

-- CEN26LA149 --
Ekolot KR-030 Topaz
General Information

 Technical Description

KR-030 Topaz is a shoulder-wing monoplane with cantilever wing. All the important elements of the plane are made of glass and carbon composite and have shell-like structure, locally reinforced with 3-D fabric - PARABEAM. The front side of the cockpit contains two seats placed across the cockpit. Width of the cockpit is 1,2m.

The fuselage structure is made of two symmetrical pieces, which are stuck together and toughened additionally. Seats have got composite structure.

Canopy of the plane - windscreen is made of UV-resistance Plexiglas whereas doors are formed as carbon composite frames filled with 3mm Plexiglas. Fin is the integral part of the fuselage. Three axis landing gear with the front wheel coupled with rudder. The main gear legs are made of glass composite. Each wheel has got independent hydraulic brake system. Optionally, the wheels may be covered with laminated fairings. One-piece, rectangular, cantilever wing, mounted on the fuselage with four bolts. Section NN-1817 was used due to very high resistance of its edge of attack to impurities. Section NN-1817 has got very good aerodynamical characteristic - was checked in the PW-5 "SMYK" glider.

The wing of has got shell-like composite construction with spar inside. Composite flaps, empty inside, mounted to the wing with hinges. Ailerons are made of carbon laminate due to high stiffness of such structure and a relatively low mass (anti-flutter requirements). Ailerons have got mass balance elements at their ends. Classic, rectangular tail plane made of composite. Push rod controls. Elevator trimmer is spring-actuated and powered with electric motor. In standard option, the plane has got a single control stick in the middle of the cockpit. The plane is equipped with ROTAX 912UL engine (80HP).

Fuel tanks (altogether 70l) are situated at the back of the cockpit.

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 Technical data

Technical data of KR 030 Topaz

wing span	10,76 (m)
length	5,7 (m)
height	225 (cm)
wing surface	10,2 (m ²)
tail plane surface	1,44 (m ²)
empty plane weight	290 (kg)
maximum weight	450 (kg)
wing loading	41 (kg/m ²)
maximum speed	220 (km/h)
cruising speed (75% of power)	200 (km/h)
cruising speed (50% of power)	180 (km/h)
minimum speed - flaps in cruise position	80 (km/h)
minimum speed - flaps in start position	60 (km/h)
minimum speed - flaps in landing position	55 (km/h)
climbing speed	8 (m/s)
maximum range (full tanks)	1200 (km)

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 Standard equipment

Airframe:

Shell-like fuselage design, made of resin composites and reinforced with glass and carbon fiber. Fin is the integral part of the fuselage. Two-seat cockpit is situated in front of the fuselage, seats are located side by side. Behind the cockpit, there is room for mounting parachute rescue system. Wind shield is made of 3mm Plexiglas. Doors frames made of carbon reinforced composite, filled with Plexiglas sheet. The wing has also shell-like structure that is made of glass and carbon reinforced composite with a load bearing spar, made of carbon reinforced composite. The wings are mounted on the fuselage by means of four bolts. The wing is equipped with ailerons and flaps made of carbon reinforced resin. Flaps and ailerons are fixed to the wing with brackets. Ailerons tips are equipped with mass balancing elements. Both tail plane and rudder have shell-like structure, made of glass and carbon reinforced composite. Three axis landing gear with the front wheel coupled with rudder. Front landing gear made of steel and equipped with rubber shock absorbers. Main wheels mounted on glass reinforced composite legs. Wheel axis made of steel. Hydraulic disc brakes located on the main wheels. All tires of the same type and dimension - 350 mm. Both front and main wheels covered with spats.

Cockpit equipment:

Two seats of shell-like structure made of glass and carbon reinforced composite (colour of upholstery to be agreed). Two sets of seat belts. Side air inlets in both doors. Cockpit heating.

Control system:

Control system made of rods and torque pipes. Elevator and aileron controlled with control stick, located in the middle of the cockpit, between the seats. Rudder is controlled by two sets of pedals (in front of both seats). Flaps and elevator trimmer are controlled by two sets of electric buttons situated on the control stick. Brakes are operated by means of lever mounted on the control stick. Two coupled throttle lever located on both sides of the cockpit. choke lever mounted on the left side of dashboard.

Power plant:

ROTAX 912 UL engine is fixed on rubber dampers to stainless steel frame that is fixed to the fuselage. The engine is equipped with ground adjusted, three-blade Aero-Sail propeller of 1,72 m diameter. Engine cowling made of carbon composite mounted with Cam-lock clamps to the fuselage. Automatic control of engine temperature. Carburetors air inlets heating system

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Fuel system:

Fuel system consists of two connected tanks of total capacity 70l that are mounted in the cockpit, behind the seats. System equipped with fuel filter and sedimentation tank. Fuel ducts made of rubber.

Wiring system:

Electric equipment:

- engine starter
- ignition system
- flaps and trimmer drive engines
- engine parameters indicators
- fuel gauge
- electric fuel pump

Power source:

- battery
- alternator

Switches in cockpit:

- master switch
- ignition switch
- 2 ignition switches
- flaps control buttons
- trimmer control buttons

Flying instruments:

- speedometer
- altimeter
- variometer
- bank indicator
- compass
- static and dynamic pressure indicators
- flaps indicators
- trimmer indicator

Power plant indicators:

- tachmeter
- coolant temperature L and R
- charging voltage indicator
- fuel gauge
- fuel pressure indicator
- hour meter