Engineering progress
Enhancing lives

High-flying polymers

Solutions for the aviation industry
www.rehau.com/aircraft

REHAU | Profile Solutions

We are specialists in the development of polymer profiles and profile-based systems. Coupled with our material know-how, process expertise and functional integration, we redefine the of the possible every day.

DECORATIVE PRODUCTS

Worldwide, our exclusive partner Decorative Products supports with the distribution of selected line fit and aftermarket items.

Innovative Engineering partner

REHAU has been a respected engineering partner and 1st-tier supplier to the aircraft industry since 1980. We actively drive developments forward on a permanent basis. Our innovative RAU-FLIGHT family of materials has had a decisive impact on the industry. This ensures better economy and energy balance for our customers.

References

- AIRBUS ATLANTIC
- AIRBUS HELICOPTERS
- AIRBUS OPERATIONS GMBH
- AIRBUS S.A.S.
- BOEING
- ATR
- FACC
- DIEHL
- LUFTHANSA TECHNIK
- UMLAUT
- STELIA AEROSPACE
- B/E AEROSPACE
- AVIC
- DAHER
- SAFRAN


AIR FRANCE
AIR FRANCE
nwa

Materials and formulations

Development of its own materials has been a cornerstone of REHAU's engineering success since the company was founded. Top priority is always given to quality, reliability and benefit for the customer.
With several thousand formulations for the various sectors, REHAU now possesses one of the largest material portfolios worldwide.

The object of REHAU's material, process and product developers is sustainable management of valuable resources and low-waste production through active recycling concepts. Thus, particular attention is paid to the processing characteristics of materials in REHAU's production works. With more than 40 production sites worldwide, our researchers and developers have the perfect base to ensure their materials are fit for production and the market. Consequently, this yields synergies for the premium products that represent REHAU on the market.

Certified reliability

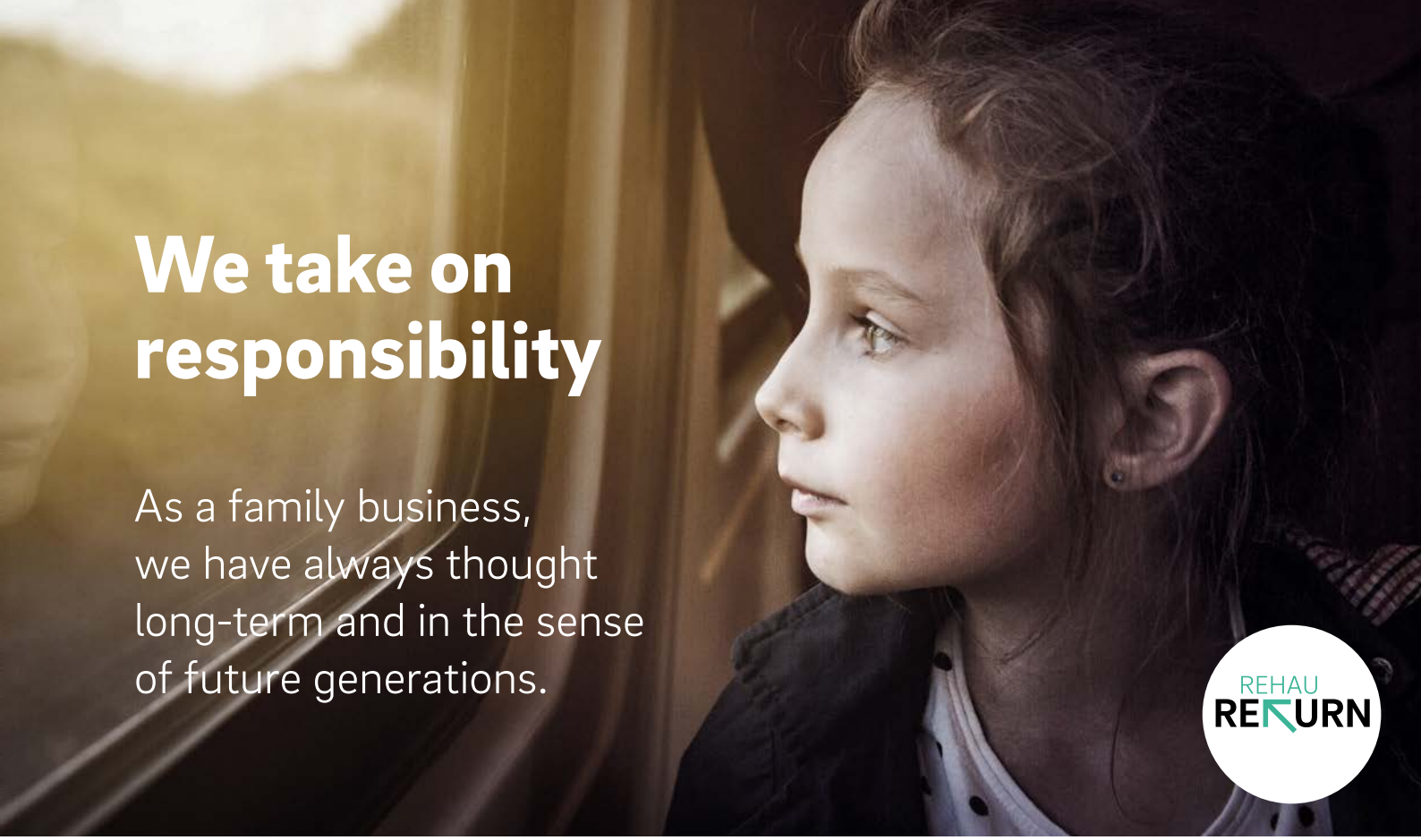
On the way to developing the right product and system solution, we accompany our customers at every stage and offer maximum security in meeting European, international or industry-specific specifications.

The thermoplastic extrusion and fabrication have been successfully qualified by AIRBUS in accordance with AIPS03-02-034 and AIPS03-07-002.

All materials and components used meet the FST requirements for aircraft cabins and are ReaCH and RoHS compliant. REHAU processes for aviation products are based on EN9100.

Comprehensive quality management and process reliability are a matter of fact for us, confirmed by external audits by OEM and 1st-tier:

- ISO 9001 – Quality Management
- ISO 14001 – certified environmental management
- ISO 45001 – Health & Safety
- ISO 50001 – Energy Management



We take on responsibility

As a family business, we have always thought long-term and in the sense of future generations.

REHAU RETURN

The responsible use of resources, durable and innovative products and sustainable investments are part of our DNA. We are proud to be part of the 50 Sustainability & Climate Leaders initiative; as one of 50 leading companies that have implemented measures to make their business models more sustainable.

