

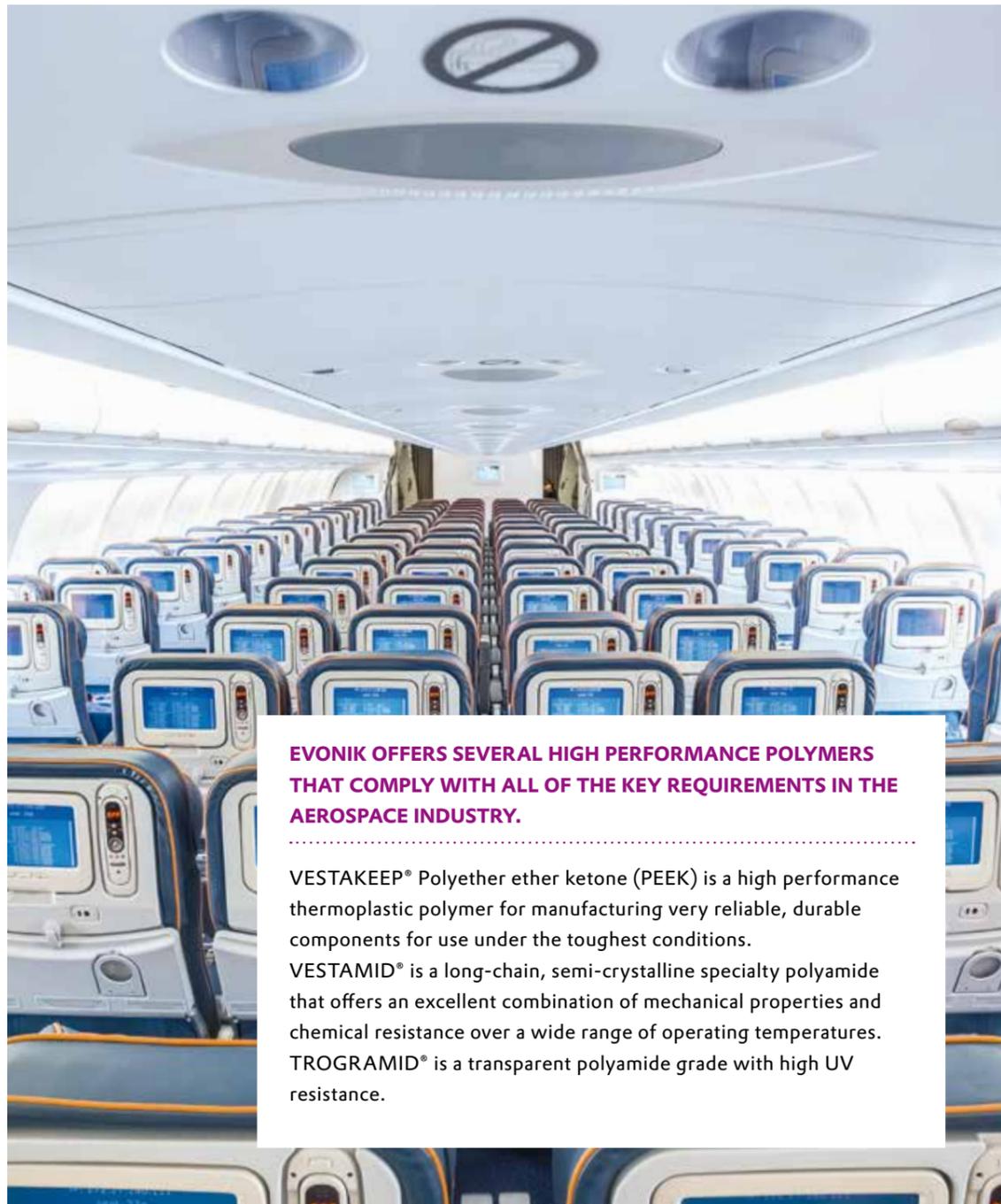
# High performance thermoplastic solutions for aerospace challenges



Innovative solutions for weight reduction and  
new design possibilities for the aerospace industry

# Innovative solutions for the aerospace industry

The drive for a more fuel-efficient and environment friendly aircraft has generated many challenging aerospace issues. At Evonik we are continuously working on a range of high performance thermoplastic granules and compounds to meet the most stringent regulations of the aerospace industry.



