

# RINSPEED

## World Debut at the Geneva Motor Show 2003

### Oriental Quick-Change Artist - Rinspeed Bedouin

RINSPEED DESIGN, the Swiss powerhouse for automotive concepts and emotions, once again presents a unique attraction this year, the

#### **RINSPEED BEDOUIN.**

At the push of a button the Rinspeed Bedouin can be transformed from a roomy two-seater pick-up into a sporty yet spacious four-seater wagon sporting the trendy 'allroad' look – in less than ten seconds. With its high roofline the Bedouin also offers lots of room and seating comfort for rear-seat passengers. Even more, the increase of interior space can be used as an enclosed cargo bed by folding down the backrest of the rear seats.

“With the Rinspeed Bedouin we wanted to show that there’s lots of untapped creative potential regarding multi-purpose vehicles,” says Frank M. Rinderknecht (47), C.E.O. of Rinspeed AG. “From our point of view MPVs can contribute to the preservation of the world’s resources since they’re capable of taking on many of the specialized uses of second or third cars. And they can adapt to the specific transportation needs at hand within seconds.”

#### **The transformation trick**

The almost magical transformation sequence is started by two electric motors that drive jackscrews to lift the entire roof of the vehicle. The front part of the roof then folds and in effect becomes the tailgate window while the rear part of the roof turns into the cargo bed. The tailgate is also electrically powered and can be lowered to extend the bed by another 45 centimeters to an overall length of 185 centimeters. The bed can be used to transport bulky cargo and serves as a modern tent replacement and romantic bunk for leisurely rests

To comply with highest safety standards the entire mechanism is fitted with redundant self-locking safeties and for maximum effect is operated with a remote control.

#### **The fastest natural gas vehicle in the world**

The Rinspeed Bedouin is powered by a future-oriented environment-friendly twin-turbo engine running on natural gas. Natural gas is an extremely clean-burning fuel that consists almost entirely of methane and contains almost no sulfur.

Protecting the environment does not preclude driving fun: The four-valve engine is from Porsche and produces 420 hp / 309 kW at 6,000 rpm. It delivers its impressive maximum torque of 560 Nm at just 2,700 rpm. Performance is accordingly proud: The 1,640-kg Bedouin accelerates in roughly 5.9 seconds to 100 km/h and reaches an electronically and mechanically limited top speed of 250 km/h.

## Sporty thoughts ...

The sporty lines of the Bedouin attract attention even at first glance. It is a little reminiscent of the Porsche 911, type 996, from which it takes the 4x4 platform. In keeping with the English tradition of the 'shooting break,' the sporty wagon of the affluent hunter, the roofline exhibits a dynamic swing that gradually flattens out toward the rear. The wide rear fenders and their striking air inlets exude raw power. The large air inlets in the front provide ample cooling air and also contribute to the powerful appearance of the Bedouin.

A sporty stainless-steel exhaust from **Remus** with milled all-aluminum tailpipes provides the adequate sound and gives the rear a unique and dynamic look.

The elaborate roof design made from aluminum profiles is witness to the engineering prowess of Rinspeed. The entire mechanism for operating the roof is hidden from view behind the sidewalls. Green-tinted **Foliatec** glass in the roof louvers creates a bright and cozy ambiance even when the roof is closed.

Thanks to a sporty yet comfortable custom **Eibach** suspension, the body of the Bedouin sits about 15 centimeters higher than that of the Porsche equivalent. The suspension, which features adjustable ride height and firmness, offers a perfect synthesis of ride comfort and sporty handling.

The rearview mirrors as well as the front and rear bumpers are painted with sparkling crystal paint from **Swarovski**, which also contributed the fully crystal hood emblem and the rear badge featuring SDS technology.

In the Bedouin even the taillights look forward – into the future. **In.pro.** custom-developed chrome-plated LED taillights for the Bedouin, which not only initiate a new design trend but also offer increased traffic safety due to their exceptionally fast reaction time.

The entire body of the Bedouin is made up of Pre-Preg composite, a state-of-the-art plastic rarely used in automotive production. It combines a low specific weight with extraordinarily high strength.

## Crystal worlds of leather

The Bedouin shows its proud heritage in the interior, too. Most of the interior of the Bedouin was retained from the Porsche 996 and was custom-upholstered with exquisite "Poltrona-Frau leather" from **X-Mobil**. The brown hue of the color "Cotto" harmonizes perfectly with the exterior color, which changes from slightly green to copper.

