RZECZPOSPOLITA POLSKA
REPUBLIC of POLAND

Urząd Lotnictwa Cywilnego

Prezes Urzędu Lotnictwa Cywilnego
President of the Civil Aviation Authority

ŚWIADECTWO UZNANIA ZATWIERDZENIA TYPU
Type Approval Recognition Certificate

NUMER: *Reference:* **UL.A.00 – 006/2023**

Niniejsze świadectwo uznania zatwierdzenia typu zaświadcza, że określony typ/model ultralekkiego 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, zawieszone 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, 2185 i 2642).

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, 2185 and 2642).

Państwo projektu *State of Design*	**Czech Republic**
Państwo produkcji *State of Manufacture*	**Czech Republic**
Posiadacz zatwierdzenia typu *Type Approval Holder*	**TL ULTRALIGHT s.r.o.** **Letiste 515, Pouchov, 503 41 Hradec Kralove, Czech Republic**
Wytwórca *Manufacturer*	**TL ULTRALIGHT s.r.o.** **Letiste 515, Pouchov, 503 41 Hradec Kralove, Czech Republic**
Oznaczenie typu produktu *Product Type Designation*	**TL Stream**
Numer zatwierdzenia typu *Type Approval Number*	**ULL 05/2020**
Arkusz danych do zatwierdzenia typu *Type Certificate Data Sheet*	**ULL 05/2020**
Przyjęte wymagania techniczne *Type Certification Basis*	**UL 2 – Part I, issue I 2019**
Uwagi *Remarks*	Approved by LAA CR the Technical Commission on: Supplement "a": 14.06.2021 EZD ref. LTT-4.5460.2.2023

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 Departament
(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: **20.02.2023**
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 LAA CR), based on the delegation by the Ministry of Transport to perform the state administration in the matters of sports flying equipmentin 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-compozite low wing, aircraft– Sport Flying Equipment.

Type designation: **Stream**

Maximum take off mass 600 kg including the ballistic recovery parachute.
Detailed technical specification is stated in the Data Sheet.
Supplement a) PowerMax propeller installation

Type certificate holder:

TL Ultralight s.r.o.
Letiště 515, Pouchov
503 41 Hradec Králové
Czech Republic

Approved by the LAA CR Technical commission on:

8. October 2020

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

ULL 05 / 2020
Supplement a) 14.06.2021

TECHNICKÁ INSPEKCE LAA ČR Č.07 - UA -

LAA CR Chief Technical Inspector: *ing. Petr Tax*

Type certificate no.:	**ULL – 05 / 2020**
Type certificate holder:	TL ULTRALIGHT s.r.o.
Typ of aircraft:	**Stream**
Date of issue:	8.10.2020
Supplement a)	14.06.2021

TYPE CERTIFICATE ATTACHEMENT no. ULL - 05 / 2020

I.Generaly

1. Indication type: **Stream**
2. Category: Sport aircraft, aerodynamicly controlled ultralight aircraft
3. Type certificate holder: **TL-ULTRALIGHT s.r.o.**
   Letiště 515, Pouchov
   503 41 Hradec Králové
   Czech Republic
   IČO: 25949659, DIČ: CZ25949659
4. Manufacturer: same as certificate holder
5. Date of application: 3.10.2017
6. Date of approval: 8.10.2020

II. Regulation base

Airworthiness requirements according to UL2 – part I. issue 1. 2019. aerodynamicly controlled ultralight aircraft, review from 27.3.2019.

1. Special conditions: none
2. Exceptions: none

III. Technical datas, performance and operational limits

1. Type of definition: Type is defined by drawing documentation and by Aircraft Type data sheet.

2. Description: Stream is two seater, full composite low wing aircraft with tandem seating. The aircraft construction is an all-composite, mostly sandwich, a carbon composite combined with aramid fiber. The fuselage is created as a clean laminate sandwich monocoque with bulkheads. There is a two-seater pilot cockpit. The front luggage compartment is located in front of the pilot cockpit. There is a double steering (sidestick). Behind the seats there is a rear luggage compartment and space for a parachute and a rocket rescue system. A fuel tank is located in the central part of the fuselage airframe. The wing is all-composite construction created as a beam sandwich shell with a root rib. Attachment to the fuselage is made using semi-cantilever beams of the main wing spar and a simple hinge on the rear beam. The wing is equipped with ailerons and a slotted Fowler flap. The tail surfaces are of a classic arrangement. The vertical fin is part of the fuselage shell. The rudder is a composite shell with a spar. The horizontal tail stabilizer is an undivided all-composite shell with a pair of spars, main pins and auxiliary fittings. The elevators are divided into halves and are again designed as composite shells. Both halves of the elevator are equipped with longitudinal trim tabs at the trailing edges. The landing gear is a fully retractable and nose wheel arrangement. The steering is a combination of cables and tubes. The basic type of engine is the Rotax 912 ULS installed on the engine mount formed by a steel rebar weldment. An in- flight adjustable propeller is installed on the engine.

