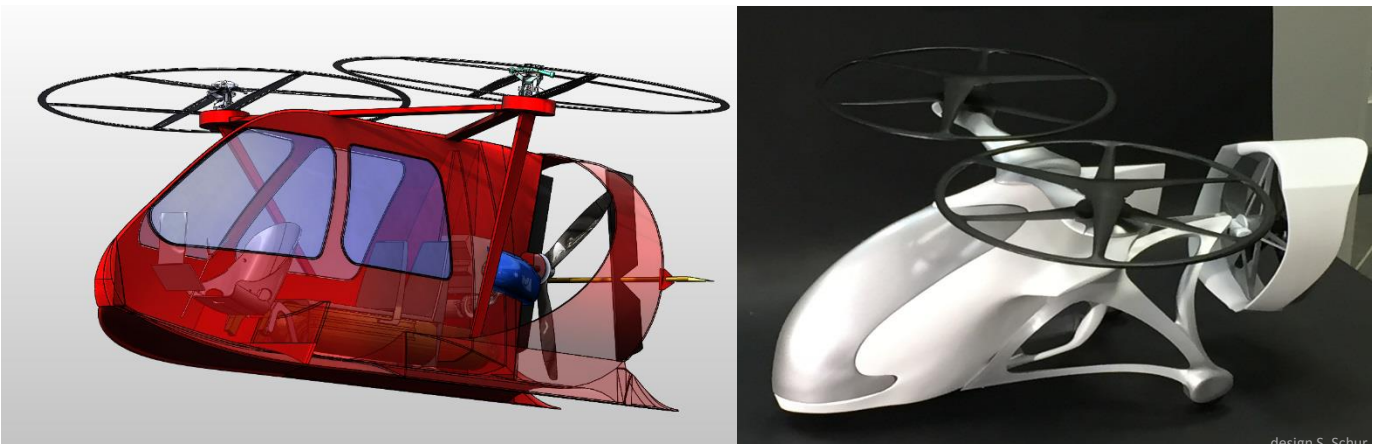


New class rotorcraft, GYROCRAFT - **gyro** stabilized aircraft with inertial vertical takeoff and landing (**iVTOL**) on innovative bearing rotors **Air Wheel**, qualitatively singles out of all types of VTOL aircraft.

In all varieties of VTOL aircraft **Gyrocraft** theoretically and conceptually "absolute champion" and not only in the all-around, and for each of the key aircraft settings: *tempo and power take-off, the load on the power, the energy and the weight perfection, transport efficiency criteria, lift-to-drag ratio in the dense troposphere, speed and range, constructive reliability, uncompromising all-weather, low noise , ... ,* and therefore, only he is able to become a leader in a number of consumer qualities: *safety, aircraft cost, flight hour cost, fuel economy, permissible payload mass, stability, automation level, ease of piloting, parking dimensions.*



Briefly, 10 factors, nominations and reasons for the "championship":

1. The **Air Wheel** Rotor (AWR) is a hybrid of a screw and a wing in one unit, it has high structural strength, a large resource, reliability, the blades are protected from interference (branches, wires). Elimination of vibration causes multirotor circuits. There are no strict strength limits on the size of the rotors, mass of the gyroplane, and flight speed. **Gyrocraft** - a wide class of passenger and transport vehicles, various aerodynamic schemes, for different tasks and payload masses.
2. Flywheels of AWR able to store large amounts of energy and give it a short time directly blades without loss, without fanfare, without reluctance torque, but not limited to i number of cycles. **Inertial vertical take-off** to a height of 150-200 m (500-650 ft) unfastens the take-off mass of the gyro from the power of the electric motors of AWR promotion. Gyrocraft - the only aircraft of VTOL, with no hard limit takeoff weight, capable of vigorously vertically take off quickly le she be safely and sits down with a payload that is not able long to keep on hovering, neither he nor any other aerodynamic aircraft of VTOL of the same power.
3. **Stable and inertial vertical soft landing** without the participation of the power plant ensures maximum safety of the gyroplane. Thin elastic blades supported by an external closed wing are able to change the geometry, to work with maximum efficiency in fundamentally different modes in the direction of flow through the plane of the rotor. Air wheels have high aerodynamic quality on autorotation without stall modes, have a wide range of pitch and twist changes of the blades, operate with extremely high efficiency in helicopter mode and in wind wheel mode. By reducing the Gyrocraft stable and manageable parachuting, AWR dispose comfort kinetic and potential energy of the device, accumulating dissolved it in the flywheel and then conveniences to facilitate soft landing inertial motorless in helicopter mode.

4. Also solid rotors AWR, Gyrocraft has no other critical nodes and long chain units, failure of which makes impossible to continue the flight and performance of a safe landing, does not require additional rescue systems. There is the possibility of reaching a brand new, unprecedented but high level of **reliability and flight safety**.
5. The main carrier member Gyrocraft - fine closed wing of AWR the optimal area, spanned by centrifugal forces, with high aspect ratio (in two-rotor transverse scheme  $AR > 20$ ), has a high **lift-to-drag ratio** ( $L/D > 30$ ) in high speed flight in dense troposphere.
6. The controlled participation of AWR blades in the creation of lifting force provides a 10-fold effective area of the gyrocarrier system and therefore it has not one cruising speed (like other aircraft), but a **wide range of economical flight speeds** at a fixed optimal angle of attack of the carrier system with a maximum (growing) lift-to-drag ratio. A gyroplane is capable of having a maximum range and flight speed among VTOL vehicles with a similar power plant and payload.
7. **Gyrocraft - low-noise aircraft iVTOL**. An external closed wing eliminates the end losses of the blades, powerful vortex bundles are not formed, and all factors of noise formation are reduced. AWR - silentnoise multiblade doublerow rotor with thin blades in flight operates at minimum speed in a mode close to autorotation. A low noise marching screw operates in an annular channel.
8. **The gyroplane is as weatherproof as possible, stable and comfortable**. Structurally strong AWR have a maximum moment of inertia, providing a unique force gyroscopic stabilization. Gyrocraft a stable circuit by double transverse demonstrates automatic transverse **aerogyrodynamically** stabilization in turbulent flow without control system. It is important that aerodynamic stabilization is not in conflict with controllability. The gyroplane is controlled according to the heading and roll, makes coordinated and forced turns.
9. An automated gyroplane is capable of automatically performing vertical take-off, flying to a selected destination, and making an exact vertical soft landing. Gyrocraft resistant, stable and manageable, not a hazardous mode. Optional **manual pilotage is extremely simplified**, as the car has a management course and speed, added buttons change the height of the flight echelon, and turn on the autopilot, performing a return to the route to the destination, and commits point soft landing.
10. Airplane - not a cruise missile, must take off and land at minimum speed, wears a landing gear, a heavy over- sized complex mechanized wing, an airtight passenger cabin. Economical altitude for the flight itself is in the discharged stratosphere. Airplane - stayer over long distances, from the airfield to the airfield, is optimal for intercontinental flights.

**Gyrocraft** - an aerodromeless automatic aircraft and iVTOL, without excessive ballast, with high weight perfection and high weight return, it possesses in the dense troposphere the maximum values of the parameters of transport efficiency, aerodynamic quality, range and flight speed.

**Gyrocraft** – its weatherproof champion in the sprint over short and medium distances, hundred be the most secure and low-noise auto transport, the real and the best option is economical automatic air-taxi service.

Read more about new iVTOL technologies of gyrocraft on the site [www.gyronautica.com](http://www.gyronautica.com)