50 SUSTAINABILITY & CLIMATE LEADERS

A RACE WE CAN WIN

What we are moving:

43 %
CO_2-Reduction
(Scope 2, 2021 vs. 2018)

15 %
Recycling rate in total tonnage (2021)

> 100.000 t
Saving CO_2 by recycling old windows in window production (2021)

> 60.000 t
Recycled Post-industrial/ post-consumer material (2021)

65 %
Packaging made from sustainable materials (2021)

20 %
Reduction of primary energy consumption (2020 vs. 2009)

The 50 Sustainability & Climate Leaders initiative brings together companies around the world that are taking the lead and demonstrating the will to take effective action in the fight against climate change. Learn more:
www.50climateleaders.com

REHAU publishes its 7th sustainability report covering the 2021 reporting period in accordance with the guidelines of the Global Reporting Initiative.

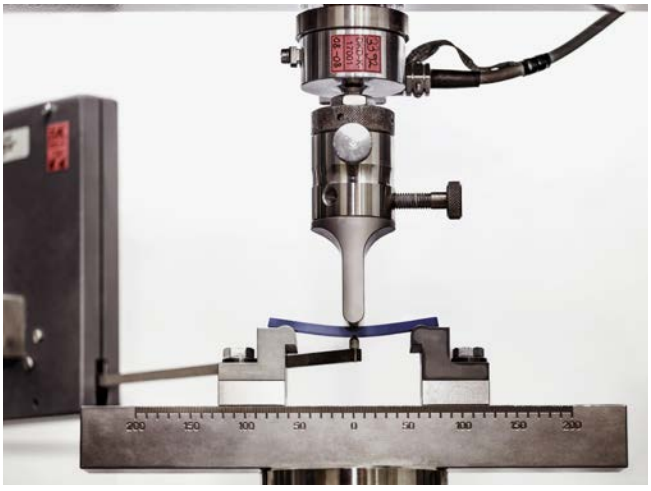
Since 2020, REHAU has committed to the UN Global Compact initiative on corporate responsibility and its principles in the areas of human rights, labour, the environment and anti-corruption. As part of the network, the REHAU Group is obliged to publish a report once a year on the extent to which it implements the ten principles of the UN Global Compact and in which areas progress has been made or there is a need for action. The REHAU Global Compact Progress Report 2020/2021 has been published and can be viewed and downloaded here.

WE SUPPORT UN GLOBAL COMPACT

GOLD 2021 ecovadis Sustainability Rating

Professional solutions

REHAU's development engineers and technicians accompany the product from the initial idea to development, installation and final use.
They are at the customer's side to provide advice and support, allowing easy implementation of special requirements and innovative solutions.



Bending test

Abrasion test

Our production and process engineering departments offer a host of solutions to meet any requirement, from one-off production to series production, and they work to optimise manufacturing processes.

In Post-processing, REHAU relies on various options, such as painting, surface finishing and fabrication, in order to implement the various product properties.

REHAU's in-house material development department provides cost-effective and beneficial solutions, even for customised applications.

In the logistics department, REHAU provides optimal conditions and made-to-measure solutions right through to just-in-time deliveries.

Process expertise	Details
Material expertise:	RAU-SIK, RAU-FLIGHT, RAU-FLIGHT PA
Production processes:	Extrusion, injection moulding, extrusion blow moulding, thermo forming
Design:	3-D design, FEM calculation, Moldflow simulation
Material development:	RAU-FLIGHT PA, RAU-FLIGHT PA 2.0, RAU-FLIGHT PC
Processing:	PC, PA6, PA66, PA12, PEI, PPSU, PPS, TPE and silicone (Shore 50 and 70), CETEX
Fabrication/finishing:	Milling, grinding, CNC, drilling, bonding, painting, assembling
Painting:	Smooth and textured aeronautial-approved painting systems

Energy efficiency made easy with RAU-FLIGHT

In the aviation industry, every gram counts. Lightweight construction has always been a significant factor in aviation, not least because of flight physics.

In addition to lightweight structures, light innovative materials also make a vital contribution. The use of these materials reduces energy consumption, thus improving cost efficiency, and also makes a sustainable environmental contribution.

Improved cost efficiency with consistent properties

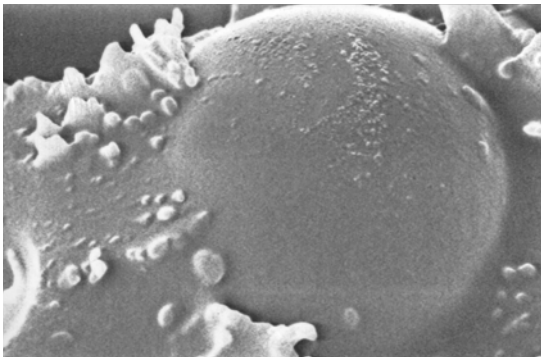
Through the use of intelligent polymer solutions, REHAU is able to provide customers with tailored solutions that not only have a positive impact on the energy balance but also meet engineering and design requirements.

The RAU-FLIGHT material family was specially developed for the aviation industry and achieves a weight reduction of up to 10%.

The challenge was to maintain the mechanical properties of the approved basic materials and the technical feasibility to produce an end product suitable for series production. Fabrication operations, such as milling, painting, bonding etc., are still possible in accordance with the original material properties.

The new material RAU-FLIGHT can be customised to meet specific customer requirements; e.g. high-temperature applications with PPSU or PC for light-scattering effects.

The relevant fire regulations are verified as part of the development process, and also during classification if necessary.



The weight reduction is achieved by inserting glass bubbles. The illustration shows a 3000-fold magnification.

RAU-FLIGHT, the unique material principle: 'glass bubbles' embedded in the polymer matrix

Polyamide material RAU-FLIGHT PA

In the polyamide sector, REHAU has succeeded in creating a perfect RAU-FLIGHT PA formulation. This material has been approved by AIRBUS in accordance with AIMS 04-01-025 and by BOEING in accordance with BMS8-270.

RAU-FLIGHT PA sets completely new standards in terms of appearance and feel. It completely eliminates the surface treatment of dyed PA profiles normally carried out afterwards in order to prevent the material-specific lustre.

RAU-FLIGHT PA surfaces can be optimally combined with other components, which are especially thin-walled and contribute to weight optimisation without compromising load capacity. Areas of application for the lightweight material RAUFLIGHT PA in aircraft construction are bumper systems, cable guides, seat rail covers and floor trim strips.