The **Rinspeed** designers also broke new ground in the selection of materials. In a partnership with the world-leading manufacturer of crystal glass **Swarovski** they created ultra-modern and visionary new interior elements. The hand-covered door panels shine in soft hues of brown and white. The gearshift-lever grip is made from solid crystal with a shift pattern embedded using endographics. Lasers were used to imprint the leather seats with Rinspeed logos, which were then in turn covered with crystals.

A seven-inch color LCD monitor folds down from a recessed position in the roofliner. It can display the signal from the rearview camera for the driver or entertain the passenger with the program of an integrated DVD player. The system was developed **Blaupunkt** and also allows connecting an external programming source such as a Sony Playstation.

## Well shod

The Rinspeed Bedouin runs on voluminous fully off-road capable 18-inch **Continental** SportContact 4x4-tires in sizes 255/55 in front and 285/50 in the rear. The Continental tires combine environment-friendly design, exceptional off-road capabilities and excellent grip on road surfaces. The tires are mounted on two-piece **Rinspeed** aluminum wheels (8.5x18" Rim Offset 40 mm front, 10x18" Rim Offset 52 mm rear) custom-made by **ATP**.

The installed progressive-rate **Wandfluh** steering contributes greatly to the cat-like agility of the Bedouin. A mere half a turn of the steering wheel separates the full left from the full right position. This steering system makes fast steering-angle changes child play without compromising directional stability.

## Swiss made

### Esoro

Frank M. Rinderknecht used highly advanced technology and a Swiss-based network of top automotive specialists for his project. Although there is no automobile production in Switzerland to speak of, there is a very active automotive supply industry there. Many highly innovative prototypes have been developed and manufactured in Switzerland.

For the fourth time the Swiss engineering company **Esoro** was hired to serve as general contractor for the entire vehicle project. Esoro was responsible for project management, engineering, design and manufacturing of the Rinspeed Bedouin. Esoro masterfully met the challenge with the help of its highly competent suppliers **Protoscar** and **Schwaller**. It took the highly skilled development team just three and a half months after the design freeze to transform the Rinspeed Bedouin from clay model to a drivable and fully functioning prototype.

Esoro has been a contract developer in the areas of automotive production, lightweight design and plastics technology for 12 years. During this time it has gained a well-deserved reputation for excellent efficiency and innovative solutions not just in these but also in other fields, including fuel-cell vehicles and prototype construction. Esoro has impressively demonstrated its expertise with numerous extraordinary prototypes. But even more: Just a few weeks ago Esoro presented the new E-LFT production technology, which makes it possible to manufacture high-strength plastic parts that weigh 30-50 percent less than comparable steel at a large scale and at economically feasible costs.

## GVM - a strong partner

**Gasverbund Mittelland (GVM) AG** - the largest regional natural-gas company in Switzerland is another one of **Rinspeed's** competent partners. Natural gas is a sensible and extremely environment friendly fuel alternative that can contribute notably to the reduction of emissions, especially in urban centers. Natural gas currently represents the only economically feasible solution among the multitude of theoretically possible alternative fuels.

All vehicles exhibited jointly between **GVM** und **Rinspeed** are operated using environment-friendly natural gas. Among them are the Bedouin concept car, an Audi Allroad 2.7 Bi-Turbo as well as an Opel Zafira CNG.

## Natural gas - the real alternative

Natural gas is tomorrow's fuel today. The enormous potential of natural gas for protecting the environment is not limited to stationary use. It can also help reduce the amounts of nitrous oxides, particulate matter, CO<sub>2</sub> and hydrocarbons. Engines running on natural gas are also quieter than their conventional counterparts.

Using natural gas as fuel also represents another step away from the world's economic dependency on crude oil.

### **Natural gas - no longer just for heating**

Currently natural gas is used predominantly for generating heat. But it can also be used for driving – as easy and as convenient as with regular cars. The same is true for fueling. The technology is mature and proven. The number of gas stations offering natural gas grows from year to year. By the end of this there'll be approximately 50 filling stations selling natural gas in Switzerland alone. In Europe today there is in effect no longer an operating range limit for gas-powered vehicles.

### **The Involvement of SwissEnergy**

Natural gas and so-called biogas have numerous advantages compared to ordinary fuels:

- Approximately 25 percent less carbon compared to the energy equivalent of conventional fuels. For optimized gas-burning engines this translates into the equivalent reduction potential for carbon dioxide, which currently is considered the main threat to our climate.
- Biogas is a regenerative fuel and thus CO<sub>2</sub> neutral.
- Natural gas and biogas burn much cleaner (particles PM10, PM2,5 and NO<sub>x</sub>) than nowadays mostly used liquid fossil fuels. In addition engines operated with natural gas or biogas are quieter than their conventional counterparts.
- Natural gas and biogas reduce the one-sided dependency on crude oil as a source for fuel.

