

Prezes Urzędu Lotnictwa Cywilnego
President of the Civil Aviation Authority

ŚWIADECTWO UZNANIA ZATWIERDZENIA TYPU
Type Approval Recognition Certificate

NUMER: UL.A.00 – 003/2022
Reference:

Niniejsze świadectwo uznania zatwierdzenia typu zaświadcza, że określony typ/model ultralightowego statku powietrznego został uznany za akceptowalny w Rzeczypospolitej Polskiej zgodnie z obowiązującymi przepisami polskiego lotnictwa cywilnego i pozostaje w mocy przez czas nieokreślony, chyba że zatwierdzenie zostanie zrzeczone, zawieszono lub cofnięte oraz że został wpisany na listę typów zatwierdzonych prowadzoną przez Prezesa Urzędu Lotnictwa Cywilnego, o której mowa w przepisach wydanych na podstawie art. 33 ust. 2 i 4 ustawy – Prawo lotnicze (Dz.U. z 2022 r. poz. 1235, 1715, 1846 i 2185).

This Type Approval Recognition Certificate certifies that the ultralight aircraft type/model specified has been found acceptable in Republic of Poland in accordance with the applicable Polish Civil Aviation regulations and shall remain as such for an unlimited duration unless the approval is surrendered, suspended or revoked and has been entered on the list of approved flying device types managed by the President of the Civil Aviation Authority, referred to in the regulations issued on the basis of Art. 33 para 2 and 4 of the Aviation Law Act dated July 3rd, 2002 (JL. 2022, item 1235, 1715, 1846 and 2185).

Państwo projektu
State of Design

Czech Republic

Państwo produkcji
State of Manufacture

Czech and Slovak Republic

Posiadacz zatwierdzenia typu
Type Approval Holder

SHARK.AERO 600 s.r.o.
Konviktska 291/24, 110 00 Praha 1, Czech Republic

Wytwórca
Manufacturer

SHARK.AERO s.r.o.

Oznaczenie typu produktu
Product Type Designation

SHARK 600

Numer zatwierdzenia typu
Type Approval Number

ULL 04/2022

Arkusze danych do zatwierdzenia typu
Type Certificate Data Sheet

ULL 04/2022

Przyjęte wymagania techniczne
Type Certification Basis

UL 2 – Part I, issue I 2019

Uwagi
Remarks

Approved by the Technical Committee of LAA Czech Republic
on 19.04.2022

EZD ref. LTT-4.5460.3.2022

Z upoważnienia Prezesa Urzędu Lotnictwa Cywilnego
On behalf of President of the Civil Aviation Authority

Marcin Perkowski

Zastępca Dyrektora Departamentu Techniki Lotniczej
Deputy Director, Aviation Technical Department

(pismo zostało wydane w postaci elektronicznej
i opatrzone kwalifikowanym podpisem elektronicznym)

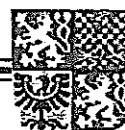
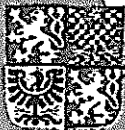
*(the letter was published in electronic form
and signed with a qualified electronic signature)*

Data pierwszego wydania: 22.12.2022

Date of original issue:

Data ostatniej zmiany: --

Date of last revision:



Letecká amatérská asociace ČR – Light Aircraft Association of the Czech Republic

Type Certificate

Issued by the Light Aircraft Association of the Czech Republic (hereinafter LAACR), based on the delegation by the Ministry of Transport to perform the state administration in the matters of sports flying equipment in accordance with the Section 82, Subsection 1 of Act No. 49/1997 Coll. On civil aviation and amending and supplementing Act No. 455/1991 Coll. On Trade Licensing (The Trade Licensing Act), as amended by later regulations of the Ministry of Transport

Aircraft type designation:

Two-seat, single-engine, aerodynamically controlled, all-composite, low flying aircraft – Sport Flying Equipment.

Type designation: **SHARK 600**

Maximum take off mass 600 kg including the ballistic recovery parachute.
Detailed technical specification is stated in the Data Sheet.

