 800'000 times with the E-LFT process, ESORO received the highly recognized JEC Innovation Automotive Award 2008.

More: www.esoro.ch

FROM ELECTRIC VEHICLES TO ENERGY STORAGE: EVA FAHRZEUGTECHNIK GMBH IS FORGING A LINK WITH THE FUTURE

As an engineering development partner of major car manufacturers and component suppliers, EVA Fahrzeugtechnik GmbH (EVA) has been working on innovative projects since 1994. Its focus is on electromobility, and on two key aspects in particular: the continuous optimization of the energy storage and a possible reuse of this storage at the end of its service life in vehicles. As this Munich-based company extends its scope of interest beyond the vehicle itself and devotes itself to both these questions, it is finding answers that point the way to the future. In this way, it is contributing to the expansion of electromobility and renewable energies in equal measure.

GREEN LIGHT FOR THE ENERGY REVOLUTION

The growing number of wind turbines and solar power systems is evidence that the energy revolution is in full swing. The generation of electricity from solar and wind power, however, is subject to severe fluctuations, depending on time of day or season and weather. In order to match supply and demand, energy storage units are necessary, and the batteries of electric vehicles are ideally suited

The engineers at EVA are particularly preoccupied with the development of powerful, high-voltage storage units that are able to meet high demands in terms of energy content, range, robustness, temperature resistance, weight and, of course, costs.

A new and innovative topic, however, is the construction of stationary energy stores. In this stationary sector, EVA has been able to exploit its enormous competence in the field of automotive high-voltage batteries for the construction of several prototypes. The bandwidth extends from small systems for typical single-family houses, up to the megawatt range that enables electricity to be stored on a massive scale.

to this task. By storing renewable energy and supplying when required, they surmount one of the greatest obstacles facing the expansion of the green energy supply.

This would make the generation of solar electricity from your own roof, which as a rule is already more economical than „power from the grid“, considerably more attractive and convenient.

FROM SOLAR ENERGY SYSTEM TO SMART HOME

The yield obtainable from a solar power system is easily predictable these days. The efficient interaction between power generation, power storage and consumption, however, demands a certain level of intelligence in the domestic system. The „smart home“ is the house of the future in which green energy is delivered to the location of use on demand by the stationary energy store. This applies equally to the charging of electric vehicles and to the operation of energy-hungry household appliances. For example, the electric heat pump for central heating and domestic hot water or the washing machine can be controlled and operated according to demand. Like an electric vehicle, which always has its energy supply on board, an entire house could be supplied with power almost autonomously.

SMART GRIDS FOR THE WORLD OF TOMORROW

Stationary energy stores made from used electric vehicle batteries are of interest, however, not only for private domestic use. In larger configurations, they are also suitable for industrial companies that want to cover their demand either partially or wholly with their own solar or wind energy systems. By bundling a large number of individual storage units, for example, peaks in consumption can be leveled out and energy costs significantly reduced. Moreover, when you start thinking on an even larger scale, completely new opportunities arise for the energy sector. By connecting a large number of storage units in series, the public grid can be stabilized, meaning that it would no longer be necessary to build expensive new power lines. Instead, further progress could be made in climate and environmental protection by buffering the green electricity from various sources in megawatt storage systems and feeding the power intelligently into the grid.



NEW LIFE FOR OLD BATTERIES

The life of such an energy store is however limited: When it only holds about 80 percent of its original capacity it is no longer suitable for use in a vehicle and must be replaced and sent for recycling. Considering the high costs of energy and raw materials, this ecological balance is so unsatisfactory that the environmental benefits of electric vehicles are subjected to increasingly critical scrutiny.

It makes far more ecological sense to give the batteries a „second life“, which is the subject of intensive research at EVA's Heidemannstrasse premises in Munich. To this end, the engineers convert used car batteries in such a way that they can serve as stationary

energy stores for regenerative energies and meet a host of extremely complex requirements. This may still sound like a dream of the future. However, considering the technological progress, a breakthrough in electromobility is foreseeable. Consequently, there will be a growth in the number of old batteries, which, after their use in vehicles, can support the smooth transition from fossil to renewable energy sources. This would create a coordinated overall concept with unbeatable environmental balance. In its laboratory for new energy storage technologies, EVA Fahrzeugtechnik GmbH has already developed several prototypes that demonstrate how this „afterlife“ could appear in practice.

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Castings are used under high loads and are often classified as safety components. To achieve the maximum possible weight reduction with bionic design, that means the use of shapes and patterns derived from nature, materials with improved mechanical properties are applied.

The manufacturing process of castings is very suitable for lightweight components. Due to the fact that the metal is formed in a liquid state, almost any cross section and shape is producible on a large scale safely and in a minimum of time. Using cores makes even hollow profiles possible - an important design freedom to design highly stressed components. At the same time, the wall thicknesses can be easily adapted to the loads. The material is only used where it makes sense - an important key for lightweighting.

Due to the possible choices of material and processes, application of castings are very broad and flexible. Depending on the application and quantities lost sand molds or permanent steel molds are used. Aluminum and magnesium offer with their low material density an excellent lightweight potential. High-strength ductile iron allows to produce highly stressable thin-walled structures.



+GF+

THE CAR THAT CARES

While the automotive industry is taking its first steps toward autonomous driving and numerous legal and ethical questions have yet to be clarified, Rinspeed is shifting the focus once again to the future needs and opportunities of the driver and passengers with its concept car Σtos.

At the very core of the Σtos are the LIVS technologies from HARMAN. They manifest themselves in a highly individual, intuitive and adaptive autopilot capable of learning, which, together with a virtual personal assistant, anticipates the wishes of its passengers, thereby considerably simplifying the operation of the vehicle in everyday use.

The Σtos raises the visual user experience to an unprecedented level: Two curved, ultrahigh-resolution 4K 21.5-inch widescreen monitors as well as a central HD display present the relevant information to the driver and his copilots – adapted individually and to the prevalent driving situation.

Users communicate with the system by voice, hand gestures, physical controls or touch and/or a combination of these technologies – exactly according to the passengers' preferences. The interior adapts to the particular driving situation as if by magic: In autonomous mode, the steering wheel

folds up and retracts completely into the dashboard and the two widescreens move closer to the occupants.

A large number of innovative assistance systems are also included for manual driving: from the ultra-HD 180° front- and rear-view cameras to the electronic rear-view mirrors with comprehensive warning and assistance functions as well as the innovative Curb View, which facilitates maneuvering in extremely tight spaces. The Σtos' face/gaze tracking system enables the vehicle to provide the driver with active support according to his needs and to individually adapt to his driving task. Driver alerts include speed limits, road curvatures, dangerous road conditions, construction areas and pedestrian intersections.

Also on board is a complete office suite, which, especially in autonomous mode, affords the same level of productivity as a stationary office does. From one-touch video conferences to the control of the networked home – almost everything is possible.

And for periods of calm and relaxation, the Σtos offers unsurpassed HD audio enjoyment with its premium Harman Kardon sound system. This creates the completely innovative driving experience of the future.

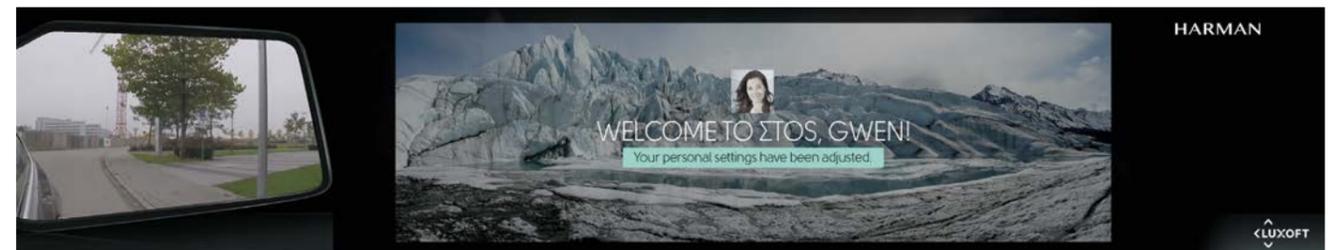
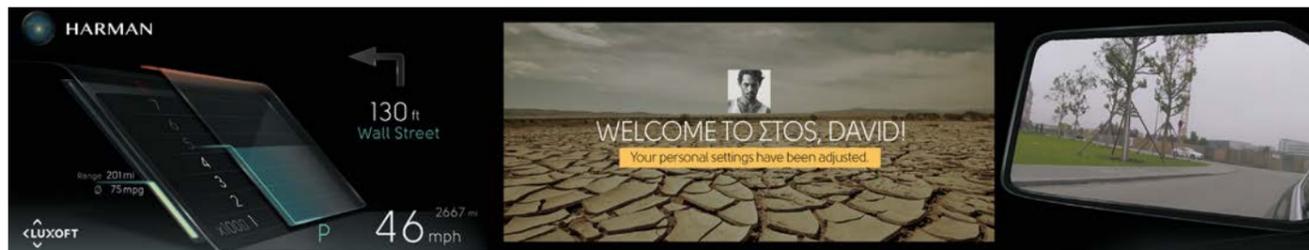


The LIVS technologies, which constitute the mind of the Σtos, are the essence of the extensive competence as well as the many years of innovative leadership of HARMAN in the areas of infotainment, navigation, connected car and connected services. Taken together, they form the essential elements without which autonomous driving would be impossible:

- Scalable infotainment platforms, which can be adapted individually to the needs of automakers, vehicle segments and types
- Modular connectivity solutions, which provide the high-speed networking interface to the outside and within the car
- State-of-the-art camera-based Advanced Driver Assistance Systems (ADAS), which monitor, record and assess the surroundings of the entire vehicle
- High-resolution 3D maps for the required high-precision positioning system (including micro-city and micro-parking models) as well as learning navigation
- A large number of new, useful connected services such as weather, parking and reservations
- The ADASIS e-Horizon as an extended range of perception beyond the driver's visible horizon using V2X technology
- The comprehensive HARMAN 5+1 safety architecture with hypervisor and firewall as indispensable basis for all technologies and services, including OTA (Over the Air) update capability.