3. Equipment: In order to issue the aircraft airworthiness certificate, the basic equipment corresponding to the airworthiness requirements specified in Chapter II regulatory base shall be installed on each aircraft manufactured.

4. Basic Technical datas:

1. Dimensions

Basic dimensions	
Wing span	9,00 m
Length	6,79 m
Height	2,48 m

Wing

Wing area	9,962 m^2
Depth of root profile	1,8 m
Depth of wing tip profile	0,7 m
Aspect ratio	8,131
Wing loading MTOM 600kg	60,23 kg/m^2

Aileron

Aileron area	0,225 m^2
Aileron deflection (up/down)	14 ^{0} / 8 ^{0}

Flap

Flap area	0,602 m^2
Flap deflection – flight	0 ^{0}
Flap deflection – take off	10 ^{0}
Flap deflection - landing	32 ^{0}

Elevator

Span	2,96 m
Area	1,776 m^2
Deflection (up/down)	22,5^0 / 17,5^0

Rudder

Area	0,995 m^2
Rudder deflection	+/- 30^0

Undercarraige

Track of main wheels	1,863 m
Wheel base	1,845 m
Main and nose gear dimension	355 x 135 / 280 x 100 mm
Main wheel tire pressure	2,5 bar
Nose wheel tire pressure	2,5 bar
Brakes	Hydraulic disk brake
Suspension of the main gear	shock absorbers made of polyurethane blocks
Suspension of the nose gear	Steel spring

2. Weights

Max. take-off weight	600 kg
Max. take-off weight with rescue system installed	600 kg
Max. pay load	250 kg
Min. crew weight	60 kg
Max. luggage weight	25 kg
Fuel tank in the fuselage	90 l
Empty weight max. including rescue system	381 kg

3. Speeds and performance

Measured for engine ..... ROTAX 912 ULS (73,5 kW / 100 HP).

The stated performances are intended for the aircraft under ISA conditions.	MTOM 600 kg Speeds CAS	
	Propeller DuoMax	Propeller PowerMax
Stall speed with flaps extended V_{SO}	83 km/h	
Stall speed with flaps retracted V_{S1}	106 km/h	
Max. speed with retracted flaps (32°) V_{FE}	120 km/h	
Design maneuvering speed V_A	188 km/h	
Max. speed in level flight with maximum continuos power V_H	264 km/h	252 km/h
Never exceed speed V_{NE}	335 km/h	
Takeoff distance over 15 m obstacle	370 m	345 m
Climb	4,1 m/s while 160 km/h IAS	4,35 m/s while 160 km/h IAS
Maximum speed in turbulence V_{RA}	250 km/h	

4. C.G. range

Maximum front operating c.g. (undercarriage extended): 15 % MAC
Maximum rear operating c.g. (undercarriage extended): 34,5 % MAC
Maximum front operating c.g. (undercarriage retracted): 15 % MAC
Maximum rear operating c.g. (undercarriage retracted): 35 % MAC

The reference datum plane is the leading edge of the wing at the point of division of the wing - fuselage. Mean aerodynamic chord - depth of the mean aerodynamic chord MAC = 1,199 m, displacement 0.062 m from the reference datum plane.

Operating load factors

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

5. Engine

Rotax 912 ULS Maximum power 73,5 kW/ 5800 min-1 (for the time of 5 min.).
Maximum continuous performance 69 kW/5500 min-1.

6. Propeller

2-bladed in flight adjustable DuoMax (TL Ultralight), 3-bladed in flight adjustable PowerMax (TL Ultralight)

7. Fuel

EUROSUPER RON 95 lead-free according to DIN 51607, Ö- NORM 1100 AVGAS 100 LL.
BA 95 Natural petrol is recommended for the Czech Republic.

8. Oil

Oil of classification API SF (SG) or higher, intended for 4-stroke motorcycles (with additives for gear lubrication).

9. Rescue system

Magnum 601 with an approved installation supplied by Stratos 07 s.r.o.

IV. Documents for operation and maintenance:

- Flight and operations manual, aircraft maintenance manual (maitenance manual) + additions resulting from the installation of optional equipment.
- Instructions for use of the ROTAX 912 series engine.
- Technical description and operating instructions for the propeller.
- Technical description and operating instructions for the built-in rescue system.

V. Accessories:

Supplement a) Instalation of in-flight adjustable propellers PowerMax

Notes:

1. Each aircraft presented for the issue of a Technical certificate must be equipped with an up-to-date Protocol on weighing and center of gravity containing a list of equipment included in the empty aircraft mass.
2. The aircraft must be equipped with the inscriptions and labels specified in the Flight Manual.

VI. Enclosures:

• Three-view drawing of the Stream aircraft according to the ULL 05/2020 type certificate.

- END -

Three-view drawing of the Stream aircraft according to ULL 05/2020