RZECZPOSPOLITA POLSKA
REPUBLIC of POLAND

Urząd Lotnictwa Cywilnego
2002-2022

Prezes Urzędu Lotnictwa Cywilnego
President of the Civil Aviation Authority

ŚWIADECTWO UZNANIA ZATWIERDZENIA TYPU
Type Approval Recognition Certificate

NUMER: **UL.A.00 – 001/2022**
Reference:

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 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 Republic**
Posiadacz zatwierdzenia typu *Type Approval Holder*	**BRM AERO, s.r.o.** **Letecka 255, 686 04 Kunovice, Czech Republic**
Oznaczenie typu produktu Product Type Designation	**BRISTELL LSA**
Numer zatwierdzenia typu *Type Approval Number*	**ULL 06/2019**
Arkusz danych do zatwierdzenia typu *Type Certificate Data Sheet*	**ULL 06/2019**
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 30.10.2019, supplement "a" / 17.09.2021 EZD ref. LTT-4.5460.1.2022.ULC.2

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: **15.12.2022**
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, authorized by the Czech Ministry of Transport to perform state administration regarding sport flying equipments in accordance with § 82 sect. 1 of the Law no. 49/1997 Collection of Laws, On Civil Aviation and on a change and ammendment of the Law no. 455/1991 Collection of Laws, On Trade Business (Trade law), and subsequent ammendments.

Aeronautical Product Type Designation:
Two-seat, single-engine, aerodynamically controlled ultralight low-wing aircraft of all-metal construction – Sport Flying Equipment

Type designation: **BRISTELL LSA**

Maximum take-off weight 600 kg including ballistic recovery parachute.
Detailed technical specification is shown in the Data Sheet.
Supplement „a": ROTAX 914 UL engine

Type Certificate Holder:

BRM AERO, s.r.o.
Letecká 255
686 04 Kunovice
Czech Republic

Approved by the Technical Committee of LAA Czech Republic on:
30.10.2019

Supplement „a" / 17.9.2021

Type Certificate is registered at LAA Czech Republic under ref.no.:

ULL 06 / 2019

Letecká amatérská asociace ČR
Ke Kablu 289
102 00 Praha 10
TEL.: 242 403 587

The Chief Technical Inspector of LAA CR: **Ing. Petr Tax**

Letecká amatérská asociace ČR
Ke Kablu 289
102 00 Praha 10
TEL.: 242 403 587

CZECH REPUBLIC

Type certificate number:	**ULL 06 / 2019**
Type Certificate holder:	**BRM AERO, s.r.o.** Letecka 255 686 04 Kunovice Czech Republic
Aircraft type:	**BRISTELL LSA**
Date of Data Sheet issue:	1.11.2019
Supplement "a" :	ROTAX 914
Supplement "a" date of issue:	17.9.2021

TYPE CERTIFICATE DATA SHEET No. ULL 06 / 2019

I. GENERAL

1. Type designation:	**BRISTELL LSA**
2. Category:	Sport Flying Equipment, Ultralight aircraft aerodynamically controlled
3. Type certificate holder:	BRM AERO, s.r.o. Letecka 255 686 04 Kunovice Czech Republic
4. Producer:	BRM AERO, s.r.o.
5. Date of Application:	16.09.2019
6. Date of approval:	30.10.2019 Supplement "a" : 17.9.2021

II. REGULATORY BASIS

1. Airworthiness requirements: UL 2 – Part I, issue I. 2019, Airworthiness Requirements UL Aircraft Three Axes Standard Control Ultra-Light Aircraft.
2. Special conditions: None
3. Exceptions: None

III. TECHNICAL DATA, PERFORMANCE AND OPERATING LIMITATIONS

1. Type designation: **BRISTELL**

   Model: **BRISTELL LSA**
   Wing span: 9.13 m, fixed 3-wheel landing gear
   with steerable nose wheel.
   The type/model is defined by the Type design dated 25.09.2010 and by drawings NG5, NG5W, NG5F, NG5T and NG5C dated 25.7.2011.
   The details are provided in Type design of the airplane.