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“ΣΤΟΣ” CONCEPT CAR AND HARTING IIC MICA:

With digital innovations into a clean future



Pushing Performance

Rinspeed and the HARTING Technology Group – these two visionary players complement each other perfectly. For more than 35 years, Frank M. Rinderknecht and his team have been making dreams of the future come true. With futuristic mobility concepts and vehicles, the Swiss Rinspeed company is changing the automotive industry. HARTING too, with its innovative product portfolio in the area of Connectivity & Networks has been keeping pace with the times for 70 years now. As a pioneer for Industrie 4.0, the Technology Group offers customers tailor-made solutions for the intelligent, flexible and networked products of tomorrow. One of these solutions is the HARTING IIC MICA. This year’s “Στος” Rinspeed concept car is also equipped with this digital innovation – for independent emission and condition monitoring in the vehicle.

For the HARTING Technology Group, for 70 years one of the most innovative companies in industrial connectivity, the MICA represents a convincing example of the growing portfolio of products, components and software solutions for Industrie 4.0 applications, which HARTING markets under the claim HAI4YOU (HARTING Integrated Industry 4 You) and thus puts customer benefit in the focus.

Because the economy and society are on the threshold of a profound change: the digitisation of production technologies and operational sequences on to intelligent, autonomous production systems on horizontal and vertical levels lead to a paradigm change in industrial production. In the “fourth industrial revolution”, Industrie 4.0, production will become more flexible, more economic, more economic and more efficient with resources. It enables a strong individualisation of products and the integration of different business and value creation processes. The “Internet of Things and Services”, the networking of individual devices and machines with implemented information technology, is the technological basis of what is known as Integrated Industry. It improves the competitiveness of companies in decisive areas.

SHAPING THE FUTURE WITH TECHNOLOGIES FOR PEOPLE

Here HARTING underlines its claim as an innovative driver of technological development. The HARTING Technology Group in Espelkamp (Minden-Lübbecke district) is visionary, thought leader and pioneer of this development. The owner-run family company develops and produces electric, electronic and optical connection, transmission and network technology and software. Under one roof, tailor-made solutions corresponding to customer desires and offers for all levels – from innovative components to specific applications and services and on to system solutions and consulting arise in accordance with the HARTING vision “We want to shape the future with technologies for people”.

Thus the Technology Group is globally leading in future markets such as machinery, traffic and Automation, E-mobility, with wind generators as well as



Philip Harting, Chairman and President/Partner of the HARTING Technology Group

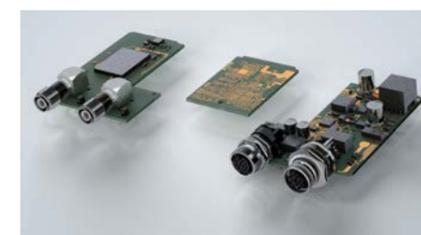
The HARTING IIC MICA is an intelligent, neuronal and open interface, which connects intelligently with the IT environmental structure. It was developed for industrial applications, chiefly in machine and plant construction as well as for mobile machinery. “The collaboration with Rinspeed is a great opportunity for HARTING to show what MICA can do”, underlines Philip HARTING, Chairman of the Board at the HARTING Technology Group and President/Partner.

“MICA enables a very quick and simple integration in the most disparate vehicles. The implementation in the Στος shows this in an excellent manner”, says Dr. Jan Regtmeier, Director Product Manager, IT Software Development. The MICA is also an important component of the Smart Factory from HARTING, the HAI4YOU Factory, as Dr. Regtmeier explains.



Dr. Jan Regtmeier, Director Product Management, HARTING IT Software Development

But MICA is also ideally suited for the battery management of electric vehicles, the energy management of machines and plant - everything online and remote-enabled - or other data capture and communication tasks.



HARTING offers a wide range of solutions for Industry 4.0, such as the HARTING IIC MICA interface (picture above right). This intelligent, neuronal and open interface connects intelligently with the respective IT environment structure. The MICA interface also plays a decisive role in the HAI4YOU Factory (picture above left); presenting this Smart Factory HARTING is demonstrating the company’s in-depth competence and expertise as component, application and system provider. At HARTING, e-mobility solutions are also becoming increasingly important, as the Automotive business area is recording a strong increase in demand for solutions in this environment (see row of pictures below).

broadcast and entertainment. In addition, HARTING produces electromagnetic components for the automotive industry. The E-mobility solutions in particular are increasingly gaining in importance at HARTING, because the automotive business area is registering a strongly rising demand for solutions in this area. The company develops and produces charging equipment for electric and plug-in hybrid vehicles. Customers can apply the equipment in accordance with their own requirements, since the HARTING vehicle charging cables are available in all the three globally used plug system versions (with the corresponding approvals) for the usual AC charge interfaces.

HARTING ON A COURSE OF DYNAMIC GROWTH

In the business year 2013/14 (30.09.) the company, founded in 1945, achieved the highest level of sales in its history with 547 million Euro. Almost 4,200 staff,

including more than 700 engineers, technicians and scientists are employed in 12 production sites in Germany, the Netherlands, France, Switzerland, Great Britain, Romania, Russia, the USA, China and India as well as 42 subsidiaries in all continents.

HARTING places great importance on the recruitment of skilled employees and management staff and offers them top career opportunities. Family friendliness, a multicultural perspective and a cross-generational approach form the principles of our Human Resources marketing.

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AT INRIX, MOVEMENT IS AT THE HEART OF EVERYTHING WE DO.

Through leading connected car technology and collaboration with the world's most innovative automotive manufacturers, we have been moving people forward for nearly a decade.



”

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“

Find out how INRIX can help you with your Connected Car needs:

Europe: Europe@INRIX.com
North America: BusDev@INRIX.com
Asia: Asia@INRIX.com
Latin America: LatinAmerica@INRIX.com

www.INRIX.com

One step ahead

Founded in 2005, INRIX pioneered a breakthrough approach to traffic management by analyzing data not just from sensors in the road but from the vehicles themselves. As a result, big data crowd sourcing was born. INRIX has been providing traffic information for over five million road miles across the globe to automotive manufacturers, government and enterprises requiring insight into the flow of people and vehicles.

INRIX continues to be a leading provider of traffic information, but has quickly evolved into a leader of solving urban mobility challenges through big data, analytics and connected car innovation.

The Importance of Intelligence

Over the past decade, big data has been a key driver of some of the most innovative services available in connected cars today, such as real-time traffic information, smart parking solutions and next-generation driver safety applications. At INRIX, we believe big data will be the driving force behind new intelligent navigation systems that impact automakers and their customers alike.

Leveraging Rapid Growth of Car Connectivity

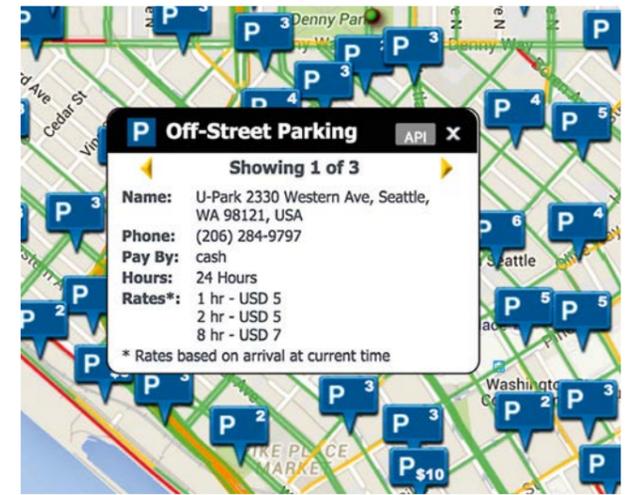
The number of connected vehicles and devices continues to grow as people rely on 24/7 connectivity to go about their typical day. This is great news for urban mobility. Connected cars and devices enable us to capture valuable intelligence required for managing traffic networks and assisting drivers with navigating crowded roadways safely and efficiently.

The INRIX Cloud Platform leverages massive big data so every connected vehicle can adapt to driver behavior, key routes, safety, road weather, parking and more. The more vehicles and devices that connect with the INRIX cloud, the broader and more accurate our data intelligence.

Transforming the Driver Experience

INRIX next-generation technology enhances mobility while delighting drivers at the same time. By making the car intelligent, we can make predictions and alert drivers to ensure a safe and efficient driving experience.

This new kind of technology unlocks unprecedented opportunities for automotive manufacturers to assist their customers in ways that will forever change their relationship with drivers.