Polyamide material RAU-FLIGHT PA 2.0

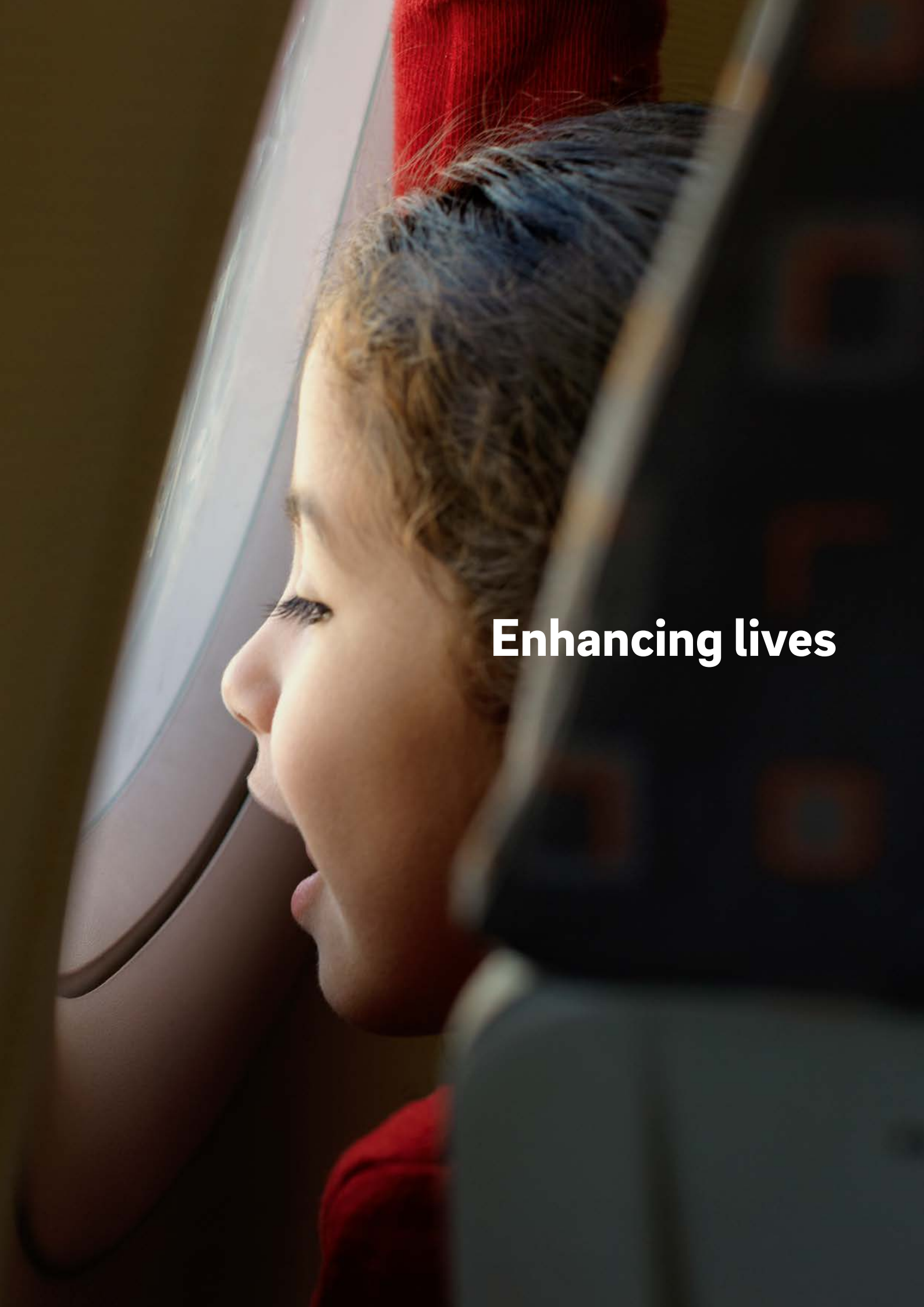
The first generation RAU-FLIGHT was further developed with a focus on improved mechanical component properties and the proven surface qualities.

RAU-FLIGHT PA 2.0 is also approved by AIRBUS according to AIMS 04-01-025 and designed for even more demanding applications.

The advantages of RAU-FLIGHT PA 2.0 at a glance:

- Improved mechanical properties: 4 times higher Charpy notched impact strength: 70 kJ/m²
- Increase in elongation at break to 10%
- Excellent surface quality and low density
- Low effort for BMS qualification
- Extrudates and moulded parts for aircraft construction

Engineering progress



Enhancing lives


REHAU flies high
05
06
01.04
03.02
02.02
05
05
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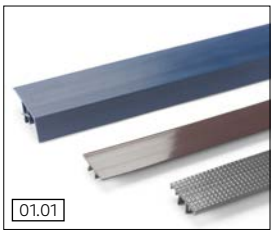
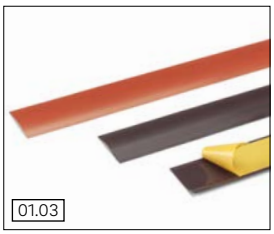
Our products for the aviation industry:

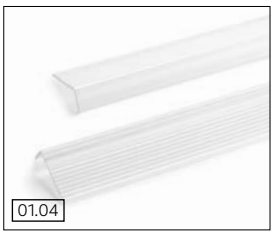


Seat rail covers
The safe connection point between passenger and aircraft.

Bumper system
The bodyguard for lightweight structures.



Cover profiles
The clever transition between different floor coverings.



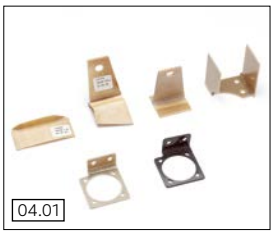
Lighting covers
Elegant design with sophisticated functional details.

Handrails
Ergonomic and functional safety.

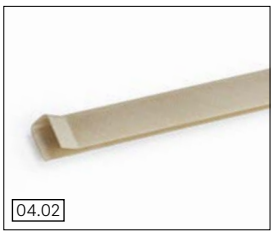
PSU intermediate rail
The elegant connection between operating unit and overhead locker.

Air ducts
For a pleasant and hygienic atmosphere in the aircraft.

Edge protector
Safely covered, both in the overhead locker and on the handrails.



Retainers and slide guides for window systems
Permanent fixing of interior elements.



Guide rails for side wall panels
The custom-fit connection between wall panels.

Clamping rails for side wall panels
Fixation between side walls panels and the fuselage.

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Silicone profiles
The professionals for sealing, fixing and covering.