Type certificate holder:

SHARK.AERO 600, s.r.o.
Konviktská 291/24
110 00, Praha 1
Czech Republic

ID: 14264994

Approved by the LAA CR Technical commission on:

19 th April 2022

The Type certificate is registered at the LAA CR under the reference:

ULL 04 / 2022

Letecká amatérská asociace ČR
Ke Kably, 289
02 00 Praha 10
TEL. 242 403 587

LAA CR Chief Technical Inspector:

ing. Petr Tax



Type certificate number:	ULL – 04 / 2022
Type certificate holder:	SHARK.AERO 600
Type SLZ:	SHARK 600
Date of issuance:	19th April 2022

Type certificate annex no. ULL - 04 / 2022

I. Generally

1. Type designation: **SHARK 600**
2. Category: Light sport aircraft, microlight aerodynamically controlled aircraft
3. Type certificate holder: Shark.AERO 600, s.r.o.
Konviktská 291/24
110 00, Praha 1
Czech Republic

ID: 14264994
5. Application date: 29th October 2019
6. Approval date: 19th April 2022

II. Certification specification

1. Airworthiness requirements: UL2 – část I. vydání 1. 2019. Ultralehké letouny řízené aerodynamicky, upravené znění ze dne 27.3.2019.
2. Special conditions: N/A
3. Exceptions: N/A



III. Technical data, performance, operation limitation

1. Type definition: Aircraft type is defined by set of drawings and Type definition.

2. Description:

The SHARK 600 is a composite low-wing aircraft with a tandem seat arrangement and three-wheel retractable landing gear designed for fast travel. The aircraft is equipped with a 100HP Rotax 912 ULS engine.

The airframe is made of glass and carbon composite with sandwich panels filled with PVC foam or aramid honeycomb. The fuselage is constructed as a single piece with an integrated fin, interior shells, dashboard, and includes a centroplane into which the main landing gear wheels retract.

The composite wing has a carbon main spar and an auxiliary spar supporting the aileron and single-slot flap attachment. The wings and stabilizer are removable.

Primary control is mechanical, the elevator trim and flaps are driven by electromechanical struts.

The three-wheel retractable landing gear is equipped with a steerable 11x4" nose wheel and 14x4" main wheels with hydraulic disc brakes.

Landing gear legs are welded from steel tubes and sheets. Suspension and damping is provided by a composite spring on the front leg and an EFFBE shock absorber on the main leg.

3. Equipment: For technical airworthiness approval of light sport aircraft issue, basic equipment according certification specification listed in chapter II must be installed.

4. Basic technical data:

1. Dimensions

Span	7,90 m
Length	6,85 m
High	2,50 m

Wing

Area	9,5 m ²
MAC	1,237 m
Profil	JS20-JS80
Aspect ratio	6,671
Wing loading at MTOM 600kg	63,5 kg/m ²



Aileron

Aileron length	1,170 m
Area	0,281 m ²
Aileron deflection (up/down)	30 ⁰ /15 ⁰

Wing trailing edge flap

Flap length	2,366 m
Area	0,922 m ²
Flap deflection - cruise	0 ⁰
Flap deflection – take-off	20 ⁰
Flap deflection – approach, landing	30 ⁰ , 38 ⁰

Horizontal stabilizer

Span	2,94 m
Area	2,154 m ²
Elevator area	0,662 m ²
Elevator deflection (up/down)	26 ⁰ / 16 ⁰

Vertical fin

Area	1,062 m ²
Rudder area	0,335 m ²
Rudder deflection	+/- 30 ⁰

Undercarriage

Main undercarriage wheelbase	1,694 m
Main and front undercarriage wheelbase	1,488 m
Main and front wheel dimensions	14x4, 11x4
Main undercarriage tire pressure	3 bar
Front undercarriage tire pressure	3 bar
Brakes	Hydraulic disc brakes
Main undercarriage suspension	elastomer spring
Front undercarriage suspension	composite spring

2. Mass

Max. take-off mass	600 kg
Max. take-off mass with emergency parachute system	600 kg
Max. useful load	270 kg
Min. crew mass	55 kg
Max. baggage mass	25 kg
Wing fuel tanks	2x50 l or 2x75 l
Standard Empty mass including emergency parachute system	374 kg