CZECH REPUBLIC

Model: **BRISTELL LSA-K**
Wing span: 8.13 m, fixed 3-wheel landing gear with steerable nose wheel. Wing span 8.13 m corresponding to the wing span of BRISTELL UL is marked as „HD" (High durability) and is defined by the schematic drawing NG5W_HD, from 21.3.2018.
The wing Main spar is defined by the drawing NG5W_01_01_HD, the Auxiliary spar by NGW_01_02_U.
The wing „HD" design is based on wing of 9.13 m span.
The wing „HD"can be used both for model with the nose wheel (BRISTELL LSA-K) as well as with the tail wheel landing gear (BRISTELL LSA-K TDO).

Model: **BRISTELL LSA TDO,**
BRISTELL LSA-K TDO
Model with a tail wheel landing gear.
The models are marked based on the wing span as follows:
BRISTELL LSA TDO - wing span 9.13 m
BRISTELL LSA-K TDO – wing span 8.13 m (wing „HD")
The type/model is defined by the Type design, Document No: ULTDO-REP-2-1-0-CZ-001/2016.

2. Description:

BRISTELL LSA (all models) is two-seat, single-engine, cantilever low-wing aeroplane with side-by-side seat arrangement.
The aeroplane is of all-metal construction made from thin aluminium alloy sheets. The canopy frame, surface tips, engine cowlings, wheel pants, instrument panel, interior panels, and main legs are laminated.
The wing is of a trapezoid shape with a main and an auxiliary spar, and fitted with a slotted wing flap.
There are wing integral fuel tanks located in the wing root nose section.
The tail unit has classic arrangement with the Horizontal tail unit at fuselage longitudinal axis.
The landing gear of BRISTELL LSA and BRISTELL LSA-K models is fixed, tricycle with a steerable nose.
The landing gear of BRISTELL LSA TDO and LSA-K TDO is classic with a castoring tail wheel.
The main wheels are equipped with the hydraulic disc brakes.

3. Equipment:

To issue a Technical Airworthiness Certificate each produced aircraft must be equipped with a minimum required equipment in accordance with the airworthiness requirements set out in Chapter II.Regulatory basis.

4. Basic technical data:

Wing span (based on model, see Wing)... 9.13 m or 8.13 m
Length..... 6.45 m
Height ..... 2.28 m

Wing
Wing span
BRISTELL LSA, LSA TDO ..... 9.13 m
BRISTELL LSA-K, LSA-K TDO ..... 8.13 m

Wing area
BRISTELL LSA, LSA TDO ..... 11.75 m^2
BRISTELL LSA-K, LSA-K TDO ..... 10.8 m^2
Used wing aerofoil ..... MS 316/314

Mean aerodynamic chord
BRISTELL LSA, LSA TDO .....1.3497 m
BRISTELL LSA-K, LSA-K TDO .....1.3745 m
Note: MAC updated acc.to Safety Directive
ALL-SA-0-0-0-0-001-2020 issued on 7.8.2020.

Aspect ratio
BRISTELL LSA, LSA TDO 6.59
BRISTELL LSA-K, LSA-K TDO 6.29

Wing loading at Max.takeoff weight 600 kg
BRISTELL LSA, LSA TDO ..... 51.06 kg/m^2
BRISTELL LSA-K, LSA-K TDO ..... 57.14 kg/m^2

Aileron span
BRISTELL LSA, LSA TDO ..... 1.145 m
BRISTELL LSA-K, LSA-K TDO ..... 0.967 m

Aileron area
BRISTELL LSA, LSA TDO ..... 0.29 m^2
BRISTELL LSA-K, LSA-K TDO ..... 0.25 m^2

Aileron deflections
Up..... 24 °
Down ..... 16 °

Flap span
BRISTELL LSA, LSA TDO ..... 2.3 m
BRISTELL LSA-K, LSA-K TDO ..... 1.94 m

Flap area (1 flap)
BRISTELL LSA, LSA TDO ..... 0.828 m^2
BRISTELL LSA-K, LSA-K TDO ..... 0.728 m^2

