

## **New generation of aircraft for pilot training, tourism and sport flying**

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### **Abstract**

The Institute of Aircraft Engineering (IAE) has participated in several projects. The largest and most successful so far has been the design of KP 2U ultra-light plane, that has gone as far as the serial production and over 70 planes have been manufactured so far. The latest project of the IAE is the design of a family of General Aviation category planes that now is in the stage of construction and technology preparations. The project is supported by a grant of the Czech Ministry of Industry and its management is fully in the competence of the IAE. Chief designer of the project is the Head of the IAE, Prof. Ing. A. Pistek. The project team includes the IAE staff members, graduate and Ph.D. students, and external partners from the Brno University of Technology (BUT) and collaborating companies. In order to secure the realisation of the project, a consortium of Czech aircraft industry companies, headed by the IAE, was established.

The IAE contributes to the project mainly in the area of:

- Aerodynamics analysis,
- Flight characteristics, performance and aero elasticity computations
- Selected parts of the strength analysis (landing gear, seats)
- Strength tests of the airframe
- Strength tests of the seats
- Fatigue tests of the airframe.

The project supporting activities are carried out in semestral, diploma and doctoral theses, research work and primarily through experiments for the certification of the static, fatigue and flight tests of the plane. The IAE has developed the experiment basis, licensed by the CAA CR and the results of the experiments can be used in the process of certification. Technical documentation, technology and manufacturing are ensured mainly through collaborating companies, members of the consortium.

The project is supported also by the activities of the Aerospace Research Centre (ARC) established at the IAE in 2000. The Centre covers the whole range of aeronautical research and design. Mainly doctoral students carry out the activities.

### **Conception of the VUT 100 new generation aeroplane family**

The core of the family is the VUT 100 plane, intended for basic and advanced training of private and military pilots, night and instrument flying, general commercial use, tourism and sport flying, aero-towing and various other specific purposes that cover a significant part of the General Aviation category.

### **Technical description and data of VUT 100**

VUT 100 is a new generation of four- to five-seater designed in accordance with JAR-23/FAR-23 regulations. Light, multi-purpose, single engine, all metal, low wing aircraft with 2+3 seating arrangement and retractable three-wheel landing gear. The VFR and IFR operation is assumed.

### **GENERAL DIMENSION**

Length	8,03 m	Height	2,9 m
Wing span	10,2 m	Wing area	13,1 sqm

**Weights**

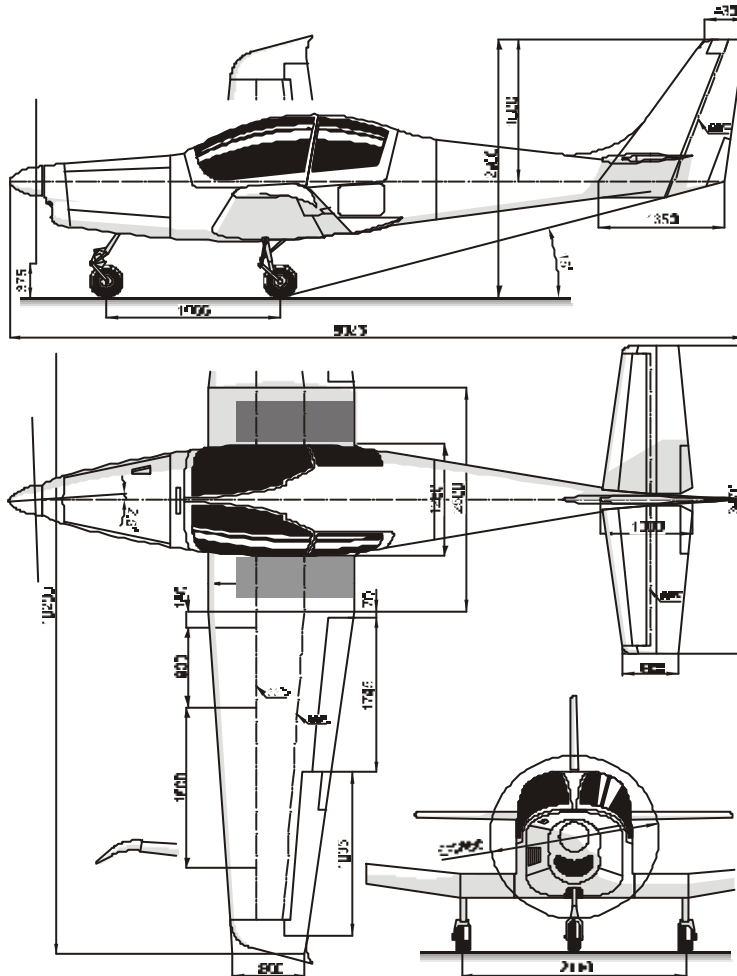
Max. TO Weight	2780 lb	Empty weight	1250 lb
Fuel capacity	340 l	Useful Load	1260 lb

**Performance**

Max. level speed	168 kts	Max. cruise speed	150 kts
Stall speed	50 kts	Range	1080 NM

**Power plant**

Engine	LOM M 337 A	Power (MTO)	210 HP
Propeller	LOM V 546 3-blades	constant speed D=1,85 m	



*Figure 1 Three view of the aeroplane VUT 100*