3. Airspeed and performance

Motor ROTAX 912 ULS (73,5 kW / 100 HP), propeller WOODCOMP SR3000 2WN and propeller WOODCOMP KW20W

Performance in ISA conditions.	Take-off mass 600 kg Airspeed CAS
Stall speed flaps extended V_{SO}	68 km/h
Stall speed flaps retracted V_{SI}	87 km/h
Max. speed – flaps extended (30°) V_{FE}	140 km/h
Design airspeed V_A	185 km/h
Max. horizontal flight airspeed V_H	300 km/h
Never exceed speed V_{NE}	333 km/h
Take-off length 15 m obstacle, grass - concrete	405 - 395 m
Rate of climb	6,2 m/s at 150 km/h
Rough airspeed V_{RA}	270 km/h

Motor ROTAX 912 ULS (73.5 kW / 100 HP), propeller Neuform TXR2-V-70

Performance in ISA conditions.	Take-off mass 600 kg Airspeed CAS
Stall speed flaps extended V_{SO}	68 km/h
Stall speed flaps retracted V_{SI}	87 km/h
Max. speed – flaps extended (30°) V_{FE}	140 km/h
Design airspeed V_A	185 km/h
Max. horizontal flight airspeed V_H	300 km/h
Never exceed speed V_{NE}	333 km/h
Take-off length 15 m obstacle, grass - concrete	430 - 410 m
Rate of climb	5,2 m/s at 150 km/h
Rough airspeed V_{RA}	270 km/h

4. CG position range

Limit front CG position: 17,5 % MAC

Limit aft CG position: 31,5 % MAC

The Datum is located at the leading edge of the wing at the root rib. MAC offset is 114mm. Mean aerodynamic chord length MAC=1,237m.

5. Flight load factors

Maximal positive / negative +4,0 / -2,0.

6. Power-plant

Rotax 912 ULS.

Maximal take-off power 84,5 kW/ 5800 min⁻¹ (max duration 5 min).

Maximal continuous power 68,5 kW/ 5500 min⁻¹.



7. Propellers

Adjustable electric double-bladed in flight NEUFORM TXR2-V-70.

Adjustable electric double-bladed in flight Woodcomp SR3000 2WN.

Adjustable hydraulic double-bladed in flight Woodcomp KW-20W.

8. Fuel

EUROSUPER RON 95 unleaded according DIN 51607,Ö- NORM 1100 AVGAS 100 LL.
BA 95 Natural recommended in Czech republic.

9. Oil

Oil specification API SF(SG) or higher, designated for 4-stroke motorcycles
(with gear lubrication additives).

10. Rescue parachute system

Magnum 601 installed according Stratos company standards.

IV. Operation and maintenance documents:

- Flight and maintenance manual together with appendix of optional equipment.
- Operation manual ROTAX 912.
- Propeller technical description and operation manual.
- Operation manual Magnum 601.



V. Annex:

Control surfaces deflection tolerances

ELEVATOR	up	$26^{\circ} + 1,5^{\circ}$
	down	$16^{\circ} + 1,5^{\circ}$

Elev. TRIM	up	$15^{\circ} + 1,5^{\circ}$
	neutral	$-6^{\circ} \pm 2^{\circ}$
	down	$-30^{\circ} \pm 2^{\circ}$

RUDDER	left	$35^{\circ} \pm 2^{\circ}$
	right	$35^{\circ} \pm 2^{\circ}$

AILERONS	neutral	0°
	up	$21^{\circ} \pm 1^{\circ}$
	down	$14^{\circ} \pm 1^{\circ}$

FLAPS			
	RETRACTED	0	0°
	TAKE-OFF	I	$20^{\circ} \pm 1^{\circ}$
	LANDING	II	$30^{\circ} \pm 1^{\circ}$
	LANDING	III	$38^{\circ} + 2^{\circ}$