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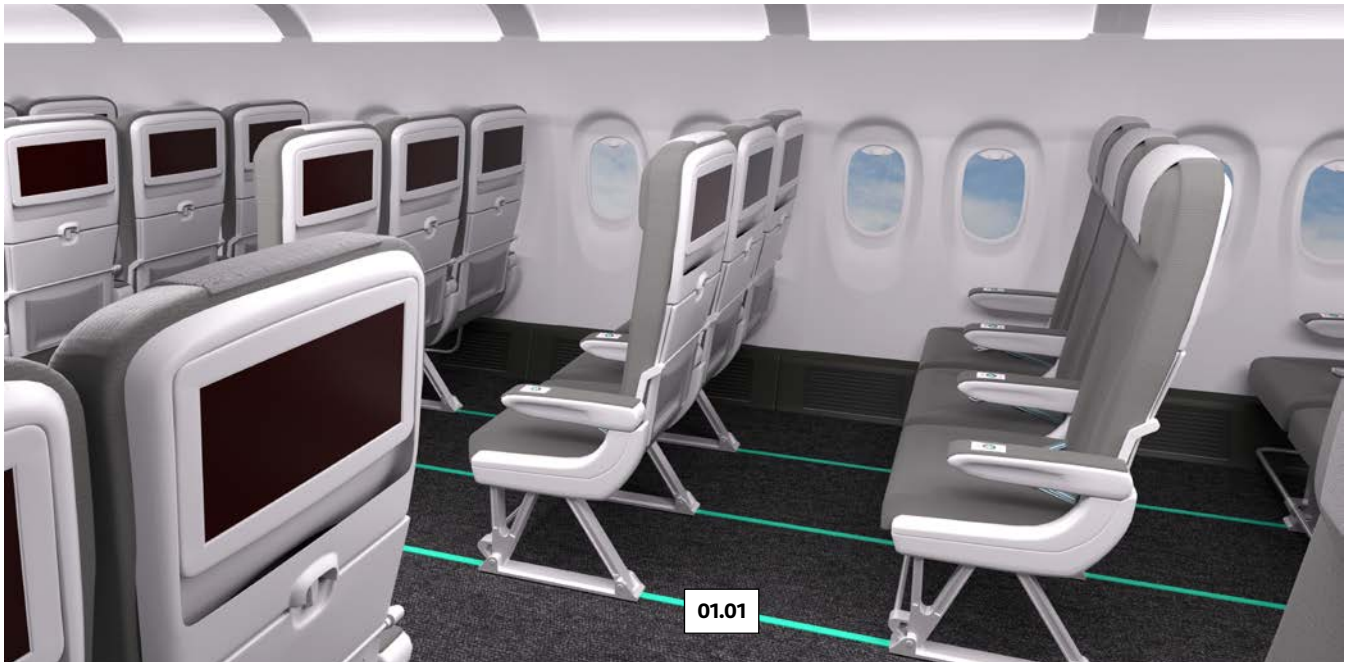
RAUSILAM hose
Silicone hoses forproduction of fibrereinforced components.



01 Profiles

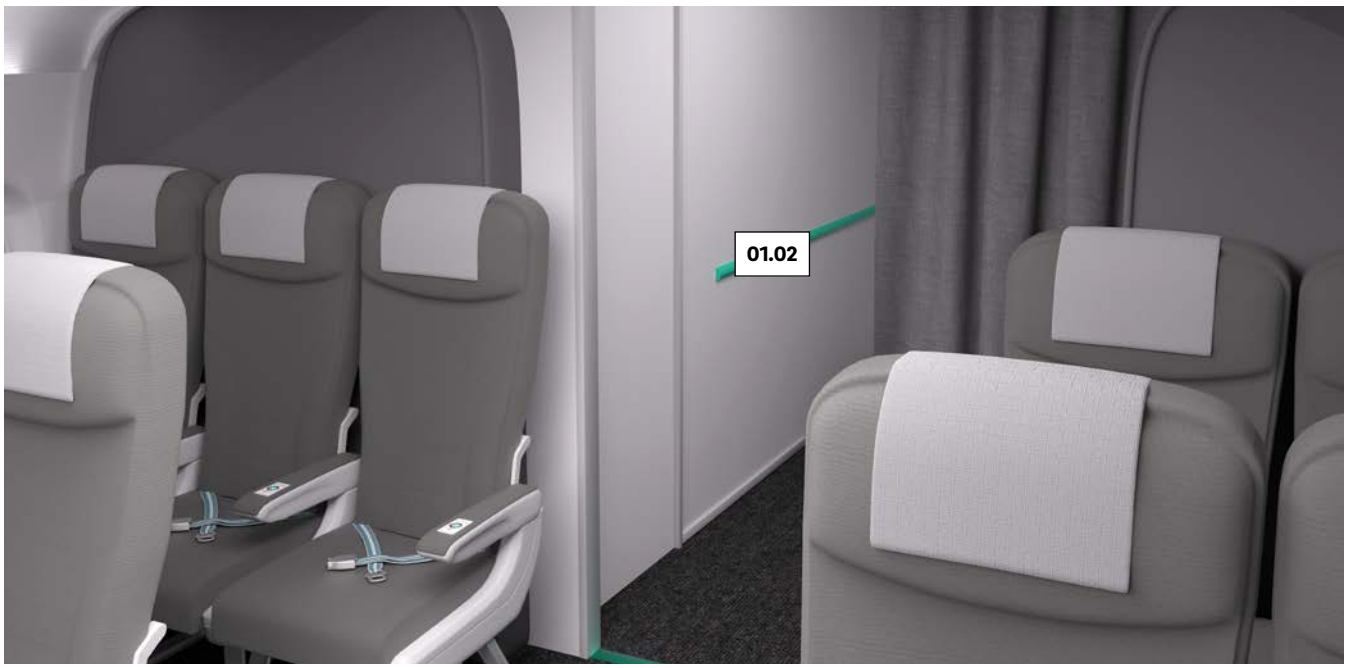
01.01 Seat rail covers

Function
The seats in the cabin are anchored in aluminium rails. The positions and distances between them are variable.
The variable distances between the seats are closed with the seat rail covers.

Surface
Uniform matt

Material
- Polyamide 12 (RAU-PA), flame-retardant, coloured, brushed matt
- RAUFLIGHT PA, flame-retardant, coloured
- RAU-FLIGHT PA 2.0