CZECH REPUBLIC

Flap deflections
Take-off..... 10 °
Landing..... 20,30 °

HORIZONTAL TAIL UNIT (HTU)
HTU span
BRISTELL LSA, LSA-K..... 2,9 m
BRISTELL LSA TDO, LSA-K TDO..... 2.6 m

HTU area
BRISTELL LSA, LSA-K..... 2.159 m^2
BRISTELL LSA TDO, LSA-K TDO..... 1.983 m^2

Elevator deflections
Up..... 30 °
Down..... 15 °

VERTICAL TAIL UNIT (VTU)
Height..... 1.09 m
Area..... 0.907 m^2
Rudder deflections..... +/- 30°

LANDING GEAR
Main wheels track..... 1.88 m
Wheel base
BRISTELL LSA, LSA-K..... 1.43 m
BRISTELL LSA TDO, LSA-K TDO..... 3.98 m

Wheel size
Main wheels..... 5,00-5, possibly
..... 4,00-6, 6,00-6
Nose wheel
BRISTELL LSA, LSA-K.....11x4-5, possibly
..... 5,00-5, 4,00-6
..... 6,00-6
Tail wheel
BRISTELL LSA, LSA-K TDO.....200 x 50

Tyre pressure
Man wheels..... 2.2 bar
Nose wheel..... 1.5 bar
Tail wheel..... 0.5 bar

Brakes..... disc, hydraulic
Manufacturer..... MATCO
..... BERINGER

Main gear suspension	tyres
.....	composite legs
Nose gear suspension	hydro-pneumatic
.....	shock absorber, or
.....	compression spring
Tailwheel suspension	
BRISTELL LSA TDO, LSA-K TDO	leaf spring

ENGINES

.....	Rotax 912 UL
.....	Rotax 912 ULS
.....	Rotax 912 iS/ iS Sport
Supplement "a"	ROTAX 914 UL

5. Weights:

Maximum Take-off Weight	600	kg
Empty weight in the basic configuration with Rotax 912 UL engine without rescue system.....	330	kg
Maximum empty weight	381	kg
Empty weight in the basic configuration with Rotax 912 iS Sport without rescue system.....	340	kg
Supplement "a": Empty weight ..... In basic configuration, with Rotax 914 UL engine, without parachute rescue system.	346	kg
Maximum useful load	270	kg
Minimum crew weight.....	55	kg
Maximum baggage weight	15	kg (behind the seats)
.....	40	kg (wing lockers)
Fuel tank volume.....	2 x 60	l
together	120	l

6. Speed and performances:

Performance under ISA conditions:
Engine: ROTAX 912 ULS (73.5 kW / 100 hp)
Propeller: FITI 3LR 158, 3 blade, ground adjustable 1580 mm diam.

Take-off weight 600 kg	BRISTELL LSA BRISTELL LSA TDO Wing span 9.13 m	BRISTELL LSA-K BRISTELL LSA-K TDO Wing span 8.13 m
Flight speed **CAS**:		
Stall speed with flaps fully extended V_{SO}	62.0 km/h	71,0 km/h
Stall speed with retracted flaps V_{S1}	80,0 km/h	83,0 km/h
Maximum speed with extended flaps V_{FE}	139 km/h	139 km/h
Design manoeuvring speed V_A	180 km/h	180 km/h
Maximum horizontal speed V_H	212 km/h	215 km/h
Never exceeded speed V_{NE}	270 km/h (290 km/h IAS)	270 km/h (290 km/h IAS)
Take-off distance over 15 m obstacle	418 m	418 m
Maximum vertical speed	3.7 m/sec at 120 km/h	3,5 m/sec at 120 km/h

7. Range of centre of gravity:

Limit forward operational centre of gravity... 25 % MAC
Limit aft operational centre of gravity..... 35 % MAC
Datum: Firewall (in accordance with Safety Directive ALL-SA-0-0-0-0-001-2020 issued on 7.8.2020

Mean Aerodynamic Chord MAC:
for wing span 9.13 m..... 1.350 m
for wing span 8.13 m..... 1.367 m
Beginning of MAC is on the ref. plane – wing leading edge