INRIX Connected Car Solutions

- INRIX XD Traffic
- Parking
- Incidents
- Routing & Intermodal Routing
- Road Weather
- Fuel POI & Pricing
- Local Search & Geocoding
- Traffic Camera
- Drive Times & Drive Time Polygons
- EV Range Finder & EV Charging Stations
- INRIX Mobile SDK

INRIX On-Street and Off-Street Parking

INRIX On-Street Parking and Off-Street Parking solutions equip drivers with the ability to quickly find, compare and pay for millions of convenient parking options in cities throughout North America and Europe.

With access to immediate availability, rates and restrictions, drivers now have the ability to efficiently find parking near their destination, compare spots based on multiple factors, and reserve and pay from their mobile phone or car dashboard. Drivers get to their destination faster while reducing urban congestion at the same time.

POWERING THE MAGIC:

LUXOFT REINVENTS DIGITAL EXPERIENCE FOR AUTONOMOUS DRIVING

The magic returns early next year with the brand new Σtos concept vehicle by Rinspeed to be unveiled at the International CES 2016 in Las Vegas. It's the first time that Frank Rinderknecht, the visionary CEO of Rinspeed, presents its brainchild outside of the GE-NEVA Motor Show, and that speaks volumes on how the digital revolution has transformed the automotive industry. The Car becomes a full-fledged player in the connected world, the biggest wearable, and the CES is the best place for a daring concept. Luxoft joined in the development of this breakthrough sports hybrid that challenges today's conventions.

DEFINING THE CONSUMER EXPERIENCE VIA HMI

Σtos shows us a glimpse of the not-too-distant future when cars will learn drivers' preferences and anticipate their actions. But what is at the heart of this evolving relationship between human and machine? It's the human-machine interface or HMI. There's more to a great HMI than its looks. Thousands of lines of software code define complex algorithms that make an interaction with a car so simple and pleasant.

Σtos' thoroughly thought out interior features two large screens with HMIs developed by Luxoft. A driver and a passenger each gets an individual screen designed with their specific needs in mind. Features, such as an intelligent media player, create a unique user experience and take the human-machine interaction to a new level. The car will not only help you park, but will pay for the parking. All you need to do is give a few voice commands. Σtos can help you with your shopping too.

It is still a sports car that you can take to a race track on the weekend. Switch the race mode on and the entire HMI changes. The transformation goes beyond simply replacing the skin and color palette. The instrument cluster is completely different. No more distracting information on the screen – only what you need when you need it. It's all about performance.

DESIGNED BY CREATIVE LABS

Luxoft's Creative Labs team works to bring the magic alive. With the task of finding the most creative and

efficient ways to connect the latest technology with business and human beings, the Creative Labs implements information management for multiple displays in the car, and helps to visualize the connected car and ADAS features. From its main office in Stuttgart, Germany, and other locations worldwide, Creative Labs designs an entire user experience, from idea to prototype to production, in the most efficient way, producing such award-winning HMI features as individualized climate control.

MASS-PRODUCING THE FUTURE WITH POPULUS

Rinspeed is a one-of-the-kind concept car and its HMI is completely unique. But does it mean that it had to be hand-crafted from scratch? Not at all. Luxoft's Populus tool proved to be powerful enough to rise up to the challenge. What is Populus? It is a complete tool chain for rapid HMI design, development and production. Populus was designed specifically for the automotive industry, delivering high-performance car user interfaces with a short time-to-market and efficient software life cycle management.

In a single software suite, you get the ability to create eye-catching, animation-rich HMI without real programming and virtually bug-free. What's more, all of this rich functionality comes with a low memory footprint, which makes it ideal for mass-market instrument clusters and not just premium HMIs. In fact, you can create stunning designs for all types of automotive displays, from virtual instrument clusters to centerstack and head-up displays, and the Populus tool consistently cuts the time from an initial brainstorming session to production-ready HMI dramatically.

Robust Populus software and Luxoft's talented engineering team is a winning combination that results in impressive and ergonomic car HMIs. Already featured in millions of cars built by world-leading OEMs, Populus-generated HMIs now enter a bold concept vehicle that will help shape the future.

ERA OF A SOFTWARE-DEFINED CAR

A modern car runs on code as much as it runs on gasoline. Today, it takes over 100 million lines of software

code to get a premium car going, and the amount of software necessary keeps expanding. At Luxoft, we are excited about the car's digital future and we work every day to help bring it about by developing cutting-edge automotive solutions for leading global car manufacturers.

Offering a wide range of embedded software development and integration services for in-vehicle infotainment and telematics systems, digital instrument clusters and head-up displays, Luxoft has developed User Experience (UX) and HMI for millions of cars on the road today. We push the envelope of technology in such areas as situation-aware HMI, computer vision and augmented reality, while Luxoft's „knowhow,“ the Populus and Teora UX, and HMI design tool chains, power the development of award-winning automotive HMIs and slash time to market.

LUXOFT AND RINSPEED: PARTNERSHIP FOR THE FUTURE

Σtos grants us a rare opportunity to experience what the future may feel like. Besides sporting an auto-

mous mode and being a hybrid, this innovation on wheels is fully connected to the cloud and is an integral part of the Internet of Things (IoT). We see that cars are quickly entering the connected world, and this is a major focus for Luxoft who already develops advanced IoT and Big Data solutions globally.

The future is digital and software-defined. There is no turning back for the automotive industry, and the visionaries are leading the way, helping the OEMs to rethink their strategies and business models. Luxoft wants its partners to succeed and thrive in this digital world. This is why we offer a unique combination of thought leadership, industry expertise, resource scalability, and prebuilt solutions, making us one of the world's leading automotive software integrators today. Let's succeed together!

LUXOFT
automotive.luxoft.com





CONNECTED MOBILITY: PHONES, DRONES AND CONNECTED AUTOMOBILES

The number of people living in cities is expected to double by 2050, meaning congestion and pollution will increasingly be a problem for city dwellers. As a result, the cities of the future will demand smarter solutions for urban living such as intelligent traffic management solutions and connected vehicles, including drones.

This transformation is already well underway. Innovations are helping to create a more entertaining, customised experience for consumers as well as making transport, on the land and in the air, safer and easier. But this is just the beginning, let NXP Semiconductors, pioneers of the connected car, give you a glimpse of the future of urban transport and the technology that will enable it.

MONDAY 7.00 AM

You have a big meeting at 09:00 AM outside of the city meaning public transport options are limited. Luckily, the day before your smart calendar advised you to book a rental car. In just a couple of clicks the car is booked and scheduled to arrive at your door, and your alarm clock is synced to wake you up in time based on traffic conditions.

The car navigates its way safely through the streets using NXP driver

assistance technology e.g. Radar and Vehicle-to-Anything (V2X), which gathers information about its surroundings, providing the on-board computers with an image of obstacles and dangers the driverless system must avoid.

A notification on your smartphone lets you know that the car is outside and ready to enter. The car will automatically detect the embedded NXP Smart Key technology in your phone as you approach, enabling it to securely identify you as the correct driver of this rental car. All that's needed is for you to pull the handle and enter.

Once inside the car you place the smartphone on the wireless charging pad where not only does it begin charging but using the NXP automotive grade technology it syncs with the car. Temperature and seating is adjusted to your preferences, your desired news site is displayed on the console and it also plays your favourite DAB radio station which comes through crystal clear thanks to NXP's software-defined radio solution.

MONDAY, 7.30 AM

The car knows the route and automatically streams onto the motorway to 'platoon' - hooking itself to another group of cars

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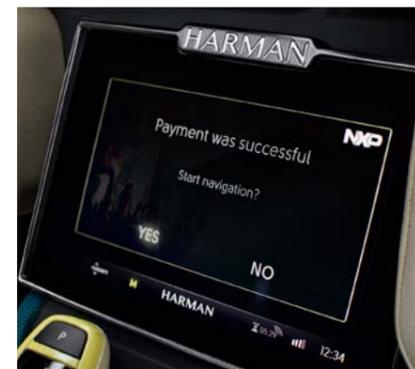
heading in the same direction. Safe speed and distance is maintained via the on-board V2X technology based on the NXP RoadLINK™ chipset. As well as communicating with vehicles around it the device also speaks to other connected infrastructure. You lean back in the seat and the car asks you what you would like for breakfast, after making a selection it sends your order to the en route cafe. All you need to do is reach out and take the order as they know exactly when you'll arrive.

MONDAY, 7.45 AM

As you're driving you get a message from your date asking if you want to go ice skating later. You accept but realise you can't turn up empty handed. Just a few clicks on your phone later and an online retailer has dispatched a drone to bring flowers to your office. The drone navigates using V2X and radar technology, which it needs to avoid the dozens of other delivery drones making their way across the city.

MONDAY, 08:00 AM

Arriving at the destination you've checked in with security before you arrived so the barriers to the parking lot open instantly after reading your NXP powered RFID



license plate. The license is linked with your payment details so no need to collect a ticket or find coins. Right on time you pull into an available space ready for your presentation with a fresh delivery of flowers waiting for you.

MONDAY, 19:00 PM

Your connected car has just dropped you off at the local ice rink and you're ready to start skating with your date. The scenery is beautiful and it would be great to take some pictures but you don't want to spoil the atmosphere. An app on your phone allows you to call in a selfie drone that takes photos of you as you skate and sends them straight to your phone to look at later.

