



K REFLEXION[®]
high-end mirrors

KRÜGER AVIATION GMBH

*specialized
in plastic*

With nearly 100 years' experience in manufacturing plastic parts the Krüger Group is one of the biggest pioneers of the industry. Meeting the increasing requirements of the industry and fulfilling our customers' needs has been, and always will be, the main focus of the Company.

For this reason, we decided to concentrate the aviation business of the group in a specialized company and founded the Krüger Aviation GmbH in 2016. A technologically advanced manufacturing company dedicated solely to supplying the modern aviation industry. Since 2021 Krüger Aviation GmbH is a fully independent entity.

Market Sectors:

- Lavatory
- Lighting
- Seating
- Trading
- Cabin

Employees

- 40 highly qualified aviation experts

Certifications

- EN 9100
- EN 9120



A REVOLUTION IN PLASTIC MIRRORS

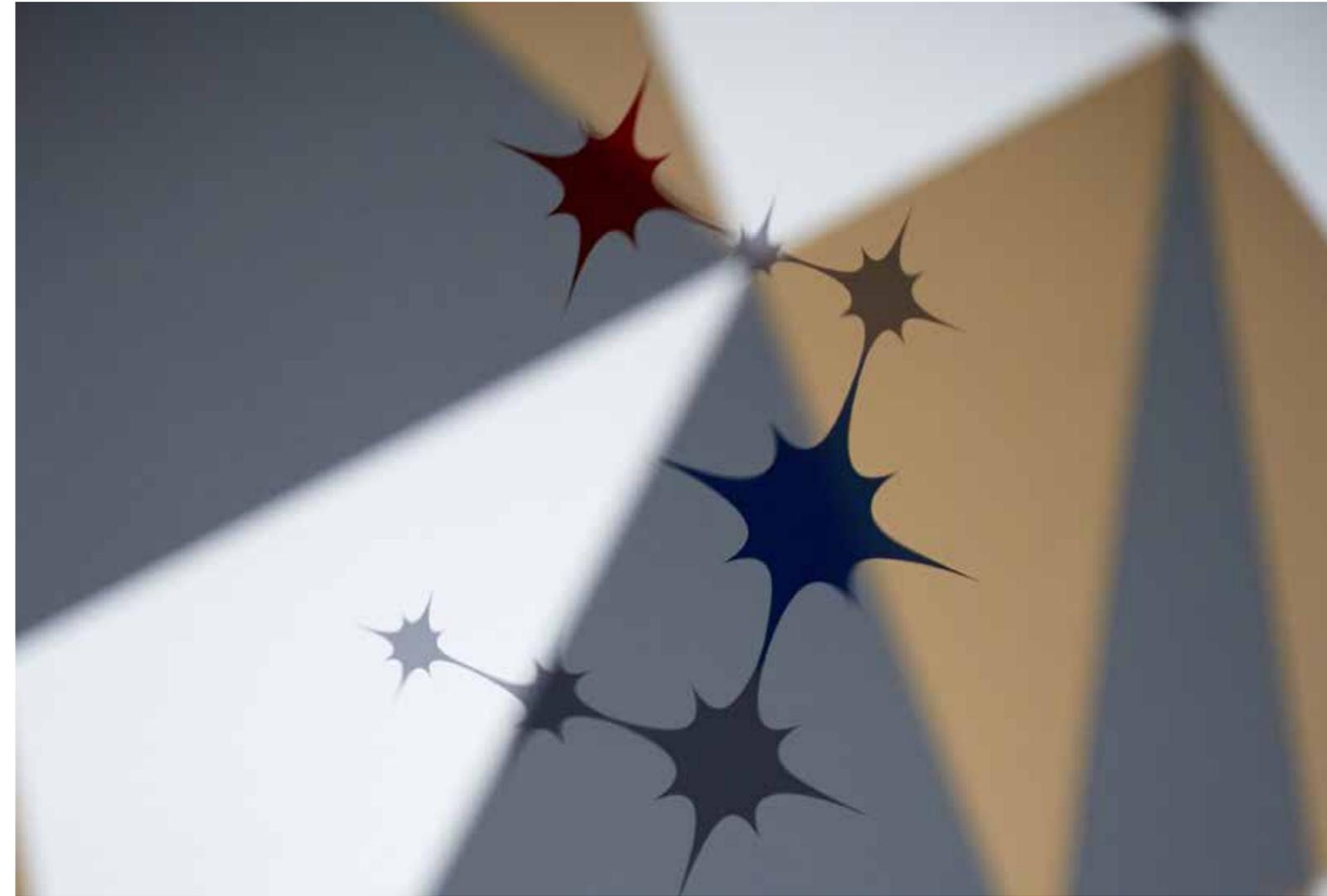
As the global market leader in the manufacturing of plastic mirrors for aircraft lavatories, we have developed a revolutionary product for our customers.

K-Reflexion mirrors have always impressed our customers with their unprecedented quality.

