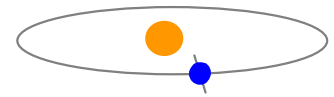




The Fluid Optics™ letter

La lettre des Syzygies



2000, March

EDITORIAL

Koleos, the last RENAULT's car-concept presented at the 70's Geneva Automobile Exhibition, is equipped with new revolutionary headlights : static dioptric Fluid Optics™, while the rear signalisation combines both holography and Fluid Optics™ technology.

You've guessed right, this edition is mainly dedicated to the Koleos' new car-concept. Yet, you'll find an interesting evolution of the candelabrum presented in our last Syzygies' edition.

Fluid Optics inventors

CONCEPT

The new generation of lamp stand

Megalux conceives a new generation of lamp stand which:

- Light sources are at the foot
- Structure is transparent
- Light beam is modular

Derived from this new generation of lamp stand, MEGALUX conceive a new lamp stand which has the shape

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SUMMARY

Editorial

Concept

The new generation of lamp stand transparent programable by optical micro-elements.

Exhibition of Geneva

70th Automobile and accessories exhibition

News

Exhibition of Geneva

70th AUTOMOBILE AND ACCESSORIES EXHIBITION

Exactly one year ago, we presented the first public application of Fluid Optics™ technology with the signaling of escalators equipping the Parisian subway " le Météor ". This year, we are delighted to present you with the first public application of our technology in the automobile industry.



The RENAULT Company committed us with the following task: lightings of the futuristic headlights invented by the RENAULT's Industrial Design Department, and the rear signaling lights of the new car-concept Koleos, presented at the 70th automobile Exhibition in Geneva, 1-10 March 2000. We really enjoyed working with a very go-ahead and imaginative team, whose had been able to take the risk to apply an – almost - unrecognized geometric

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concept, on their experimental vehicle.



Behind the futuristic shapes conceived by the designers, the Fluid Optics™ technology enhanced these dimmed or full beam headlights, giving them a greater presence. On the car's rear signaling, holography combined to Fluid Optics™ technology allowed diffusing a red or an orange light to distinguish “ stop ” light, rear light and blinking lights.

HEADLIGHTS

Thanks to Fluid Optics™ use, the Koleos' headlights are representative of a major leadership in terms of style and technology. The state of the art's headlights is not large and implies constraints to both imagination and creation.



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This technology got its name from physics research on fluids behaviors in specific conditions. The Fluid Optics™ technology, combined with the RENAULT's expertise, stands apart from other usual styles, by using semi - nose cone shape. Of course the usual functions are maintained: dimmed headlights for the lower nose cone and full beam headlights for the upper one.



The headlights are fashionable with their smooth external glass and their hidden source, but they are also futuristic by using eccentrically shaped dioptric optic parts. The semi nose cones visible surfaces give to the Koleos a daily and nightly distinctive mark.

On the contrary of usual styles, the Fluid Optics™ shapes of the headlights are no more contrasting with the streamlined curves of the Koleos : the headlights are like the internal continuity of this external aerodynamic of the Koleos .

Specific working methods were required to obtain these semi nose cones shaped headlights, while maintaining their usual functions. Thanks to MEGALUX' skills in optic design and to HORUS and KHNOUM the 2D and 3D optical simulation softwares, XMOLD the CAD software, MEGALUX has able to respect two major constraints : designers' requests and good running of the headlights.

The “ dimmed light ” functionality is performed by a “ fluid ” reflector which doesn't use nor small-dish source, nor cover, neither occultation part. As a consequence, the whole reflected beam is used. The light beam enters a dioptric Fluid Optics™ which distributes the beam to a lower zone. The “ full beam ” functionality is performed by another Fluid Optics™ reflector, which collects the bulb's flow in order to lead it to the upper semi-nose cone. Then the light flow is distributed by this upper part to create the full beam headlights.

Professionalism of it's subcontractors and contractors allowed MEGALUX's to conform to the imposed shapes on one hand and to provide a high quality optic surfaces on the other hand.

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REAR SIGNALISATION

The Koleos' rear lighting symbolizes the fruitful union of Art and Technology. The idea was to hide the light source and to obtain a look as transparent as possible, as long as the signaling lights are off, as if there was no lamp. Then the “lit up” effect seems magic and very attractive. For this purpose, MEGALUX used the holography combined with Fluid Optics™ technology.



For each function, the light is first filtered to obtain the desired color, then properly directed to the transparent bars. Only Fluid Optics™ has been able to solve this tricky problem, due to the narrow footprint required by the designers. A hologram, located at the quasi middle of each bar, redirects the light to the rear of the vehicle, through a perfectly smooth glass. These particular holograms, almost invisible when the signaling is off, have been conceived and built up by MEGALUX with the collaboration of M. Jean-Jacques LOUVET, Director of the Holographic Laboratory. MEGALUX also defined how to install properly the hologram on the bars. The lower bar performs the blinking functionality while the dimmed light function is performed by the upper one. Finally, the “stop” function is obtained from the dimmed light by increasing the beam intensity.

So, as long as the signalings are off, no bulb or light source can't be seen, and as soon as the lights lit up, the obtained effect is magic. These achievements came true owing to innovative ideas and technical ability of the RENAULT's designers on the one hand, on the other hand thanks to the new FLUID OPTICS™ concept that allows flexibility in optics' practice.

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From now, stylists are free to let their imagination wander, because they know FLUID OPTICS™ concept can always achieve their ideas and allows the oddest innovations.

We end up this edition with a lot of thanks to the RENAULT Company for their trust in MEGALUX society. RENAULT proposed MEGALUX to participate to this ambitious project, and contributed to demonstrate the wide capabilities of this new optic concept.

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of a transparent obelisk. Several independent sources are at the foot.

Thanks to the fluid optics, the light coming from each source is concentrated and forced into the optical column.

No light can go out from this column, then it remains completely transparent.

At the top of the obelisk, an optic sends out the light through a transparent pyramid. The system is modular, with this optic inside the pyramid, the light distribution can be modified by using another optic. A set of optics is delivered with the lamp stand. Then the customer chooses its light:

- A regular lighting of a complete ceiling, the lamp stand is at the middle of the room,
- A regular lighting of half a ceiling, the lamp stand is near a wall,
- A point lighting,
- A floor lighting,
- Colored lighting.

NEWS

If there is a topic you want to be developed in this letter, please contact us directly at the following email address :

syzygies@optique-fluide.org

You can also contact **MEGALUX**, the company in charge of exploiting the Fluid Optics™, at the address :

info@megalux.com

NEXT LETTER

The next letter of Syzygies will be published for the summer solstice, so towards mid-June.