REALISING THE FUTURE

While such a scenario may seem futuristic every aspect of what has been portrayed is based on technology that already exists today. NXP is a driving force behind connected vehicles and drones and is dedicated to making urban living safer, greener and more enjoyable. Working with a range of partners, NXP is now closer than ever to bringing this vision to reality. NXP brings radar and V2X communications into the car and in drones, as well as wireless technologies for

vehicle access, Near Field Communication (NFC), and multi-standard digital broadcast reception.

SECURITY IN THE CONNECTED CAR

NXP has secured its position as a leader in connected car technology because of its expertise in security – the foundation of any connected solution. V2X connected vehicle technology works by creating ad hoc data exchange networks between the vehicle and environment – in other words, independent, self-organising networks of mobile users.

As with any other wireless LAN, communication is exposed to security risks that must be guarded against in order to prevent access from hackers and other potential threats. To do this, firstly the quality and integrity of data has to be ensured. Intelligent cars and drones must be able to detect whether data has been altered and falsified for any reason when collected or transmitted. Wrong or defective data can block the applications on which they are based or render them ineffective or even become a genuine safety risk.

If for instance inaccurate data misleads a drone to crash land the

consequences could be substantial. So mechanisms need to be integrated that can detect bad data, remove it from the communication circuit, or destroy it entirely. NXP's solutions encrypt, authenticate and secure data at a chip level. Using a set of security keys the car can determine if the data really originates from a specific, trustworthy vehicle.

Privacy in another important issue for connected mobility. NXP's security elements randomise the signature of vehicles so that an individual's driving behaviour cannot be tracked by other vehicles. Addressing these issues of security and privacy will be essential if the scenarios described are to be made into a reality. NXP is confident that with its secure technology we will all soon be leading more connected, safer and more fulfilling lives.

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Using a gas jet heated up to 20,000°C and applying it at three times the speed of sound, the company Putzier Oberflächentechnik GmbH, based in Leichlingen / Germany, employs ceramic and metallic powders to protect components against corrosion and wear.

WE IMPROVE SURFACES.

With the latest Rinspeed “Σtos” model, this thermal spraying specialist in the Rhineland showcases surfaces that no car designer is likely to have ever seen or even used. There is good reason for this. The processed metal alloys and ceramic powders normally do their work well out of the public eye. As coatings they provide antiwear protection for highly stressed components such as pistons and crankshafts. In the “Σtos” they now display their unique visual effects and feel. As well as their functional performance around the car and in the car – moving beyond crankshafts and sealants, you will find, for example, slip-proof titanium-coated pedals.

If one asks CEO Jens Putzier (51) what his company actually does, he sums it up clearly and succinctly: “We airbrush using ceramic particles. And simply improve surfaces.” It is a spectacularly hot form of airbrushing that the company in Leichlingen has mastered. In the trade one calls it thermal spraying: A gas jet is heated up to 20,000°C and ceramic powder is added, turning into a fluid droplet that splatters onto metal like a pancake at a velocity of up to three times the speed of sound. On the rough, cold surface it shrinks together and firmly bonds with it. The resultant bonding strength would

permit a VW Golf to be securely hung from a surface the size of a one-euro coin!

It is a highly specialised and successful business: annual sales came to four million euros in 2015 and the order books are full. The specialist has customers around the world, including renowned companies and the well-known sector leaders. Coated components from the Rhineland are to be found in the food industry, the chemistry industry, the paper industry, and the power generation industry – on a global scale.



Whereas with a garage paint job it is more about finding the right tone of colour, for the Rhenish specialists it is all about selecting the right spray agent. In addition to copper, silver, steel, and bronze, hard metals such as tungsten carbide or ceramic materials such as aluminium oxide are also used. The set objective determines the selection: protection against wear and corrosion, electric insulation, bonding strength through a particular roughness of the surface. Or, quite the contrary, is the coating supposed to minimise the friction of pistons or crankshafts to maximise durability, or merely to ensure everything is securely sealed? For each task there is the matching recipe, securely stored away in the control system of the spraying

machines. It contains exact data on gas pressure, type and amount of gas, as well as on the nozzle shape or distance, velocity, and angle of the spray jet to the workpiece. This is all an extremely well-kept trade secret.

Putzier is a world leader particularly when it comes to coatings for sealing systems. As the CEO explains: “We supply to mechanical engineering companies around the world. Our coatings are to be found on all continents.” And on the world oceans. For indeed the majority of all cruisers have components fitted in their water supply systems that have a coating from this North Rhine-Westphalian company. Such coatings are also to be found in the Eurofighter. And even the orange juice, milk, yoghurt,

and cheese on your breakfast table very probably passed through machines enhanced by Putzier powder coatings on their way to being produced.

To ensure this remains so, the family company is putting its faith and trust in the experience of its own team. As Putzier describes it: “The boys are using materials you don’t find in every metalworking company. They solve customer problems with tailor-made recipes developed from an immense treasure chest of knowledge and experience.” The work performed by these ultrahigh-temperature airbrush artists adds something special to Rinspeed’s “Σtos” – making it even more beautiful.

HIGH-PERFORMANCE LIGHTWEIGHT CONSTRUCTION

REHAU brings new thermoplastic hollow profile technology to the street in the Rinspeed concept car "Σtos".

In the spirit of forward-thinking innovation, the polymer specialist proves advanced capabilities by developing a new type of manufacturing process that results in extremely lightweight, highly-functional components for the automobile industry.

WORLD DEBUT IN "ΣTOS"

Exclusively for the "Σtos", REHAU has developed two thermoplastic hollow profile products which are celebrating their debuts: A polymer dashboard holder and a luggage rack with a high-quality carbon look.

EXTREMELY LIGHT- WEIGHT AND STABLE

Our innovative, patented hollow profile technology combines a series-optimized braiding technique with a specially-developed blow molding process. This enables our components to be up to 50 percent lighter in weight while also being extremely stable when compared to similar component parts made of steel or aluminum. For example, a polymer dashboard holder from REHAU can reduce the weight of a car by up to seven kilograms without compromising stability.

UNIQUE GEOMETRICAL FREEDOM

This innovative production process also removes previous limitations in manufacturing shaped and contoured parts. Now there is greater freedom and flexibility for components such as the polymer dashboard holder, which can be shaped to fit even the most unique and confined spaces perfectly.

UNLIMITED FUNCTIONALIZATION

The connection of additional elements and the use of inserts are possible without elaborate and cost-intensive steps such as surface treatments. Using an injection molding process, the polymer dashboard holder has been efficiently fitted with clips, brackets and add-ons to support the glove box, air conditioning system, media components and other elements. In the luggage holder, an integrated slot features a multi-functional rail where a wide range of additional options, including charging stations, storage boxes or an umbrella holder, can easily be installed.

NUMEROUS APPLICATIONS

REHAU uses the innovative hollow profile technology in the develop-

ment of crash carriers, front-end carriers, stiffening elements and various other structural components. In addition to automotive, future plans include product development for other industry sectors.

REHAU makes sustainable contributions to the ecological and economic challenges of tomorrow, including energy-efficient construction, water management, the use of renewable energies as

well as mobility and future living. Competence and innovation have made the company the leading system and service provider of polymer-based solutions in the areas of construction, automotive and industry. A passion for the fascinating and unlimited potential of polymer materials is the basis for our success as a leading premium brand worldwide. More than 19,000 employees at 170 locations all over the world work to achieve growth and success for REHAU.

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TOUCH IT, FEEL IT – IT'S MAGIC!

The surface finish of the interior perfectly fits into the harmonious overall design of Σtos. New materials for new requirements and interpretations in driving. Schoeller has developed new material surfaces to suit the futuristic infotainment world of Σtos. The innovative yarn supplier scores highly by using particularly wool/silk, a most luxurious but nevertheless very durable material for the seats and the interior. This is why driving or being driven becomes a unique haptic experience. Schoeller takes account of the trend towards new seat and interior materials by using for instance wool/alpaca/polyester blends. Innovative material concepts with durable materials and innovative seat haptics are more than visionary projects as has already been demonstrated through the implementation of series projects with Daimler and BMW.