Process
Extrusion



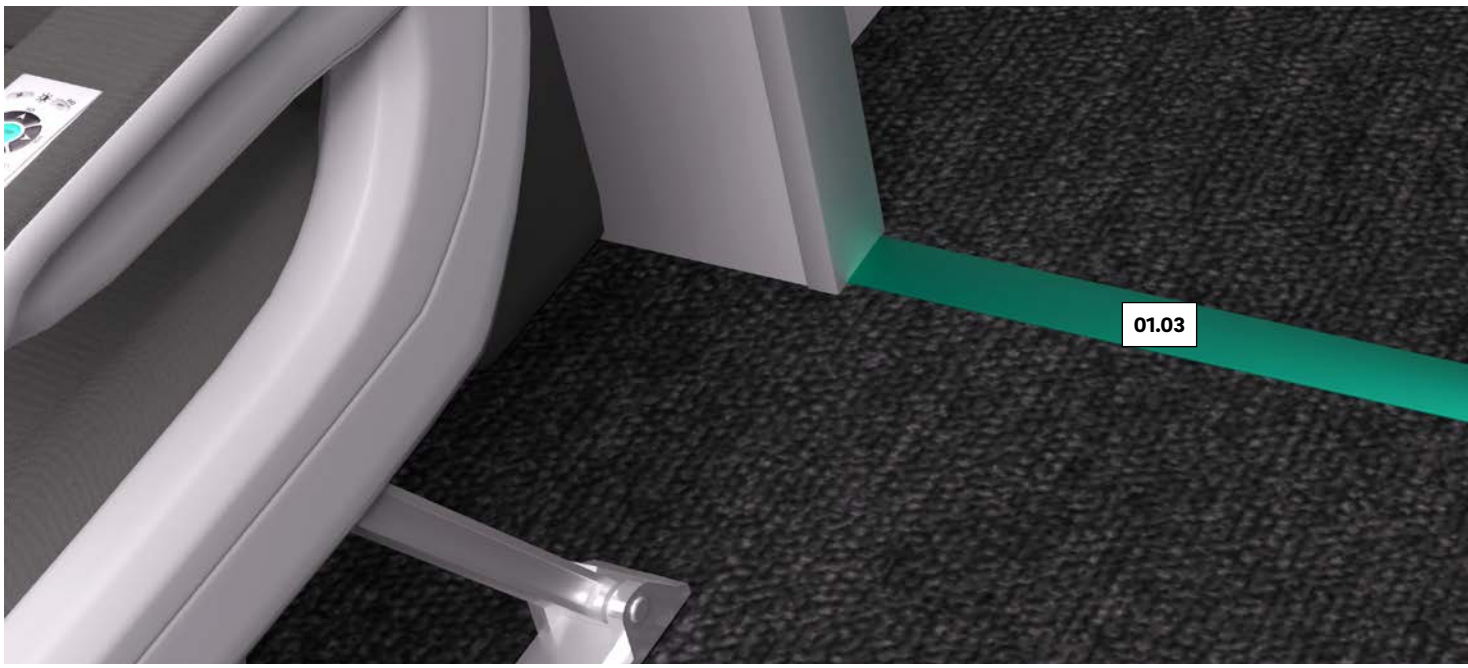
01.02 Bumper system

Function
Protection of lightweight structures, cable routing

Surface
Uniform matt

Material
- Polyamide 12 (RAU-PA), flame-retardant, coloured, brushed matt
- RAU-FLIGHT PA, flame-retardant, coloured

Process
- Extrusion (retainer and cover profiles)
- Injection moulding (end caps)



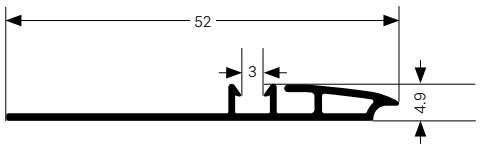
01.03 Cover profiles

Function
Decorative profiles to cover gaps

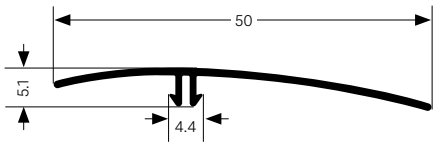
Surface
Partially brushed

Material
Flame-retardant materials approved for aircraft use;
e.g. polyamide 12 (RAU-PA), polycarbonate (RAU-PC), etc.

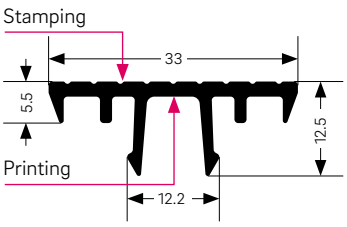
Process
Extrusion



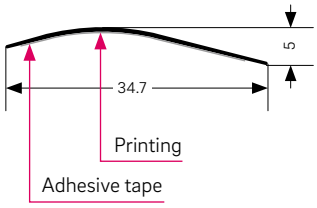
ABS 5786 AAA
Material: RAU-PA 592
Mat. no. 1953058



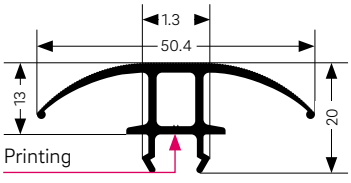
ABS 5786 AAA
Material: RAU-PA 592
Mat. no. 1953058



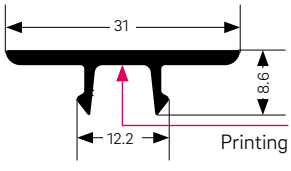
ABS 5790 AB
Material: RAU-PA 592
Mat. no. 1954912



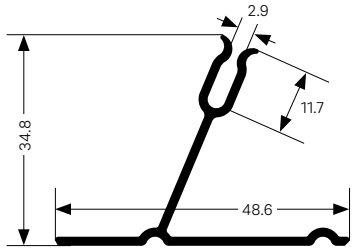
ABS 5759
Material: RAU-PA 592
Mat. no. 1953952



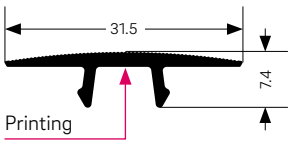
ABS 0317 AA
Material: RAU-PA 592
Mat. no. 1954731



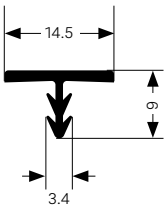
ABS 0318
Material: RAU-PA 592
Mat. no. 1954721



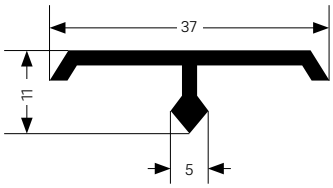
Material: RAU-PC 440
Mat. no. 1959180



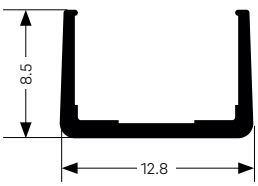
Material: RAU-PA 592
Mat. no. 1954635



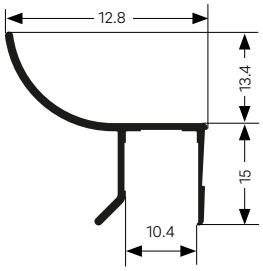
Material: RAU-PA 592
Mat. no. 1954745



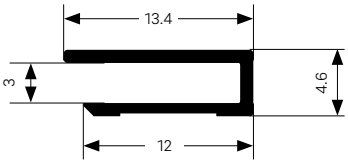
Material: ABS 143
Mat. no. 1957940



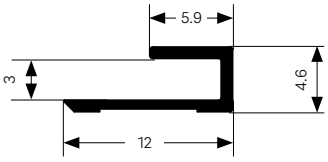
Material: RAU-PC 440
Mat. no. 1909721



Material: RAU-PC 440
Mat. no. 1909715



Material: RAU-PC 440
Mat. no. 1972918



Material: RAU-PC 440
Mat. no. 1972919

01.04 Lighting covers

Translucent cover profiles

Function
Translucent lighting cover

Material
Polycarbonate (RAU-PC), flame-retardant, transparent, UV-stabilised

Process
- Extrusion
- Mechanical processing (milling, cutting to length)

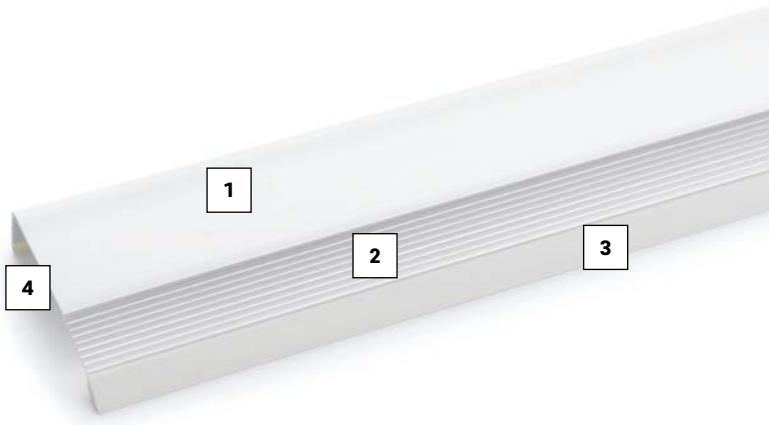
Material: RAU-PC 440
Coextrusion with integrated SIK seal
Mat. no. 1903802, 1904162, 1834209