## EVONIK OFFERS SEVERAL HIGH PERFORMANCE POLYMERS THAT COMPLY WITH ALL OF THE KEY REQUIREMENTS IN THE AEROSPACE INDUSTRY.

VESTAKEEP® Polyether ether ketone (PEEK) is a high performance thermoplastic polymer for manufacturing very reliable, durable components for use under the toughest conditions.

VESTAMID® is a long-chain, semi-crystalline specialty polyamide that offers an excellent combination of mechanical properties and chemical resistance over a wide range of operating temperatures.

TROGRAMID® is a transparent polyamide grade with high UV resistance.

## Your benefits

We work with our customers to develop cost-effective solutions that offer the following benefits to meet future performance requirements in the aerospace industry.



Weight reduction for better **fuel efficiency** and lower CO<sub>2</sub> emissions



**Design flexibility** supporting weight- and space-saving concepts through more ergonomic design



**Simplified assembly** for enhanced productivity



**Longer Interval between maintenance or service** through increased component durability & reliability

### VESTAKEEP® PEEK For extreme conditions

- Up to 70% lighter than steel with proven track record in metal replacement.
- Retains the mechanical & thermal properties under severe conditions such as high heat & high pressure.
- Superior chemical resistance to oils, hydraulic fluids, jet fuels, de-icers & other commonly used fluids in aerospace.
- Fulfills all the FST requirements for all kinds of interior, exterior or structural components & tubing in the aircraft.

### VESTAMID® For versatility

- Proven and trusted solutions in the automotive and oil & gas industries.
- Wide operating temperature between -40 °C up to 110 °C.
- Tough, flexible, chemical & corrosion resistance and easy processing.
- Ideal for all kinds of extrusion tubing or profile in gallery & interior parts.

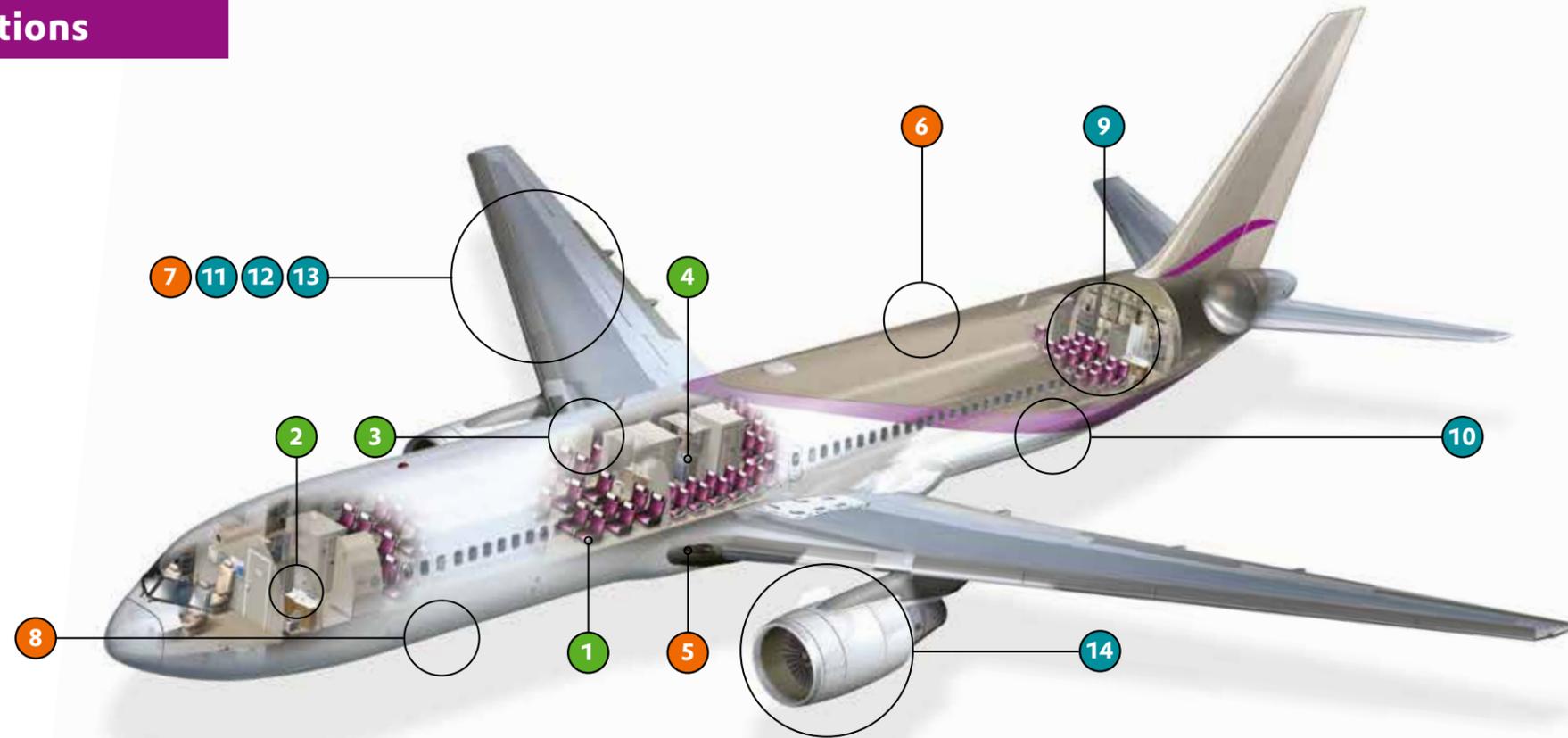
### VESTAMID® HTplus For cost performance ratio

