

PLASTIC PARTS IN AERONAUTICAL TECHNOLOGY

In aviation technology, extremely strict quality and safety standards must be adhered to. Since the molded parts usually have to be very robust and resistant, plastics are used in aviation technology which do not lose their high mechanical strength and rigidity even at extreme temperatures. However, the inherent flame retardancy, the very low smoke emission in the event of fire and their low weight are particularly important for these components.

The use of plastics with these special properties requires a high level of material competence with minimum manufacturing tolerances. For this reason, the right choice of materials and suitable coatings is already important in the design and production phase of the injection molding tool. Injection molds for processing plastics with very high processing temperatures (high-performance plastics) are therefore in demand.

Since these high-performance plastics are much more demanding than the usual engineering thermoplastics in the injection molding process, we simulate the subsequent production of the molded part with the aid of mold flow simulation even before the mold is designed. In addition, we determine the optimum position of the injection and temperature control, detect critical points (air inclusions, weld lines, sink marks) on the part and try to avoid or reduce these by modifications.

We analyze:

- the injection moulding material (strength, temperature, media, tribology, material price)
- the injection-moulded construction (draft angles, sink marks, ribbing, tolerance evaluation, cutting burr, position of the injection point, wall thicknesses, weld lines)
- tool technology (technology 1K, 2K, tool life, short cycle time)
- the injection process (technology 1K, 2K, specifications such as machine capabilities, process capability)
- the assembly processes

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