Once K-Reflexion material is installed in the aircraft, mirrors can no longer be distinguished from a glass mirror due to the clear, true-color reflection.

Yet K-Reflexion mirrors can do much more than just provide picture-perfect reflections: the KRX070 model also contains semitransparent areas behind which monitors may be installed to provide various types of information.

This outstanding product was a finalist in the Material and Components category of the 2017 Crystal Cabin Award.



MIRROR PRODUCTION

With almost 20 years of experience in manufacturing and processing plastic mirrors and with customers all around the world, Krüger Aviation GmbH is today the global market leader providing mirror solutions for aircraft lavatories. More and more customers rely on Krüger Aviation's K-Reflexion brand, the premium polycarbonate mirror.

Designed exclusively for the production of mirrors, our production process guarantees ultimate quality with extremely short lead times.



Process options:

- Cut to shape, according to your drawings/ specifications
- Semi-transparent areas
- Sandblasting for background lighting or PSU-signs
- Combination of sandblasted and semi-transparent areas
- Fully polished edges and chamfers
- Thermoformed cosmetic (magnifying) mirrors
- Background printing / painting
- Laser etching for fully transparent areas within the mirror
- Thermoformed wide view mirrors (e.g. for overhead bins)
- Mirror in mirror inserts e.g. for company logos or framing of main mirror

TECHNICAL INFORMATION

Models:

- KRX1000 full mirror
- KRX090 10% transparency
- KRX070 30% transparency
- KRX200 golden tinted mirror
- KRX300 black tinted mirror
- KRX clear transparent PC sheet without reflective coating

Material tests performed and passed:

- RTCA DO 160 - Section 4 (Temperature)
- RTCA DO 160 - Section 10 (Impermeability)
- RTCA DO 160 - Section 11 (Fluid susceptibility)
- FAR 25.853 App.F (Flammability)
- DIN 15184 (Hardness Pencil Test)
- DIN 2409 (Peel Test)

Quality features:

- Measurements show, that reflection and gloss is comparable to glass mirrors
- Optimal specifications to comply with aircraft manufacturer guidelines (optical criteria specification)
- All mirrors will pass our specifically designed mirror inspection rack to check compliance with various OEM specifications
- near perfect optical quality with substantial less inclusions compared to other products on the market



Technical information:

- Dimension: 2,000 x 1,100 mm (78.7 x 43.3 inch)
- Thickness: 2 mm (0.08 inch)

MIRROR ASSEMBLIES

To optimize customer processes, Krüger Aviation offers its customers the option to order mirror modules ready for installation – from mirror doors to entire mirror cabinets, including fittings.

For the mirror assemblies we are not limited to certain panels or inserts / accessories. We will source and manufacture according to your specifications and can even include displays and LED modules.

The advantage of this modular solution is both process optimization and reduction of mirror damage caused by multiple handling. Further benefits for our customers are to reduce suppliers and process steps necessary.

Options:

- Pre-Installed Tape
- Full Panel Assemblies
- Integration of Inserts, etc.



SEMITRANSSPARENT MIRRORS

Aircraft toilets today are wholly oriented to functionality. Designers are increasingly confronted with restrictions imposed by regulatory or safety limitations.

The KRX070 model, however, overcomes these limits while observing the requirements of safety. In this way, a simple lavatory mirror can become a source of both information and entertainment.

Based on the KRX100 polycarbonate mirror, Krüger Aviation has developed a mirror which provides semi-transparency wherever it is needed.

As long as the mirror is mounted in correct position and the background is darker than the lighting conditions on the visible side, the mirror functions as a perfectly homogeneous full lavatory mirror.

As soon as a light source or a display is switched on at the rear, however, the KRX070 mirror has a semitransparency of 30%.

This effect can be used to play safety videos, display advertising, and show films on a screen positioned behind the mirror's surface. Furthermore, warning notices can be shown to passengers, e.g., Fasten Seat Belts, No Smoking, etc.

This outstanding product was finalist in the Material and Components category of the 2017 Crystal Cabin Awards.

Several Tier 1 are looking into this product for their newest generation lavatory designs.