- High heat resistance up to 200° C.
- High rigidity & tensile strength.
- Excellent resistance against many aggressive chemicals.
- Potential for replacing metallic components due to its high stiffness, heat stability and attractive cost.

### TROGRAMID® For clarity

- High optical transparency & light weight against tempered glass.
- Excellent resistance against chemical, scratch & abrasion.
- High impact strength.
- Suitable for all kinds of see through housing & aesthetic panel, including the potential in glass replacement.

## Aviation applications



### Interior application



**1 Seating and structural support**  
VESTAKEEP® PEEK can be used for reducing the weight of the structural frame and easily injection molded into complex shapes or geometries.



**2 Handles for support**  
Compared to die-cast parts, injection-molded VESTAKEEP® PEEK and VESTAMID® PA12 handles offer improved aesthetics and reduced weight.



**3 Bracket for luggage compartment retainers**  
VESTAKEEP® PEEK works well in space- and weight-saving design concepts that maximize space within the aircraft interior.



**4 Galley trolley**  
VESTAMID® PA12 profiles serve as excellent insulators for galley trolleys to keep food cold for longer periods of time.

### Exterior application



**5 Light cover**  
TROGRAMD® CX is an alternative to glass that can reduce weight and is easy to process into various shapes.



**6 Vent grill**  
Easy-to-assemble, lightweight VESTAKEEP® PEEK has excellent mechanical and thermal properties, making it suitable for replacing metallic parts in ventilation systems.

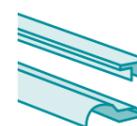


**7 Sealing cap**  
VESTAMID® HTplus PPA presents a cost-effective sealing-cap solution to protect metallic fasteners from corrosion.



**8 Thermoplastic composites**  
A variety of matrix solutions based on VESTAKEEP® PEEK, VESTAMID® PA12, and TROGRAMD® CX are available to support emerging welding and joining technology in thermoplastic composites.

### Assembly components



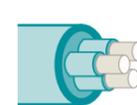
**9 Extruded profile for cabin**  
Easy processing makes VESTAMID® PA12 an ideal solution for complex profiles.



**10 Tubing and pipes**  
Tubing made of VESTAKEEP® PEEK and VESTAMID® PA 12 are easy to form, lightweight, and offer better chemical resistance than metallic tubing.



**11 Critical assembly components**  
VESTAKEEP® PEEK has a proven track record as a replacement for metallic components in brackets, clips, and fasteners.



**12 Electrical cable insulation**  
VESTAKEEP® PEEK thin films can be used for cables.



**13 Nuts and bolts**  
VESTAKEEP® PEEK nuts and bolts are easy to handle, corrosion free, reliable, and durable.



**14 Engine parts**  
Specially developed high-temperature VESTAKEEP® PEEK grades reduce creep by more than 50% and improve modulus retention at 290°C, making them suitable for replacing metal in components near the engine.

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Evonik offers several products to fit your unique application. To learn more about the right grade for you, contact:

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