Coextruded lighting cover

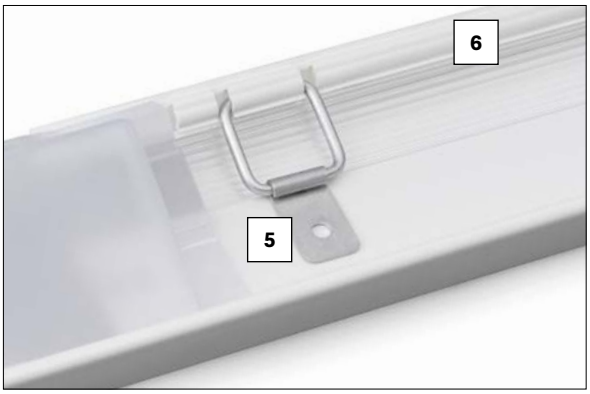
Function
Transparent lighting cover

Material
- Polycarbonate (RAU-PC), flame-retardant, transparent, UV-stabilised
- Polycarbonate (RAU-PC), flame-retardant, coloured
- Aluminium foil

Prozess
- Coextrusion
- Mechanical processing (milling, cutting to length)
- Assembly (clamp insertion)



1 RAU-PC, coloured
2 RAU-PC, transparent
3 RAU-PC, coloured
4 Aluminium insert, 57 mm x 0.3 mm;
Due to the low wall thickness, an integrated layer of aluminium foil keeps some product areas opaque.



5 Hinge
6 Profile

Lighting covers

Function
Translucent lighting cover

Material
Polycarbonate (RAU-PC), flame-retardant, transparent, UV-stabilised

Process
- Extrusion
- Mechanical processing (edge-milling)

Material: RAU-PC 440
Mat. no. 1956486

Material: RAU-PC 440
Mat. no. 1956476

Material: RAU-PC 440
Mat. no. 1909710

02 Systems

02.01 Handrails

Function
Handrail

Material
Polyetherimide (RAU-PEI)

Process
- Extrusion
- Mechanical processing (milling, cutting to length)
- Injection moulding
- Assembly

Material: RAU-PEI 140
Mat. no. 1264162

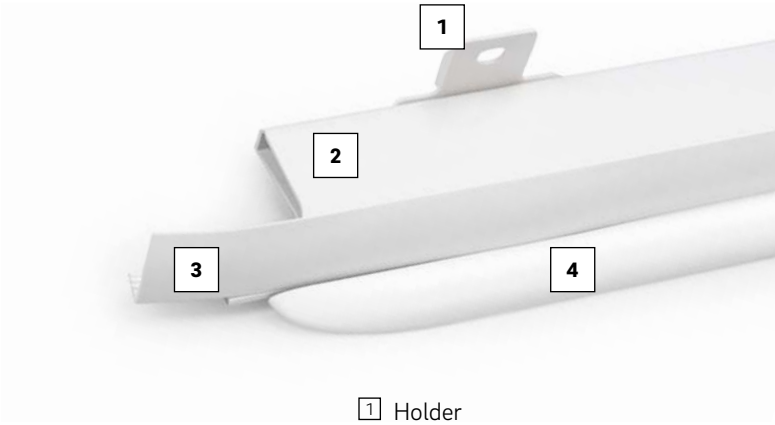
Material: RAU-PEI 140
Mat. no. 1264162

02.02 PSU intermediate rail

Function
Cover between PSU (Personal Service Unit) and overhead locker

Material
Polyetherimide (RAU-PEI), silicone

Process
- Extrusion
- Mechanical processing (milling, cutting to length)
- Injection moulding
- Painting
- Assembly



1 Holder
2 Rail
3 Silicone seal
4 End cap

Material: RAU-PEI 140
Mat. no. 1953293

02.03 Air ducts

Function
Air duct

Material
Polyetherimide (RAU-PEI), silicone

Process
- Extrusion
- Mechanical processing (milling, cutting to length)
- Injection moulding
- Painting
- Assembly

1 Profile
2 Injection
3 Silicone seal

Material: RAU-PEI 140
Mat. no. 1969770

03 Mouldings

03.01 Edge protector

Function
Edge protection mouldings cover sandwich components, hiding gaps between two overhead lockers

Material
- Polycarbonate (RAU-PC)
- Silicone

Process
- Injection moulding
- Extrusion
- Cutting to size and bonding silicone profiles

Material: RAU-PC 440
Mat. no. 1229913

Material: RAU-PC 440
Mat. no. 1229913

03.01

04 Fibre-composite components

04.01 Retainers and slide guides for window systems

Function
Fixing for interior parts; e.g. in emergency exit area

Material
- Glass-fibre fabric with polyetherimide (RAU-PEI)
- Carbon-fibre fabric with polyetherimide (RAU-PEI)

Process
- Thermoforming consolidated panels
- Mechanical finishing

Material: RAU-TC 13304
Mat. no. 1766212

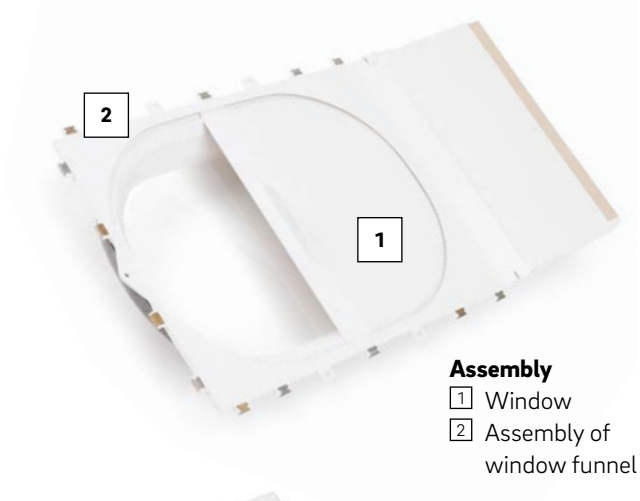
Material: RAU-TC 13307

Material: RAU-TC 13307
Mat. no. 1766152

Function
Guide for window blind

Material
- Polycarbonate (RAU-PC)
- Glass-fibre fabric with polyetherimide (RAU-PEI)

Process
- Injection moulding (window funnel)
- Thermoforming of window blind guide