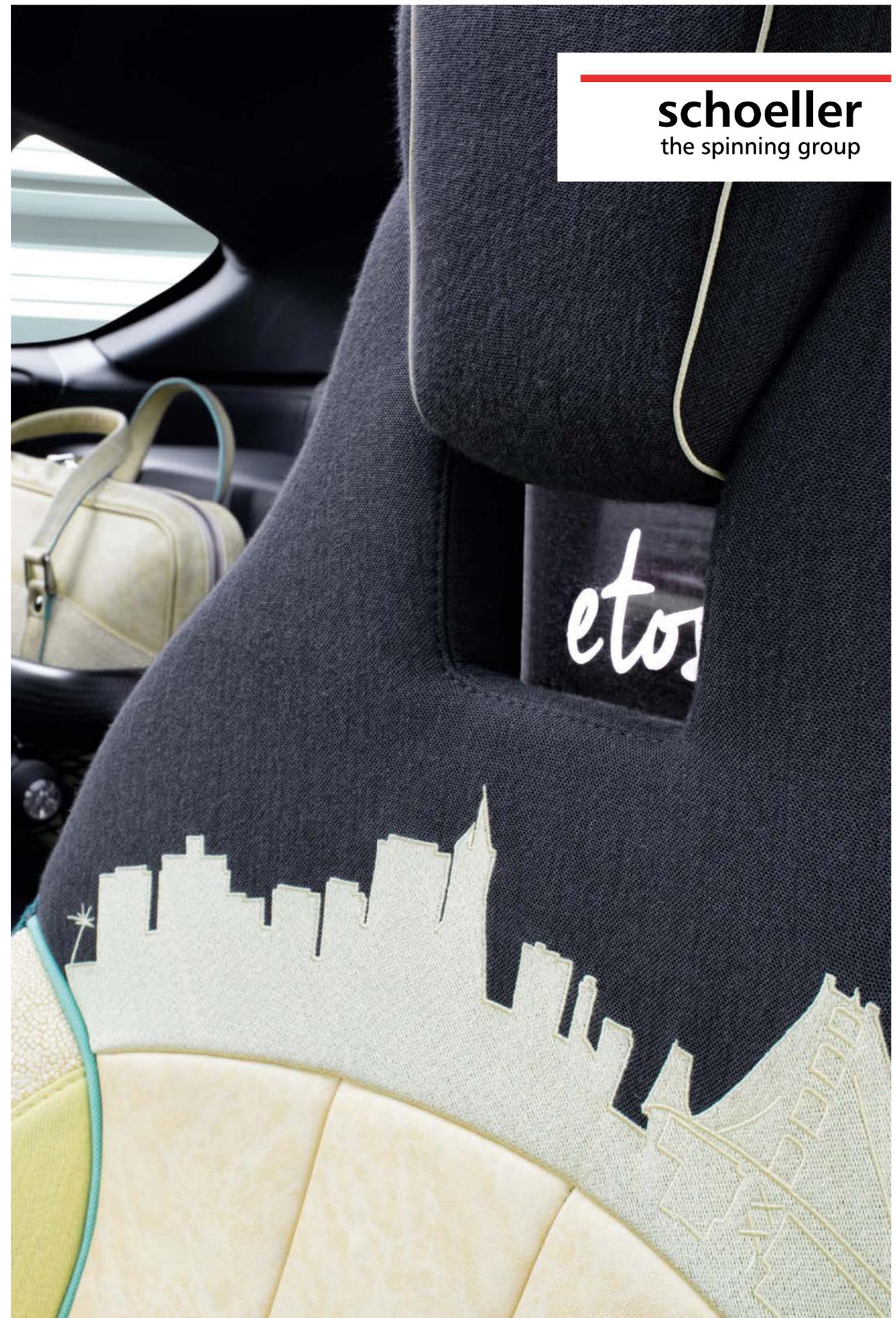
The Schoeller Spinning Group from Hard in Austria is one of the world's leading worsted yarn producers. Some 500 employees produce approx. 3,500 tons of yarn per year in different locations in Europe. One-and-a-half century of experience and an innovative research and development department assure that the technological lead is not only maintained but continuously enhanced.

The course of development is marked by the principle of sustainability firmly enshrined in the corporate philosophy. And that's why Schoeller was the first worsted yarn spinning mill to have been awarded the comprehensive "bluesign" label, an environmental and ecological certificate. Moreover, Schoeller has been distinguished by the much coveted "bluesign Award", is actively involved in the International Association of Natural Textile Industry (IVN) and produces according to the Global Organic Textile Standards (GOTS) and the EU-Flower.

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schoeller
the spinning group



SIKA Automotive AG
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BUILDING TRUST



BETTER VEHICLES START WITH SIKA

At SIKA, we believe that a truly innovative company is one that starts with a culture within which a passion for innovation and creativity thrive. An innovative company should also take a customer-focused view; one that anticipates customer needs with a thorough understanding of key market trends.

LIGHTER WEIGHT

We have a full range of products which enable our customers to make their vehicles lighter. For example, we were the first to engineer body shop adhesives (SikaPower®), which enable mixed-material bonding of lighter materials such as aluminum, carbon fiber reinforced plastic, as well as traditional and high strength steel.

STRONGER AND SAFER

We were the pioneer in vehicle body reinforcements with our SikaStructure® and SikaReinforcer® products, which not only help stiffen the vehicle for better overall dynamics but also improve crash performance and increase vehicle occupant safety.

QUIETER

We provide solutions that make vehicles quieter; Sika-Baffle® seals noise pathways while SikaDamp® reduces the body panel vibration that contributes to audible noise in the vehicle. Both products are engineered for best-in-class weight-to-performance ratio. Used together, or separately, our industry leading acoustics solutions improve vehicle occupant comfort.

GREENER

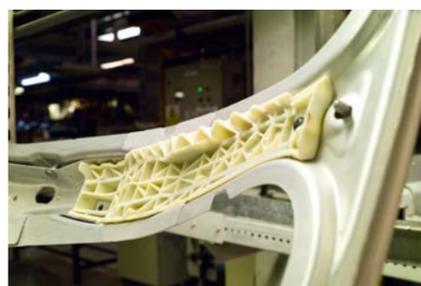
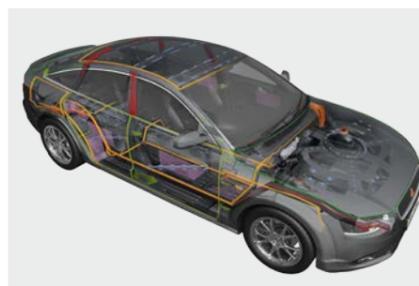
We were the first to develop glass bonding pre-treatment systems which, when in use, contain and release fewer volatile organic compounds – a more environmentally friendly approach that easily outperforms the industry's previous generation of products.

LIGHTWEIGHT, ELECTRIC MOBILITY AND REDUCTION IN POLLUTION THANKS TO HIGH-PERFORMANCE ADHESIVES

Half of all cars produced worldwide contain Sika products. That's about 45 million vehicles per year. Every fourth car window is adhered with Sikaflex® products. The „invisible“ high-performance products help the automotive industry to implement the trends, such as crash resistance and lightweight. Thanks to Sika vehicles become safer, lighter, more economical and more environmental friendly.

SIKA CORPORATE PROFILE

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 93 countries around the world and manufactures in over 160 factories. Its approximately 17,000 employees generated annual sales of CHF 5.6 billion in 2014.





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FINANCIAL TECHNOLOGY AT THE HIGHEST LEVEL – EFFICIENT, SECURE, STABLE – IS WHAT SIX STANDS FOR.

Thanks to our infrastructure, Switzerland is one of the highest-performance financial centers in the world. We want to keep it that way. To this end, we continuously develop innovative solutions for the Swiss financial center and champion FinTech in Switzerland. As an important Swiss infrastructure provider, SIX is committed to helping banks implement their strategies and manage the current shift to digitalization. The reality is that the whole sector is changing and we want to help redefine it.

SIX firmly believes that the broad customer base and consumer confidence in Swiss banks will remain the key to ensuring SIX's continued success well into the future. Our current focus is on FinTech, but FinTech and innovation are not new concepts for us: the only novelty is the FinTech name. SIX has already launched a variety of innovative solutions within the Swiss financial sector. We take pride in recognizing relevant technologies of tomorrow and making them usable as quickly as possible. Because it is important to develop innovative solutions in collaboration with our clients, we actively seek out new partners, such as Rinspeed, who are redefining the world of tomorrow.

Now sit back, make yourself comfortable and imagine what that future looks like. Bet that feels good after a long day at the office.

Feeling hungry? Use the touchscreen to order a meal at your favorite restaurant and pay with the touch of a finger. A perfectly cooked meal is waiting for you when you arrive. But wait, did we mention that you would be doing all of this in your car, while driving through the city? Or more accurately, as your car drives you. Welcome to the future.

Your car tells the restaurant when you will be arriving and ensures your preferred table by the window is reserved for you. The screen will show you all available parking spots close to the restaurant: you just need to choose the one you want. Most convenient of all, the parking meter will be paid automatically as you drive away.

You set off homewards, well fed and contented. With extra time on your hands, why not treat your car too and head to the car wash, but without having to wait in line to be processed. How? The payment is made as you enter, using the integrated contactless terminal in the rear-view mirror. As you pass through the car wash, you receive an alert: the shares you wanted are now on sale at the price you stipulated. Do you want to buy? Seize the opportunity! Press "Buy" on the screen.

Just around the corner is the supermarket where you did your shopping this morning on the way to work, from the comfort of your car. You pull over and your groceries are loaded into the trunk.

Now you are ready to head home, but it would be nice to have some fresh flowers. Simply select the most attractive bouquet on your touchscreen and let your driverless car do the rest. It will take care of the payment while the delivery drone will fetch and bring you the flowers.

With all errands completed, you can settle in and begin to look forward to whatever the evening might bring. Your car turns the final corner into your street. How does it feel to arrive back at your house feeling relaxed and knowing that all the chores and more have been done?

Being able to choose to do whatever you want, whenever you want – that is what the future holds. SIX is doing its part, by providing flexible cashless payment technologies. Flexibility means being ready for potential uses that we haven't even conceived of yet.

SIX has created a simple and fully mobile platform for making payments and trading in real time: Paymit. Paymit is a springboard for innovation and can be used for solutions that will make our life easier and less stressful in future. Rather like a car, which in addition to getting you around in style, also helps you navigate your way through the complexities of daily living.



IMAGINE HOW WE CAN SHAPE THE FUTURE TOGETHER

The future of car interior materials is full of innovations and new opportunities of which the Σtos concept vehicle is a great and inspiring example.