The Swiss Federal Energy Office supports natural gas vehicles and the efforts of the gas industry within the range of its action program "SwissEnergy". The Rinspeed Bedouin concept car helps to reduce prejudices against gas-powered vehicles and projects emotions onto the gas-powered vehicles on the market today.

### **A word from our technical partners**

#### **Continental**

The Conti4x4SportContact - Ideal for the Rinspeed Bedouin

With its powerful 420 HP engine, the all-wheel-drive Bedouin requires tyres up to mastering challenges far greater than those facing normal passenger cars. The loads occurring when accelerating, braking and cornering approach what is standard on thoroughbred sports cars. When this concept vehicle is transformed from a sports car into a pick-up, moreover, it also has payload mashing it down against the ground. And its height-adjustable chassis with off-road characteristics puts it in need of cornering stability every bit as reliable as on heavy AWD vans.

No tyre is better suited than the Conti4x4SportContact to accommodate gruelling application conditions like these. Its unique cutting-edge design and state-of-the-art tread compound not only provide better grip when starting off and braking. They can also be counted on for consistently high performance in terms of cornering and adhesion on rain-slicked underground.

Which explains why Frank M. Rinderknecht has opted for Conti4x4SportContact as the perfect all-round tyre for his latest project. Up front a size 255/55 ZR 18 duo ensures safe cornering and solid grip, while in the rear size 285/50 ZR 18 delivers the necessary thrust. The sporty 4x4 performers have no problem coping with maximum speeds of 250 km/h. And when 420 HP and 560 Nm bear down on the crankshaft to spurt the vehicle from zero to 100 km/h in 5.9 seconds, the tyres are obviously very much in their element. Should it come as any surprise then that the designer of the Rinspeed Bedouin is firmly convinced that these Hannover products offer the very best solution for his concept vehicle?

### **Eibach and Rinspeed co-operate with singular Porsche study**

For years the Swiss Frank M. Rinderknecht with his company Rinspeed presents exclusive, innovative studies at the autosalon in Geneva. Always TÜV examined and ready to drive. With the autosalon of this year 2003 he surprises the professional world with a completely special study object: the Bedouin, a "multipurpose vehicle" of the extra class. Basis of Swiss novelty is the Porsche 996 turbo. A fully off-road multi-talent with an height adjustable suspension system of Eibach. Characteristic of this suspension system: The car lies more highly, not more deeply.

The noble study of the two partners made high demands at both research and development departments. Because the Bedouin is 250 km/h fast, convertible as a pickup within ten seconds and also thought to be a off-road vehicle. For this reason a suspension system had to be developed, which was adjusted to high speeds and off road. Rinspeed selected for this order the renowned suspension system manufacturer Eibach.

They offer different suspension system components for the Stuttgart noble brand for years. Also renowned porsche-Tuner such as Gemballa, 9ff and Sportec, as well as racing teams with their Porsche models use Eibach products. The experience of many years was a further reason for the decision to work together with Eibach on this project.

Basis for the beduin suspension system was the height-adjustable Eibach suspension system Pro-street, which was completely new designed. The in and suspension rebound movements were adapted to the requirements of the vehicle and so a high putting was reached from 25 to 40 millimeters. To manage this, Eibach engineers used a special suspension system with main and auxiliary springs. In addition aluminum support bearings with university ball were attached to both axles.

Further characteristic: The dampers of the singular Eibach suspension system for the Bedouin are completely manufactured from high-strength aluminum. Apart from the increased durability, so also substantial weight savings could be achieved.

With the study and development of a completely new suspension system for the Rinspeed Bedouin, Eibach proved again his innovation strength and experience of many years, particularly in the motorsport and as partner of the industry.

### **Foliatec - the Bedouin's turban**

For the world debut at the Geneva Motor Show the Rinspeed „Bedouin“ has put on his best turban: the Color AutoglassFilm Greenlight from Foliatec®, the Carstyling Factory of Nuremberg/Germany.

The sunroof of this revolutionary „Multi Utility Vehicle“ with the exotic name „Bedouin“, is completely covered with this StylingFilm. Like the turban it has a dual function, as a protection against intensive solar radiation and as a styling accessory. However the advanced film technology has long since surpassed the effectiveness of the Bedouin turban: on top of protection against harmful UV radiation (all Folia Tec® films provide 99 per cent UV protection), quality films such as those produced by Folia Tec® also provide glare and privacy protection. Additional benefit: by binding the splinters of broken windows, the films reduce the injury risk for occupants in an accident.