8. Load factors — Maximum positive/negative..... +4.0 / -2.0

9. Engine: Rotax 912 UL or Rotax 912 ULS or Rotax 912 iS/iS Sport

Engine operating limitations:

Rotax 912 ULS, Rotax 912 iS / iS Sport:
Max. take-off power ..... 73.5 kW / 5800 rpm (max.5 min.)
Max. continuous power ..... 69 kW / 5500 rpm

Rotax 912 UL
Max. take-off power ..... 59.6 kW / 5800 rpm (max.5 min.)
Max. continuous power ..... 58 kW / 5500 rpm

10. Propeller and its limitations:	Type: FITI ECO COMPETITION 3LR 158 Producer: FITI design s.r.o., Czech Republic Description: ground adjustable, composite, 3 blade Diameter: 1580 mm. Type: FITI ECO COMPETITION 3LRSE 158, 170 Producer: FITI design s.r.o., Czech Republic Description: in-flight adjustable, composite, 3 blade Diameter: 1580, 1700 mm Type: MTV-34-1-A/175-200 Producer: MT-Propeller Entwicklung GmbH, Germany Description: in-flight hydraulically adjustable,wooden-composite, 3 blade Diameter: 1750 mm Type: HO-703F-H/165NI Producer: Hoffmann Propeller GmbH, Germany Description: in-flight hydraulically adjustable, wooden-composite, 3 blade Diameter: 1650 mm Type: SR 3000c Producer: Woodcomp, s.r.o. Description: in-flight adjustable, wooden, 3 blade Diameter: 1680 mm Type: Neuform CR3-V-70-R2 Producer: Neuform Composites Gmbh Co. KG, Germany Description: in-flight adjustable, composite, 3 bladed, constant speed module Diameter: 1700 mm Type: DUC Flashblack Producer: DUC Hélices Propellers, Francie Description: in-flight adjustable, composite, 3 blade Diameter: 1520 to 1900 mm.
11. Fuel:	EUROSUPER RON 95 unleaded acc.to DIN 51607, Ö-NORM 1100 AVGAS 100 LL. BA 95 Natural recommended for the Czech Republic
12. Oil:	Rotax 912: oil classification API SF(SG) or higher, Intended for 4-stroke motorcycles (with gear additives)
13. Glider towing:	It is permitted with the Bristell LSA aeroplane to tow gliders within the following limits:

- engine Rotax 912 ULS, Rotax 912 iS / iS Sport

On-ground adjustable propellers:

- FITI ECO COMPETITION 3LR 158

In-flight adjustable propellers:

- MTV-34-1-A/175-200
- HO-703F-H/165NI
- FITI Competition 3 LRSE 1580
- FITI Competition 3 LRSE 1700
- Neuform CR3 – V 2R
- Woodcomp SR 3000
- DUC Flashblack
- Maximum weak link strength = 300 daN +/- 30 daN
- Max.takeoff weight of towed glider = 550 kg
- Optimum climbing speed = 110 – 120 km/h
- Max.speed at tow VA = 160 km/h (or pursuant to glider limitations).

The tow aeroplane must comply with the requirements of Annex III of UL-2 Part 1 (supplementary requirements for glider towing by UL aeroplanes). The procedures and limitations for tows are stated in the Aircraft Operating Instructions Supplement.

IV. DATA FOR OPERATION AND MAINTENANCE

- Aircraft Operating Instructions for BRISTELL LSA + amendments resulting from the installation of optional equipment
- Maintenance and Inspection Procedures for BRISTELL LSA + amendments resulting from the installation of optional equipment
- Manual for ROTAX 912 engine use
- Technical description and operating instructions for installed propeller
- Operation instruction for the parachute rescue system if installed
- Instructions for installed optional equipment