We are Stahl, the car interior surfaces expert and worldmarket leader in our niche. We are honored and excited to partner up with Rinspeed to create the ultimate customer experience. For the development of the various surfaces used on seats, door-trims, i-panel, steering wheel and weatherstrips – just to mention some of our application fields in Automotive – we relied on our unmatched technical know-how and leading edge technologies. We at Stahl enable innovations to happen within the supply chain for the car interior materials in which we are involved.

Striving for the best possible solutions is not only our goal but also a demand from the OEMs, specifiers and partners. That's why we provide them innovation power and design freedom to create new opportunities. We deliver interior harmony solutions for the car, with the knowledge required to work with the different substrates used, be it leather or other synthetic materials. Imagine the endless possibilities this provides, from perceived quality to new and outspoken designs.

PARTNERSHIP OPENS UP INSPIRING POSSIBILITIES

We believe that with co-operation great things can happen. That's why we invested in an 'Automotive Center of Excellence' in Waalwijk, The Netherlands: a unique, industry-leading facility to invite OEMs, tiers and partners to share know-how and develop the car interior materials of the future together. Next to this facility we also have several excellence centers around the globe. This way we can develop successful partnerships in all industries, but also offer tailor-made solutions close to our partners.

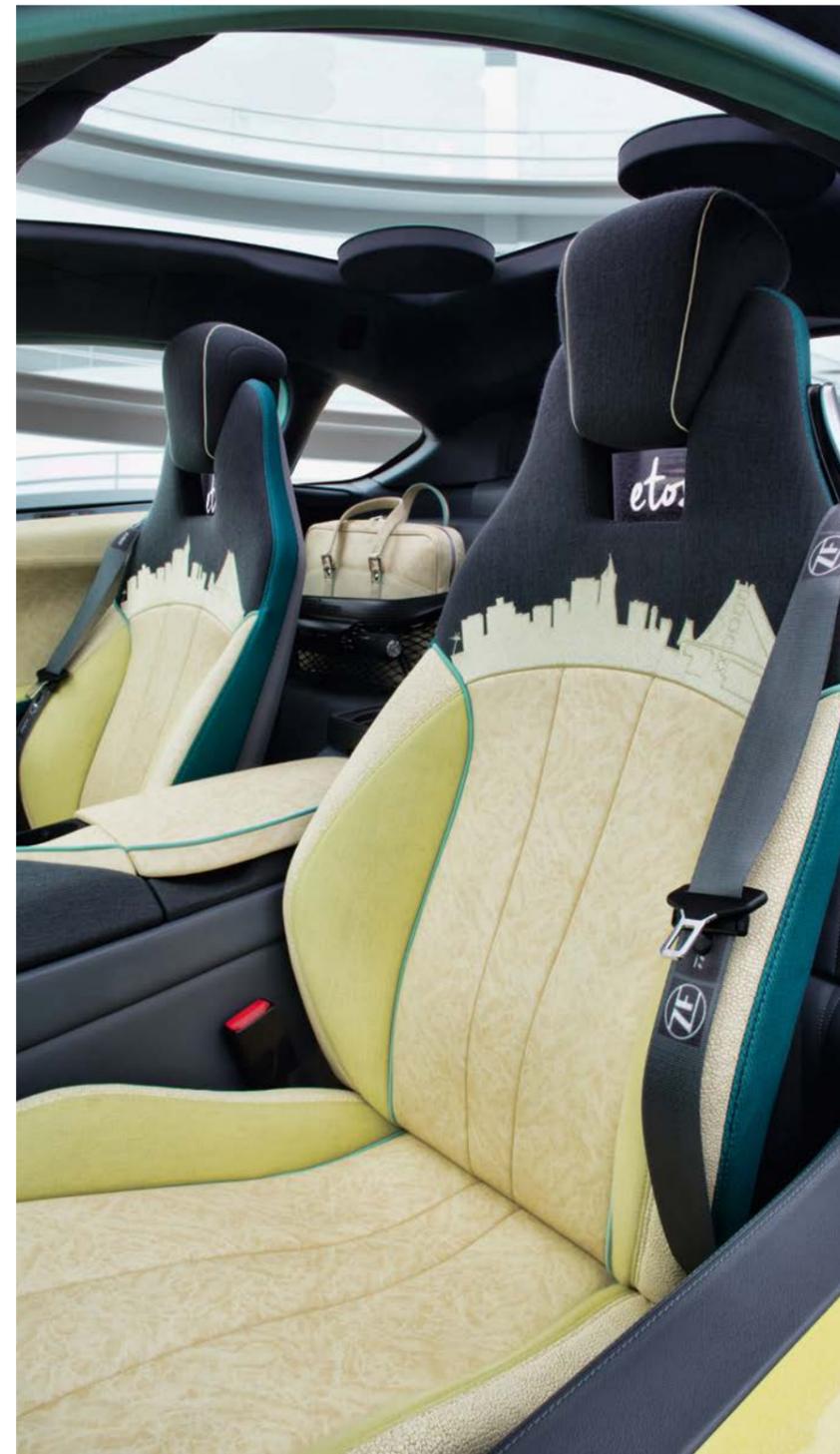
ΣTOS – DRIVING INNOVATION

The Σtos concept vehicle is a great reflection of Stahl's strength: exciting and visionary interior applications that push the boundaries of innovation. In the Σtos concept vehicle we've created a sensorial experience for the customer, using different substrates to enhance the materials used in the car. To start off we produced sustainable leather based on Stahl EasyWhite Tan™, an innovative tanning technology free of metals and with improved sustainability credentials regarding water usage, energy and chemicals. A clear statement – we want the industry to become more environmental

friendly, starting by setting the right example ourselves. The surface finishing system is based on the industry-leading PolyMatte® technology. The latest generation of this range is based on bio-based raw materials and creates a matt topcoat with a warm and pleasant touch. Besides the matt look and feel, Stingray embossing with silver-tipping technology was applied. This creates an extra dimension to the materials in daylight hours. A completely new mobility experience is offered for night-time. Experience the all new Stahl Glow in the Dark technology for car interior surfaces. Touch it, feel it, it's magic!

The interior color concept shows pale and vibrant colors. Such materials need to be protected to last for a long time. That's why Stahl used its latest generation of Stay Clean technology to protect the surfaces from dirt and stain pick-up. With this technology Stahl addresses one of the most annoying frustrations experienced by consumers, according to known customer satisfaction research.

This way we want to inspire everybody about the future and show that with strong partnership everything you can imagine, can be created.



ABOUT STAHL

Stahl is a leading company in process chemicals for leather products, performance coatings and polymers. We offer a wide range of solutions for different industries, such as automotive, apparel & accessories, home furnishing and the leisure & lifestyle industry. The company also develops solutions for industrial applications. With more than 1,800 employees in 23 countries at 11 manufacturing sites and 38 laboratories, we can keep up with the global demand for quality and performance. With our innovation power, expertise and broad range of technical solutions, Stahl is able to deliver best-in-class solutions and services. This allows us to respond even better to client needs and secure a more sustainable future.

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HIGH VALUE, QUALITY AND COMFORT IN THE CAR. SPECIAL TECHNICAL TEXTILES FOR INTERIORS FROM STRÄHLE+HESS.

Since it was founded almost 90 years ago, the company has developed from a conventional producer of circular- and warp-knitted fabrics to an innovative supplier of special technical textiles and exclusive fabric surfaces for the automotive industry.

With more than 200 employees in Althengstett, Bisingen and Auburn (USA), the company specifically targets innovations and attaches considerable importance to its development and design department, its fully-equipped laboratory and engineering services.

On the basis of current trend analyses, STRÄHLE+HESS constantly develops textile solutions for its clients as part of holistic material and design concepts. The refined textiles can be used in a whole range of completely new ways inside the vehicle.

Trend-setting developments for noise absorption, compensatory tolerance and seat attachment systems as well as customised solutions are implemented in the Solutions division.

All well-known car manufacturers worldwide are customers of STRÄHLE+HESS.

AIM:

ΣTOS is pure lifestyle, sportiness and coolness all in one. The focus is very much on the interaction between the driver and the adaptive autopilot, learning intuitively. Far from being just a means of transport, ΣTOS is the ultimate must-have.

IMPLEMENTATION:

This exciting new vehicle is based on a BMW i8. Its colour immediately grabs your attention. You really cannot miss the vehicle with its stunning sparkling lemon exterior. It arouses your curiosity and, on closer inspection, reveals an exciting unprecedented generation of interiors.

Inspired by architecture, the leather and fabric interior is captivating with its sporty colour contrasts, dynamic quilting effect and graphic elements such as the embroidered skyline on the backrest.

TEXTILES AND USE OF MATERIALS:

Highly technical textiles are used to clad the headliners, pillars, external areas of the seats and in the door.

The deliberate use of natural yarns, such as wool and silk, in the interior ensures a sense of well-being and comfort. The use of materials and the thoughtful distribution thereof give passengers a sense of safety and security without taking anything away from the vehicle's power and dynamism.

AESTHETICS:

Powerful colour contrasts demonstrate the greatest possible sportiness. These striking contrasts are exciting and add to the energetic effect of the interior.

Dark colours such as pirate black,

shadow and siberian fire together with the light, luminous limelight provide maximum contrast. A special touch is added with the colour bushy mint. It brings the necessary elegance into the vehicle and is in no way brash.

Bold diamonds, straight-line contours and graphic elements symbolise speed, as seen in the dynamic lines of the headliner and their reflection on the floor.