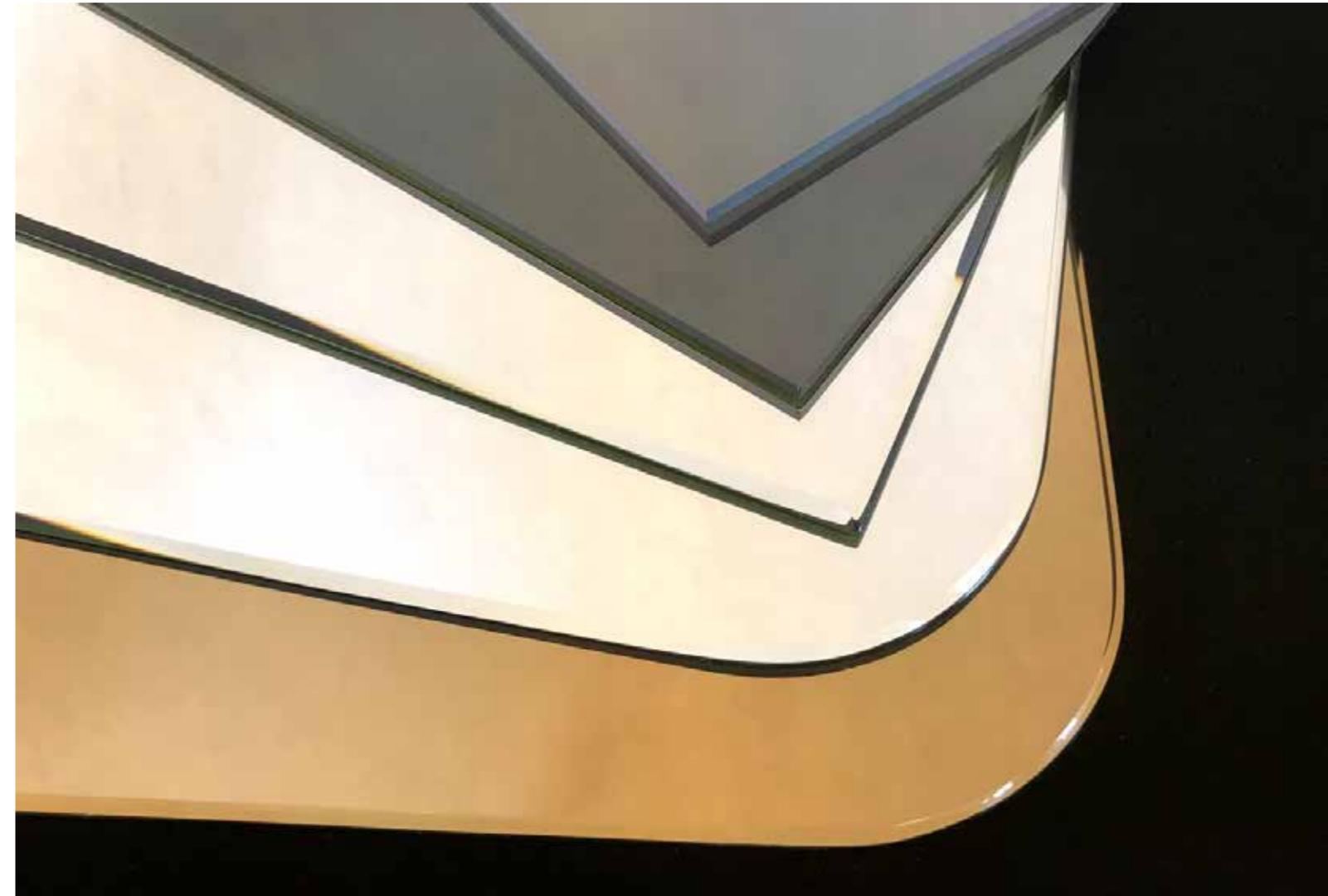
FROM A LAVATORY MIRROR TO DECORATIVE ELEMENTS

With the introduction of the golden and black tinted K-Reflexion variations, we offer our customers elegant decorative materials for high-end interior designs.

Using the black tinted KRX300 high glossy decorative panels and surfaces can be realized. Other options include framing traditional lavatory mirrors with a golden or black frame, or to have mirror in mirror inserts displaying e.g. airliner or company logos.

All this can be combined with our polished chamfers, or sandblasting, which can be even painted in different colors to meet the overall design guidelines of the aircraft.

With "K-Reflexion clear" we offer the clear polycarbonate sheet which is the base for our K-Reflexion mirrors as a transparent version without reflective coating.



THE WAY AHEAD

Innovation and development is in our DNA. Defining a new standard for plastic aviation mirrors is not enough for us. We know, that the market is looking for even more brilliant, even clearer mirrors, which should not have any imperfection at all. We are keen to meet this challenge and are constantly working to improve the quality of our materials and on development of new variations.

In 2018 KRX1000 was introduced as a re-development of the KRX100 mirror, with improved resistance against aggressive chemical fluids, exceeding now even the most stringent OEM requirements.

Ongoing efforts are also related to improved smoke and tox behaviour, stronger scratch resistance, etc.

Thinking without borders

What else can be achieved with mirrors?

What about ...

- having a lavatory mirror which is smoothly going over an edge?
- increasing the sense of space through an infinity mirror?
- achieving interesting light effects with integrated ambient lights?
- integrate your airline logo or have framed mirrors with an mirror-in-mirror insert

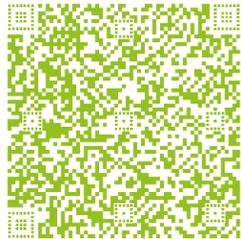


CONTACT

Our highly motivated team is fully dedicated to customer satisfaction. For more information, feel free to contact us at the address below or call or write us.

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■ EN 9100

■ EN 9120