Assembly
1 Window
2 Assembly of window funnel

Material: RAU-TC 13304
Mat. no. 1766212

Material: RAU-TC 13304
Mat. no. 1766212

Material: RAU-TC 13304
Mat. no. 1766212

Material: RAU-TC 13304
Mat. no. 1766212

04.02 Tracks for side wall panels

Function
Connecting rails for side wall panels

Material
Glass fibre fabric with polyetherimide

Process
- Thermoforming consolidated panels
- Mechanical finishing

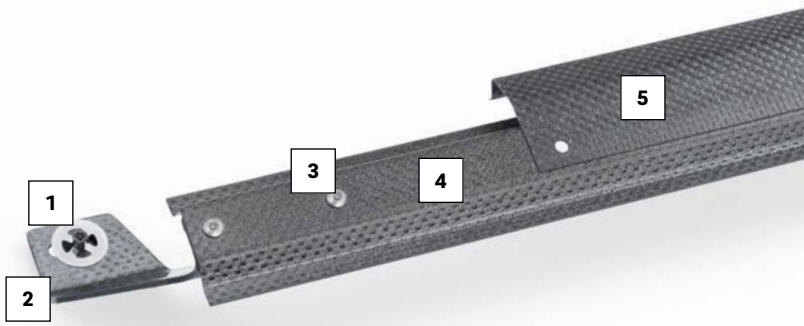
Material: RAU-TC 13302
Mat. no. 1766104

04.03 Clamping rails for side wall panels

Function
Fixes side wall panels to fuselage

Material
Carbon fibre fabric with polyetherimide

Process
- Thermoforming consolidated panels
- Mechanical finishing
- Assembly



1 Screw, pane, safety pane
2 Retainingbracket
3 Blind rivet
4 Rail
5 Clip bonded to track

Note
Prototype tool available.
The rail has passed the AIRBUS static test.

Material: RAU-TC 13302

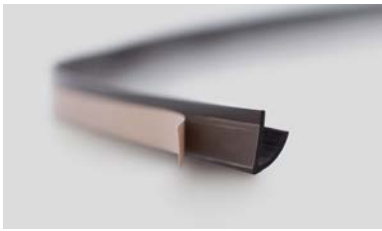
Synergising silicone

Wherever other materials reach their limits, silicone scores. But the material alone does not make a product solution.

Silnova GmbH was successfully spin off from the REHAU Group a year ago. Our colleagues at Silnova GmbH develop profiles, seals and moulded parts for equipping aircraft interior cabins in aviation. The innovative silicone formulations with aviation approval meet the strict requirements for fire behaviour and toxicity. Thanks to the company's own silicone compounding, customised colour adjustments can also be made.

Silnova's range of services extends from development, prototype construction or certification to the completion of your application-oriented product solution.
www.silnova.eu

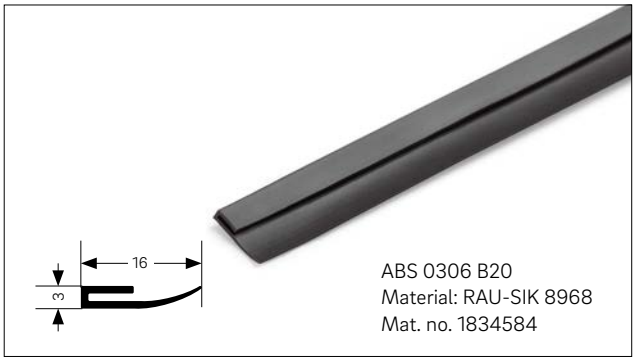


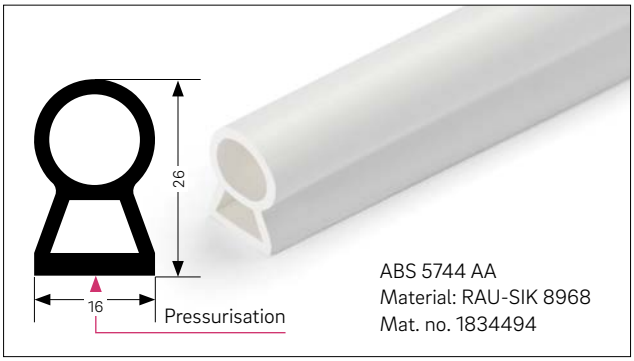
REHAU | silnova
SYNERGIZING SILICONE

05 Silicone profiles

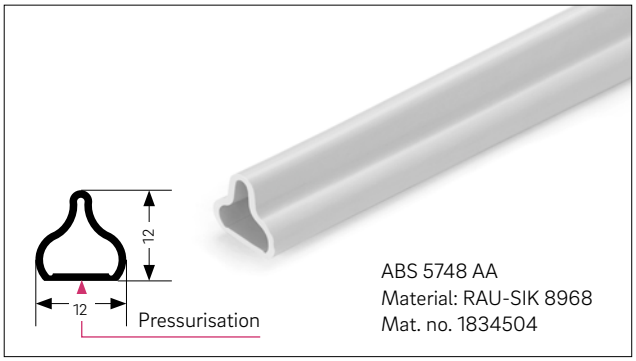
05.01 Standard ABS components



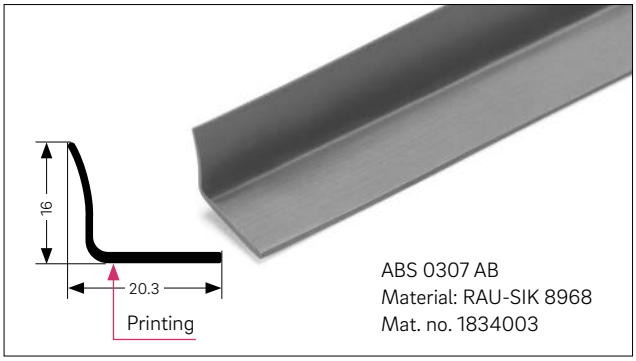
ABS 0306 B20
Material: RAU-SIK 8968
Mat. no. 1834584



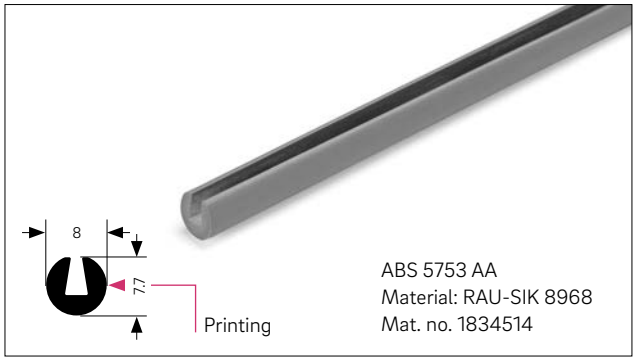
ABS 5744 AA
Material: RAU-SIK 8968
Mat. no. 1834494



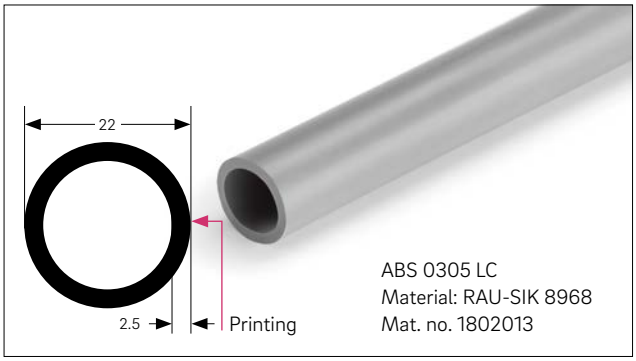
ABS 5748 AA
Material: RAU-SIK 8968
Mat. no. 1834504