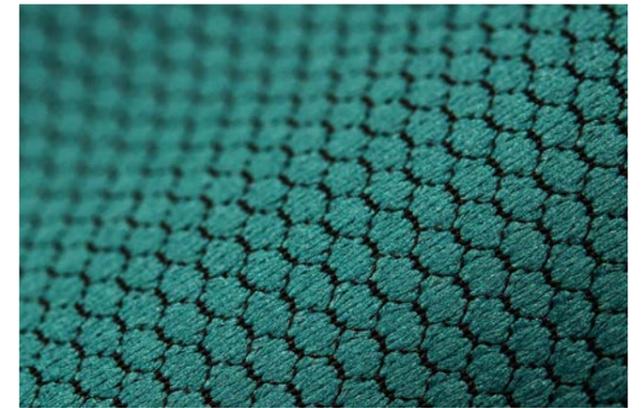
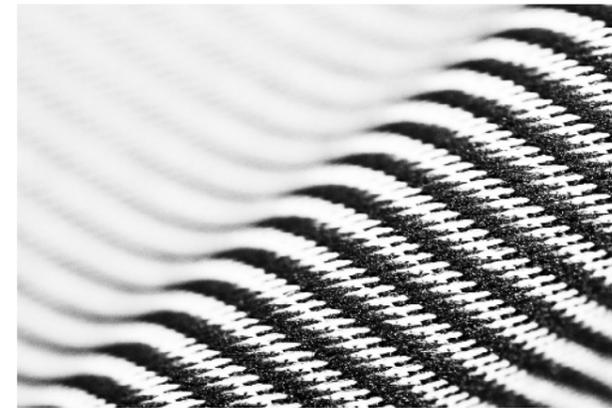
TECHNICAL FUNCTION:

The natural materials used are breathable. Wool and silk are cooling in the summer and warming in the winter, in other words ensure a pleasant temperature balance. The technical fabrics made of polyester are highly durable and are particularly suitable for areas subject to greater use.

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STRÄHLE+HESS



extend your range

BROADBAND CONNECTIVITY EVERYWHERE

Today's megatrends like e.g. autonomous driving, digitized vehicles, intermodal traffic, Car2Car communication and big data analytics are changing vehicles' roles to more and more become nodes within the Internet-of-Things (IoT). Only a few years ago, the objective of the car industry was getting internet connectivity into the car, but now, vehicles are becoming connected data sources in the internet. The digital connectivity enables the implementation of new services in the areas of traffic management, environment, safety and customer communication. These services require reliable, secure and global vehicle connectivity.

VITES is pushing vehicle connectivity with innovative technologies. The company, whose core competence is radio- and wireless technology for professional applications, is member of the IABG group and is located in Germany close to Munich. We develop products and solutions based on *Software Defined Radio* and fully electronic *Adaptive Radio Beam Forming*. These technologies are means for optimizing wireless transmission and thus maximizing the throughput. They are essential ingredients of our "KARsys"-plat-

form, a modular construction kit, that allows us to react flexibly to the requirements of the automotive industry, i.e. the car manufacturers as well as their suppliers. It also enables us to generate solutions tailored exactly to our customers' needs. The essential system parameters can be adjusted according to requirements like size, application and local market needs. Various products for satellite communication of vehicles (SATCOM-On-The-Move), transmission systems for broadband data like HD video and wireless systems with MIMO and Beam Forming for optimized LTE connectivity are in development.

Only a few years ago, vehicles were the last islands without data connectivity. Internet access in cars was the privilege of a few users of premium automobiles. In the meantime, even medium-size and compact cars support smartphone integration and can be ordered with built-in WLAN access points. These features have even become key decision criteria for buying a certain car. Apart from the typical communication-, entertainment- and information functions for the passengers, the connectivity between cars (Car2Car) and to the road infrastructure

(Car2X) will gain relevance, fueled by autonomous driving and the digital traffic connectivity. However, most of these services depend on the availability of mobile-/cellular communication networks whose quality strongly varies between operators and regions. In densely populated metropolitan areas of the industrial countries, megacities and along the major highways, the coverage of 3G and 4G(LTE) networks has meanwhile become very good, in rural areas it is still pretty incomplete.

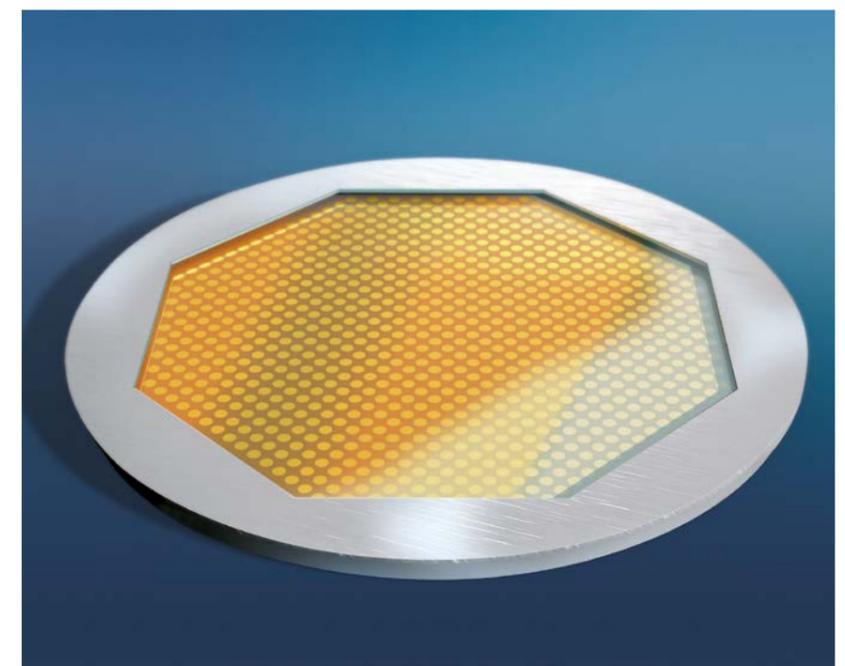
Driven by the omnipresence of smartphones, the expectations of drivers concerning connectivity are rising dramatically, even in remote territories of the large nations and in the emerging countries. In such regions, vehicles equipped with SATCOM-On-The-Move systems can be the solution for improved availability of network access remote from cities and arterial highways.

PROJECT ΣTOS

As a partner contributing to the Rinspeed project Σtos, VITES provides a visionary prototype solution for satellite communicati-

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on (SATCOM-On-The-Move) that enables global broadband vehicle connectivity to the Internet and thus realizes "always online" even in rural areas. The Σtos SATCOM system consists of two separate units, one for transmit (TX) and one for receive (RX) and works in the Ka-frequency band. This concept has been chosen in order to accomplish extremely compact units. Both units integrate a flat *Phased Array Antenna*. Using *Adaptive Beam Forming*, the SATCOM units are capable of automatically directing their TX and RX radio beams towards the satellite and thus tracking its movement relative to the car in real time. By using the KARsys platform technology there is no moving mechanics required. The system is neither subject to attrition, nor does it disturb design or aerodynamics as it is integrated form-fit below the glass roof. For autonomous driving and the provision of data based mobility services in rural areas, this technology is ground breaking. Due to its flexibility, compact shape and outstanding performance as well as the worldwide usable technology, it has the potential to become the solution for global broadband communication across all classes of cars and vehicles.

VOLLMOND ADVERTISING AGENCY: FULL SERVICE, CREATIVITY AND ECONOMIC EFFICIENCY

Opinions are changing, designs are varying.
Only one thing remains the same – advertising!

As a full-service partner, the Vollmond Advertising Agency has been developing promotional communication solutions in the print and non-print area since 2004. We are proud of supporting Rinspeed in the areas of brand communication as well as print and online media.

Vollmond inspires and unites people with companies. We are convinced that success is measurable and we want to thank all our customers for being able to prove this every day.

Vollmond provides safe and honest advice, planning and implementation. Thanks to national and international experience, we demonstrate our ability in the areas of advertising, marketing, design, search

engine optimization and programming over and over again by acting in a loyal and reliable manner.

Among our customers are renowned representatives of various economic sectors. We do not distinguish by the amount of the budget, but we are happy about every new challenge, about our customers' success and the good feeling of having achieved something. In dealing with our customers, we rely on the human touch, trust and reliability. This ensures a smooth process flow and provides optimal results.

In other words: each of us spares no effort to perform more than you expect – day after day. Take us at our word!



”
Advertising means:
Full service, creativity and
economic efficiency!
“

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“MAGIC MOMENTS” WITH INNOVATIVE LIGHTING TECHNOLOGY

WEIDPLAS is a leading manufacturer of highly engineered and technically complex plastic components for the automotive and sanitary industry, with its headquarters, development and technical competence center in Rapperswil, Switzerland. The company has manufacturing facilities in Europe, Asia, South Africa and South and North America.

WEIDPLAS belongs to the TECHNIPLAS Group, a privately held group of specialized plastics manufacturing companies with headquarters in North America, which primarily serves the automotive, industrial and medium and heavy truck industries. The TECHNIPLAS Group has 11 production facilities as well as 11 sales and technical centers with almost 2,000 employees worldwide.