The cooperation of Rinspeed AG of Zumikon/Switzerland with Folia Tec Böhm GmbH & Co Vertriebs KG of Nuremberg/Germany, has a „dynamic“ tradition. The Carstylers of Nuremberg, who in the meantime have also ventured into Bikestyling, are marketing their products - which are available from good car accessories shops - all over the world. In Germany six performance centers are already stocking the complete range of Folia Tec® products. Centers in Zurich, Moskow and Vienna are in preparation. Whilst designed for do-it-yourself installation, the films may also be fitted by professionals. Folia Tec® is offering this service through over 200 Stylingteam® partners in Germany, Switzerland, France, Belgium, the Netherlands and Austria. Details are also available on the internet at: [www.foliatec.com](http://www.foliatec.com) or [www.foliatec.de](http://www.foliatec.de).

## **In.pro. - everything to make cars fun**

After a longstanding and successful commitment to Rinspeed concept cars over the last few years (Advantige Rone and Rinspeed Presto), this year once again, the globally active car-accessory specialist from northern Germany also presents various new innovations. For 25 years, in.pro. has stood for qualitative, high-grade and innovative car-accessories in the areas of design, interior, comfort and fun. The range of more than 4'000 in.pro products just as equally impresses technology freaks and DIY up-grader, as it does the entirely normal “standard” car drivers. Offering top value for money, practically anyone can optically upgrade their vehicle (for instance; with designer products such as clear-glass headlamps), and make them more comfortable (for instance; with retrofitted radio remote controls) or safer (for example; with alarm installations or parking aids). Our own development team, and a network of trend-scouts close to the target groups, are responsible for the new ideas. Over 45 employees based at the in.pro. central offices in Henstedt-Ulzburg, and over 300 trading bases around the world, ensure conversion of the initial idea, right through until shipment is made to the customer.

Decisive for participation in the Bedouin-Project, was the ability to feasibly convert the products utilised in the series: in.pro. boss, Jörg Knoblich, divulged “The Bedouin is the perfect combination of dynamic sporting design and technical functionality, and a possibility for us to create and test technically complex, individual solutions, which will subsequently flow into large-scale production. Many in.pro. products from the Bedouin series can once again be found in the current catalogue, or will soon be available to in.pro.-customers.”

### **Flexible LED Side-marking-lights**

For the first time in a Rinspeed concept study, in.pro. LED Side marking lights were fitted with the most modern flexible conductors by Presto. Due to the best possible flexibility, the lights can also be attached to arched bodywork surfaces and corner radii. To be included in the in.pro standard accessory parts program within a few weeks.

### **LED Rear-lights**

Lights in LED designs are not only longer lasting with equable light output; they also offer the possibility for individual arrangement of the light source. Already last year, the LED Rear-lights impressed in Presto with the various illuminated letter elements. This year, experience gained from the development of Presto Rear-lights flowed into the new in.pro. Corsa LED Rear lights, among other things, which have already been available commercially for some weeks. The Bedouin

products developed by in.pro. will continue to consistently lead the trends, and this year once again, be the basis for a high-grade and innovative range of accessories.

#### Day Driving-light

Day Driving-lights from in.pro. offer a big plus in safety – and are also available for Bedouin. Because whoever drives with lights during the day, can be seen much easier by other traffic users. It is not without reason that Day Driving-lights are already a legal requirement in some countries. Contrary to dipped headlights when switched on, in.pro. Day Driving-lights consume noticeably less power, and by reducing the load to the alternator, less fuel is also consumed.

### **Remus**

Stainless steel, laser precision, optimal performance and the typical Remus sound, these are the four characteristics that distinguish Remus sport exhausts. Through their involvement in motorsports and their close cooperation with world champions like Jacques Villeneuve or Damon Hill, European champions and other champs, Remus gains important knowledge for the development and production of high quality silencers. High quality comes first for Remus and it is attained by using stainless steel in combination with other high grade raw materials. Tests have shown that this combination guarantees best results under thermal and mechanical stress. The wage: Remus will take a leading position in the favour of the public. The success of the sponsoring activities of Remus is impressively documented by the readers survey of numerous specialist publications.