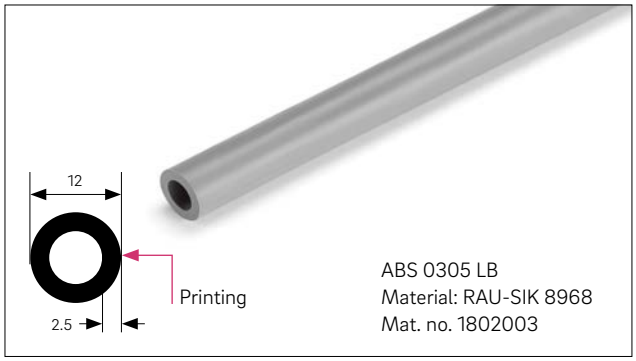
ABS 0307 AB
Material: RAU-SIK 8968
Mat. no. 1834003



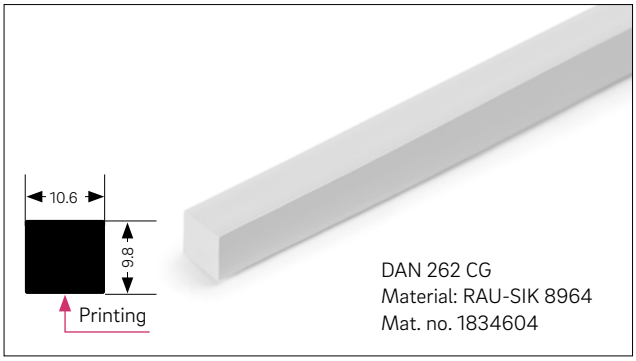
ABS 5753 AA
Material: RAU-SIK 8968
Mat. no. 1834514



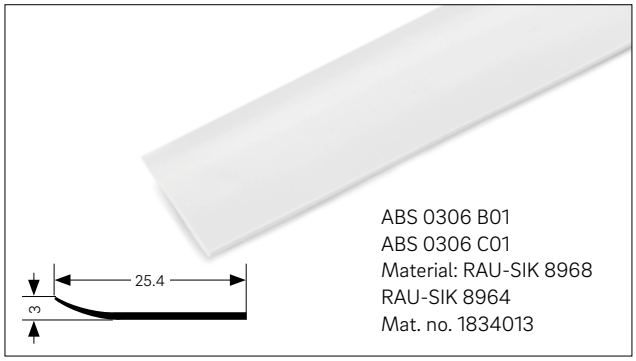
ABS 0305 LC
Material: RAU-SIK 8968
Mat. no. 1802013



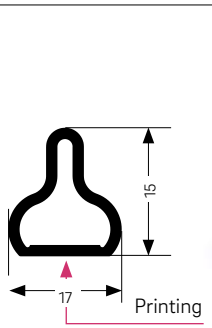
ABS 0305 LB
Material: RAU-SIK 8968
Mat. no. 1802003



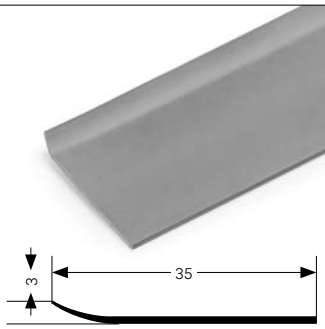
DAN 262 CG
Material: RAU-SIK 8964
Mat. no. 1834604



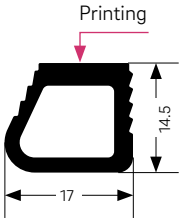
ABS 0306 B01
ABS 0306 C01
Material: RAU-SIK 8968
RAU-SIK 8964
Mat. no. 1834013



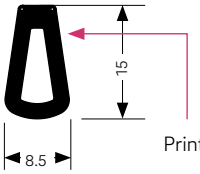
ABS 5748 AB
Material: RAU-SIK 8968
Mat. no. 1834594



ABS 0306 B02
ABS 0306 C02
Material: RAU-SIK 8968,
RAU-SIK 8964
Mat. no. 1834023

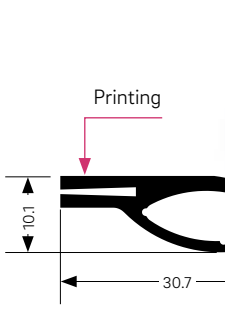


ABS 0399 AA
Material: RAU-SIK 8968
Mat. no. 1834394

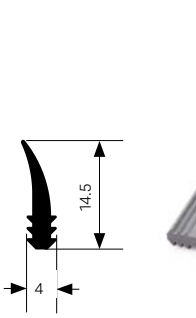


ABS 0398 A01
Material: RAU-SIK 8968
Mat. no. 1834384

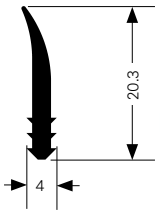
05.02 Interior area seals



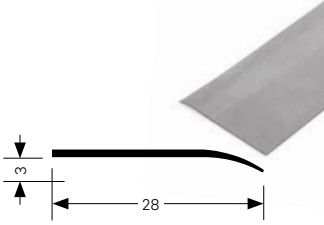
Material: RAU-SIK 8968
Mat. no. 1834484



Material: RAU-SIK 8968
Mat. no. 1834095



Material: RAU-SIK 8968
Mat. no. 1834085



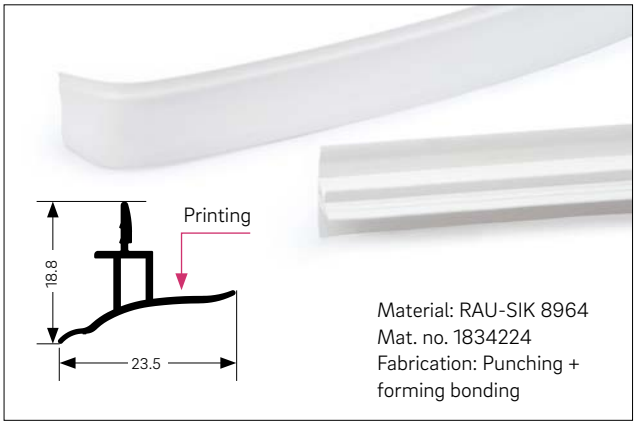
Material: RAU-SIK 8968
Mat. no. 1834354

Material: RAU-SIK 8968
Mat. no. 1850758
Fabrication: Water-jet cut

Material: RAU-SIK 8325
Mat. no. 1825541
Fabrication: Compression moulded part, slotted

Material: RAU-SIK 8968
Mat. no. 1834075
Fabrication: Adhesive tape application

Material: RAU-SIK 8968
Mat. no. 1834175
Fabrication: Punching + adhesive tape application



Material: RAU-SIK 8964
Mat. no. 1834224
Fabrication: Punching + forming bonding

06 Silicone hoses

Material: RAU-SIK 8763
Mat. no. 1807388

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