Based on its ingenious and sophisticated injection molding methods, WEIDPLAS is developing and realizing high performance solutions for its innovative customers. Trail blazing combinations of product technologies and processes, plastics and metal foils are the reason for WEIDPLAS' reputation as an innovation driver of global renown. The company is developing and manufacturing highly effective solutions for the reduction

of weight, CO₂ and fuel consumption of vehicles as well as high quality plastic, metal and enameled surfaces, finished in high gloss, with art designs, grained texture or illuminated.

There is a trend in the automotive industry towards the increased use of novel and creative product ideas. Top quality materials, demanding surfaces and lighting concepts are decisive factors – more and more important to ensure brand recognition.

Modern and futuristic applications of light will often demand homogeneous planar light sources which are hard to realize using only established, point-source LEDs. Here WEIDPLAS offers an innovative solution based on its two key lighting technologies: OPTIBACK simulation software and micro-structuring.

The OPTIBACK software will precisely define the scattering or emission characteristics of a microstructure point, based on its geometric form and size. Depending on application, light scattering elements sized 12 µm to 50 µm may be deployed. Using microstructures has the advantage that no additional materials for diffuse filtering will be required. A further

major advantage is the negligible shading effect of the individual scattering points in the optical medium, thereby allowing the use of either very long or very thin optical conductors (d < 1 mm).

The OPTIBACK software, developed specifically for this purpose, will use the specified distribution of light intensity and the characteristics of the materials used to calculate the distribution of these structural points in the optic fiber in order to create either homogeneously lit surfaces or specific inhomogeneous light imagery such as partial illumination, symbols that will be invisible unless lit or precisely graded light intensity.

The Σtos concept vehicle is broadening its sportive character by a further level of communication. Vehicle and driver have a closely coupled relationship, with visually intuitive communication and invisible functionalities that are magically activated at the proper time. Your trip will become an adventure, whether driving conventionally or on autopilot. The sportive exterior will reveal magic details even as you approach, ready to start.

A striking feature at its rear end will catch your eye – a drone ready to perform a variety of tasks. It is positioned on a matt glass surface which inconspicuously blends into the overall design as an integrated component – until switched on.

A LED matrix hidden under the surface of the glass may welcome the driver by means of personalized graphic designs. The flight status of the drone will be communicated as it takes off or touches down and the current duties of your flying assistant will be graphically displayed. Should you pay a visit to the racetrack, the LED matrix will perform as your stopwatch and league table comparing autonomous and manual lap times. The Σtos will raise its gull-wing door to welcome you as a friend. The door sill plate – conventionally at the bottom of the door frame – has been relocated into the door as an illuminated RINSPEED logo which will swivel towards the pilot and also light up the immediate vicinity of the door at night.

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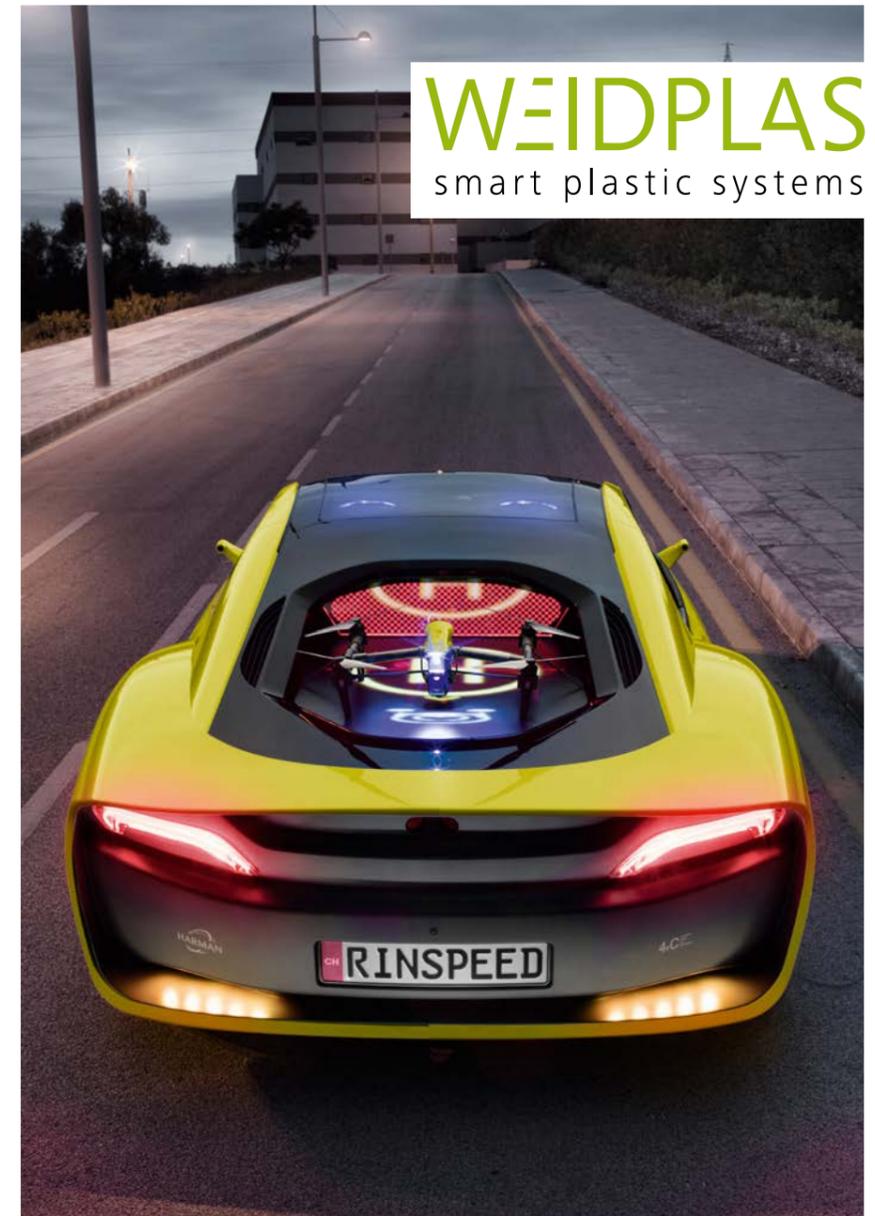
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Looking into the vehicle will reveal more ambient lighting integrated in the seat. The vehicle pulses in expectation of its driver, promising an emotional experience. A micro structured light guide pulses the Σtos logo, brightly materializing apparently in the dark between seat and headrest only to fade again.

The rear window of the Σtos will normally be transparent, except during braking, when it will assume the function of a third brake light, generating a striking pattern over its entire surface to warn the traffic behind. This is made possible through a micro-structured light guide which lights up during braking, transforming the normally invisible structure into a shining graphic image.

At first glance, the rear end of the vehicle has no indicators. Hidden laser LEDs will project light effects on vehicle surfaces visible all-round. Movement will create additional attention. Unexpected at first glance, yet intuitively understandable, this feature will enhance safe driving in traffic without spoiling the design of the vehicle with visible indicator lights.



WEIDPLAS
smart plastic systems



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FLEXIBLE INTERIOR PROVIDING FULL PROTECTION

Fully automated vehicles will offer many new advantages which can be supported by flexible interior design concepts. Two particular aspects are the most important:

- During manual driving mode, safety and occupant comfort have to be similar or enhanced
- During (fully) automated driving mode, opportunities for alternative activities will develop which will allow for creative work or just relaxation for the driver and passengers during this phase.

MANUAL DRIVING MODE

In order to provide the highest level of safety for vehicle occupants, vulnerable road users, as well as for occupants of potential crash opponents, a number of established and reliable safety technologies in the fields of both active and passive safety must be applied. This includes, but is not limited to, driver assist systems, seat belt systems with pretensioners and load limiters for all seating positions, and a whole array of airbag systems for frontal and side protection of all occupants and across all body regions.

To maximize the capabilities of

environmental sensors for crash protection purposes, the concept of "predictive safety" is introduced. Here, a detailed virtual model of the own vehicle, its physical environment, and the occupant situation inside the vehicle will be created and computed in the central control unit in real-time. Based on this data, impending collisions can be predicted and depending on the anticipated crash parameters, necessary pre-crash systems can be triggered. Adaptive elements within the actuators could be tailored according to crash severity as well as to the occupant type, posture and position in the vehicle. Reversible seat belt pretensioners, adaptive load limiters and adaptive airbag cushions with adjusted inflator outputs are the suitable components for this.

All necessary displays and control elements for manual driving are integrated into the steering wheel. Furthermore, hands-on/off-detection and a push-to-drive button will facilitate an easy and safe transition process between manual driving and automated driving and vice versa.

AUTOMATED DRIVING MODE

The safety elements described

above will continue to provide the highest level of protection and comfort during automated driving mode. Relieving the driver from the driving task will open the field for alternative activities during the ride. While the steering wheel is acting as central interface between driver and vehicle during manual and partly automated driving modes, it will become obsolete during fully automated driving modes. Only when the driving task is handed back to the driver the steering wheel is required again.

In order to provide maximum space and mobility within the driver seat and make additional space for multimedia applications or communication devices, a foldable and retractable steering wheel is introduced. This will significantly increase interior styling options and can provide a customized environment for the driver depending on the actual driving mode. To allow maximum flexibility for the steering wheel design and also for the instrument panel, the frontal airbags for driver and passenger have been moved to the roof area in this vehicle utilizing the bag-in-roof concept. This is an effective solution which does not compromise occupant safety performance compared to conventional airbag technologies.



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