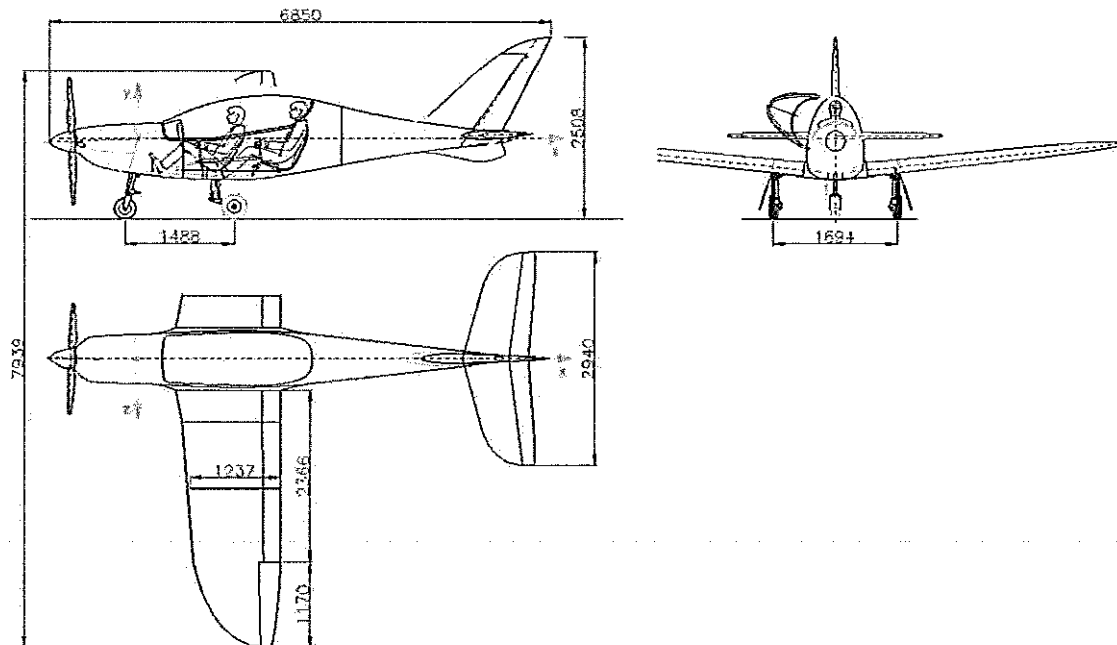
Notes:

1. Each aircraft must be equipped with actual weight and balance protocol with equipment list to issue airworthiness technical approval
2. Aircraft must be equipped with placards listed in flight manual

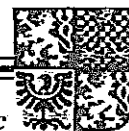
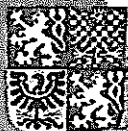
VI. Appendix:

3-view SHARK 600 aircraft drawing according type definition ULL 04/2022.

3-view SHARK 600 aircraft drawing according ULL 04/2022.



-End-



Letecká amatérská asociace ČR – Light Aircraft Association of the Czech Republic

Typový průkaz

Vydává Letecká amatérská asociace České republiky pověřená k výkonu státní správy ve věcech sportovních létajících zařízení v souladu s ustanovením § 82 odst. 1 zákona č. 49/1997 Sb. o civilním letectví a o změně a doplnění zákona č. 455/1991 Sb., o živnostenském podnikání (živnostenský zákon), ve znění pozdějších předpisů, ve znění pozdějších předpisů Ministerstvem dopravy.

Označení typu letecké techniky:

Dvoumístný, jednomotorový, aerodynamicky řízený ultralehký dolnoplošník celokompozitové konstrukce – Sportovní létající zařízení.

Typové označení: **Shark 600**

Maximální vzletová hmotnost 600 kg včetně ZS.
Podrobné technické specifikace jsou uvedeny v příloze.

Držitel typového průkazu:

Shark.Aero 600, s.r.o.
Konviktská 291/24
110 00, Praha 1
Česká republika

IČO: 14264994

Schváleno technickou komisí LAA ČR dne:

19. 4. 2022

Typový průkaz je zaregistrován u LAA ČR pod značkou:

ULL 04 / 2022

Letecká amatérská asociace ČR
Ke Kابلu 289
102 00 Praha 10
TEL / 242 493 587

Hlavní inspektor techniky LAA ČR:

ing. Petr Tax