V. SUPPLEMENTS

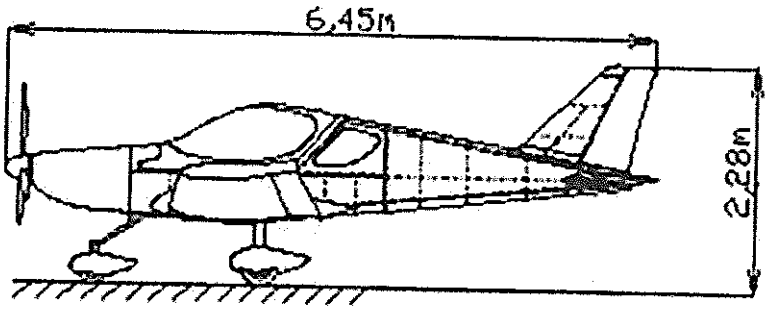
Notes:

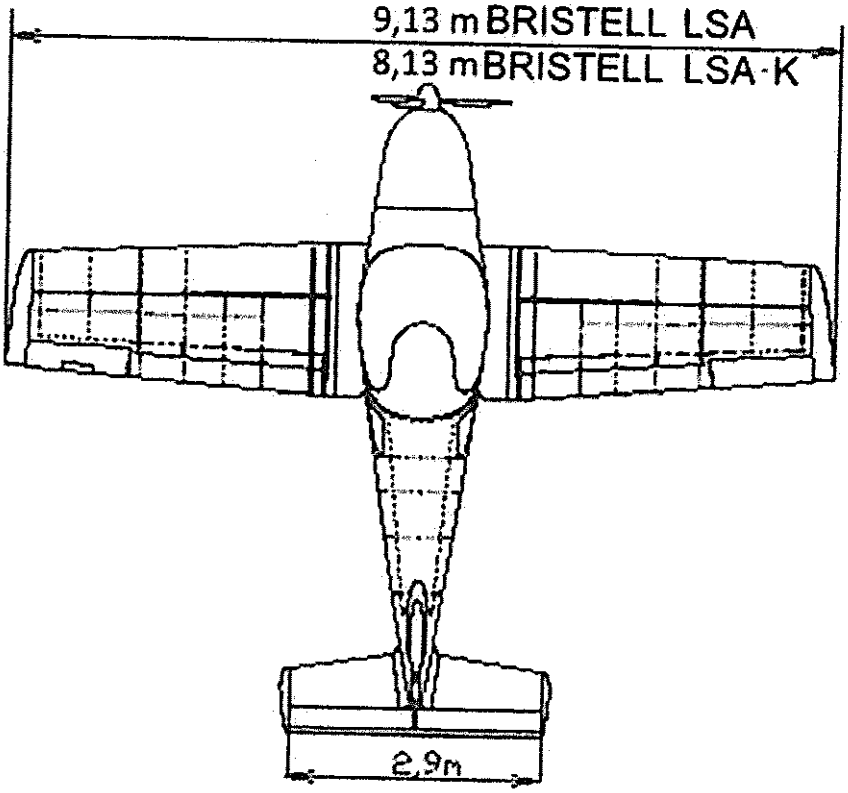
1. Each aircraft performed to issue a registration certificate must be provided by actual Weight & Balance protocol including list of equipment installed in the aircraft.
2. Aircrafts must be equipped by labels and stickers specified in the Flight manual.

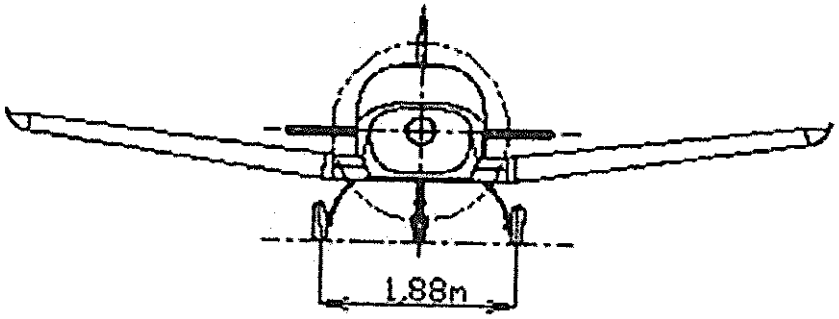
.....END.....

CZECH REPUBLIC

Three view picture of BRISTELL LSA







CZECH REPUBLIC

Three view picture of BRISTELL LSA TDO, LSA-K TDO