### **Swarovski presents crystal innovations for the automobile future**

Futuristic designs for the interior and exterior of Rinspeed's revolutionary "Bedouin"

Swarovski presents fascinating crystal innovations for the future of the automobile as Rinspeed AG's partner at this year's Geneva International Motor Show. One very impressive exhibit is the revolutionary Rinspeed Bedouin, a 420 horsepower symbiosis of sporty station wagon and pickup truck - which is on display at the stand of the renowned Swiss vehicle builder and "creative home of automobile concepts and emotions".

With its futuristic ideas for tomorrow's vehicle interiors, the world's leading manufacturer of cut crystal gives us a completely new sense of its creative potential. The highlight is an intriguingly sparkling crystal lacquer – a visionary development from Swarovski Crystal Architecture - which creates trendy accents on the mirror casings and in the interior of the sophisticated pickup. The extraordinary gear knob of multifaceted crystal and the fabulously beautiful interior door facings of the finest alcantara, to which Swarovski transfers have been applied, are testament to the spirit of vision, willingness to innovate and the power of fantasy.

Further attractive details are the elegantly cut triangular radiator emblem, through the facets of which the Rinspeed logo shimmers in gold, and the Rinspeed logo on the rear of the supercar, which is set with the tiniest crystals.

Genuine highlights in creative vehicle design are also set by the scaling in the central dashboard instruments, such as the speedometer, rev counter and oil pressure gauges: these appear particularly stylish with the crystal chatons, only 0,8mm to 1mm in size, which have been precision set into the gauges by hand.

Not forgetting the two Rinspeed logos in the backrests of the cockpit seats, consisting of trendy crystal jewelry stones, which have been applied to the beautiful leather of Poltrona-Frau using a completely new processing technique. This extraordinary combination of the finest leather with

sparkling crystal gives the seats an irresistibly exclusive edge and is at the same time a great example of how ideally suited Swarovski crystals are for enhancing car interiors.

These components have been inspiring the crème de la crème of the international fashion elite for some time. For example Vivienne Westwood, inspired to create her fascinating Pour Point jacket, which she designed for the debut of Swarovski's "Crystal Fabric", a completely new, extremely light fabric creation for the fashion industry with tiny cut and round crystals. Or the Italian designer Francesco Binfare, who created one of the most talked about symbols of modern furniture design with his "Diamond Sofa" for Edra with over 500'000 Swarovski crystals.

With its crystal innovations which harmonize perfectly with the conceptual achievements in the form of the Bedouin, Swarovski has once again turned its own lifestyle and fashion products into sparkling signs of the times. Amongst the most well known are their "Crystal Tattoos" in various colors and shapes, which set the fashion worldwide as a new generation of body jewelry.

#### Professional Idea Management

Bedouin's sparkling eye catchers such as its crystal lacquer, gear knob and radiator emblem are the result of constant research into new production techniques and design possibilities as well as professional idea management. In Swarovski's "Idea Workshop", its i-lab, innovation and development skills from different areas of the concern are brought together, international trends and themes are researched and the findings of renowned fashion forecasting agencies, research institutes, designers and artists are analyzed. As Creative Advisor it supports the realization of innovative product ideas and goes hand in hand with fruitful cooperation with external visionaries such as Rinspeed AG.

For more than a hundred years Swarovski, the Austrian family company based in Wattens in the Tyrol, has been the world's leading manufacturer of cut crystal. Crystal jewelry stones and crystalline semi-finished goods for the fashion, jewelry and lighting industries are as much a part of the company's product range as gift articles and collectibles fashioned from faceted crystal. Swarovski's artistic and design abilities are evident in Daniel Swarovski Paris and Swarovski Jewelry, the company's accessory and jewelry ranges. Since 1995 visitors have been able to enjoy the ultimate crystal experience at the Swarovski Crystal Worlds. The Swarovski group also includes Tyrolit, which produces grinding tools and abrasives, Swarovski Optik, the company's optics division, with its precision optics for hunting and nature observation, and Signity, which processes natural and synthetic precious stones.

In 2001 Swarovski achieved group sales of CHF 2.55 billion with a total of 13'400 employees. Discover the magic of crystal at [www.swarovski.com](http://www.swarovski.com)

## **Wandfluh**

Wandfluh Automotive AG developed a progressive steering system which offers more driving pleasure through sporty cornering, more safety through steering without swapping hands and more comfort in city traffic. Progressive in this sense means that the steering angle of the wheels will increase over proportionally compared to the angle of the steering wheel. In the straight ahead position the steering system reacts like a conventional one but in winding roads or in parking situations it becomes increasingly direct. The Wandfluh steering system is based on well proven technology and is already in use within the Go-Kart-Sport. In the near future this technology will be a must for every sportive car driver!

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