

型号认可证数据单  
THE VALIDATION DATA SHEET

编号/No: VTC0338A

版次/Revision: 0

型别/Models:

SHARK

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本数据单是型号认可证（编号：VTC0338A）的组成部分，它规定了符合中国民用航空局的适航要求所颁发此型号认可证的产品状态和限制。

This data sheet, which is part of Validation of Type Certificate (No: VTC0338A), prescribes condition and limitation under which the product for which the type certificate was issued meets the airworthiness requirements of the Chinese Civil Aviation Regulation.

型号认可证持有人/Validation of Type Certificate Holder:

SHARK AERO CZ s.r.o.  
Mladá 837, 687 25 Hluk  
Czech Republic

有效页清单/List of effective pages:

|             |   |   |   |   |   |   |   |   |  |  |  |  |  |
|-------------|---|---|---|---|---|---|---|---|--|--|--|--|--|
| 页数/ Pages   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |  |  |  |  |  |
| 版次/Revision | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |  |  |  |

## 第 1 部分 概述

## Section 1 GENERAL

## 1. CAAC 认可数据单和型号合格证数据单

CAAC Validation Data Sheet and Type Certificate Data Sheet

|               |                                                                                           |                                                                                        |
|---------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|               | 中国民用航空局认可数据单号、版次和颁发日期<br>CAAC Validation Data Sheet Number,<br>Revision and issuance date | 型号合格证数据单号、版次和颁发日期<br>Type Certificate Data Sheet Number,<br>Revision and issuance date |
| 当前<br>Current | VTC00338A, 版次 0, 2017 年 8 月 23 日                                                          | ULL 05/2013, 20.12.2016                                                                |
| 历史<br>History |                                                                                           |                                                                                        |

## 2. 飞机类型/Airworthiness Category:

特殊类别航空器 - 超轻型飞机

Special Class Aircraft – Ultra Light Airplane

## 3. 认可当局/Validation Authority:

中国民用航空局/CAAC

审定当局/Certifying Authority:

捷克轻型航空器协会

Light Aircraft Association CR

## 4. 型号证持有人/Type Certificate Holder:

SHARK AERO CZ s.r.o.

Mladá 837, 687 25 Hluk

Czech Republic

## 第 2 部分 数据单

## Section 2 DATA SHEET

## I. 捷克轻型航空器协会审定基础/Certification Basis of Light Aircraft Association CR

1. 适航要求/Airworthiness requirements: UL 2-part I., 运动型飞行装置适航要求, 空气动力控制超轻型航空器, 2002 年 10 月 17 日修订。  
注: 运动型飞行装置 *Sport Flying Equipment (SFE)* 是 LAA CR 的一个说法, 包括滑翔伞、动力滑翔伞, 滑翔翼、自转旋翼机、直升机、超轻型滑翔机、空气动力控制超轻型航空器, 以及 600 kg 以下试验类 LSA。由捷克轻型航空器协会颁发适航批准  
UL 2 - Part I., Airworthiness requirements for SFE, aerodynamically controlled ultralight aircraft, as amended on 17.10.2002.
2. 专用条件/Special Conditions: 无/None
3. 豁免/Exemptions: 无/None

## II. CAAC 认可审定基础/CAAC Validation Certification Basis

1. 中国民用航空局认可捷克轻型航空器协会确定的型号审定基础。  
CAAC accepts the Certification Basis of Light Aircraft Association CR as the Validation Basis.
2. CAAC 的附加技术条件/CAAC identify the following Additional Technical Conditions:
- a. 依据中国民用航空规章 CCAR21.29(e)要求, 机上所有用于提示、警告和通知旅客的文字标记和标牌必须至少是中文; 机上所有向旅客或者机外营救人员指示应急出口和门的位置以及开启方法的文字标记和标牌必须至少是中文; 旅客可能使用的机上所有应急设备的操作说明必须至少是中文。  
As per CCAR 21.29(e), all markings and placards on the airplane used for advising, warning, or notifying passengers must be at least in Chinese; all markings and placards on an airplane used for indicating passengers or outboard rescue personnel of the location of emergency exits and doors and their means of opening must be at least in Chinese; and all the operation instructions of airplane emergency equipment that may be used by passengers must be at least in Chinese.
- b. 操作系统与支承结构/Control System and Supporting Structure
- (a) 操作系统与支撑结构应按加拿大 DS 10141E 第 003 修正案的 35 条规定的表面载荷产生的铰链力矩的至少 125%来设计, 但不必超过下列驾驶员操纵力所产生的载荷:  
The control system and supporting structures shall be designed for 125% hinge moments resulting from the surface load from section 35 of Canada DS 10141E amendment 003, but need not exceed the loads from the following pilot forces:
- (1) 在驾驶杆握把上/at the grip of the stick:
- (i) 俯仰 445 牛顿 (100 磅) /445 N (100 lbs) in pitch
- (ii) 滚转限制载荷 178 牛顿 (40 磅) /178 N (40 lbs) in roll limit loads; and
- (2) 在脚蹬上/at the rudder pedals: 航向 578 牛顿 (130 磅) /578 N (130 lbs) in yaw.
- (b) 如果安装双操纵组件, 该相关系统应按驾驶员反向操纵情况进行设计。  
When dual controls are installed, the relevant system shall be designed for the pilots operating in opposition.
- (c) 操作面质量平衡的配重应设计成:  
Control surface mass balance weights shall be designed for:

- (1) 24g 极限载荷, 垂直于操作面/24 'g' ultimate normal to the surface; and
- (2) 12g 极限载荷, 向前和向后和平行于铰链轴线  
12 'g' ultimate fore and aft and parallel to the hinge line.
- (d) 对于对称运行, 右和左襟翼应当同步。  
Right and left flaps shall be synchronized for symmetrical operation.
- (e) 所有主操纵界器在系统中应有止动器, 以承受操纵力、125%操作面载荷、或地面突风载荷中的较大值。  
All primary controls shall have stops within the system to withstand the greater of pilot force, 125% surface loads, or ground gust loads.
- (f) 次操纵器应按正常运行中驾驶员可能施加的最大操纵力来进行设计。  
The secondary controls shall be designed for the maximum forces a pilot is likely to apply in normal operation

### III. 技术数据、性能和限制/Technical data, performances and limitations.

#### 1. 型号定义/Type definition

最初的型号设计是 2013 年 3 月 1 日的, 之后在 2016 年 12 月 18 日更新, 包括一些设备的扩展和更改, 图纸 S-01-000X。

Type design dated March 1, 2013, followed by the type design z6 from 18. December 2016 which contains extensions and modifications airplane equipment drawing S-01-000X.

扩展包括其他的螺旋桨、2 个 75 升的油箱、自动驾驶、ELT、位置灯、着陆灯、发动机安装更改、发动机整流罩更改, 以及增强安全和舒适的小改。

Extension of another propeller, 2x75 liter tank, change the fuel system, autopilot, ELT, position lights, landing light, modified engine installation, modified engine cowlings, minor changes that improve security and comfort.

#### 2. 描述/Description:

SHARK 是串列两座单发悬臂下单翼航空器。飞机结构为全复合材料, 主要由碳纤维制成。机翼为梯形, 翼尖部分为半椭圆形, 由主副梁与机身连接。襟翼由电机控制可偏转至 20°、30°和 40°位置。机身包括串列座舱、牵引式发动机和短的中央机翼。机尾控制面为传统形状。前三点电动可收放起落架, 液压刹车。主起落架为弹簧减震, 前起落架为弓形符合弹簧减震。机翼内整体燃油箱容积 50/75 升。

The wing is equipped with a flap which is tilted to positions 20°, 30° and 40° electromechanically. The hull has a tandem cabin with a traction motor and a short center plane. The tail surfaces are of a classical shape. The chassis is three-wheeled electrically retractable with hydraulically operated brakes. The main undercarriage legs are spring-loaded with spring-loaded units, the bow chassis with a composite spring. Integral fuel tanks of 50/75 liters are in the wings.

#### 3. 设备/Equipment

针对颁发的 SFE 适航证, 每架飞机必须按照第 II 章, 规章原则, 规定的适航要求, 安装基本设备。

For the issue of the SLZ airworthiness certificate, basic equipment must be installed on each aircraft produced, corresponding to the airworthiness requirements set out in Chapter II. Regulatory base.

紧急救援系统/Emergency rescue system

发报机/Transmitter

应答机/Transponder

## 4. 选装设备/Optional equipment

玻璃驾驶舱/Glass cockpit DYNON SKYVIEW or GARMIN

位置灯、着陆灯和防撞灯/Position, landing and strobe light

螺旋桨设定仪表/Propeller setting instrument

彩色座舱盖/Tinted canopy

## 5. 基本技术数据/Basic technical data

|                                                  |                                                                   |
|--------------------------------------------------|-------------------------------------------------------------------|
| 翼展/Wing span                                     | 7.9 m                                                             |
| 长度/Length                                        | 6.85 m                                                            |
| 高度/Height                                        | 2.3 m                                                             |
| 机翼面积/Wing area                                   | 9.5 m <sup>2</sup>                                                |
| 翼形/Airfoil                                       | 翼根/Root of the wing: JS20<br>翼尖/End of the wing: JS80             |
| 平均气动弦/The length of the middle aerodynamic chord | 1.237 m                                                           |
| 机翼展弦比/Wing aspect ratio                          | 6.57                                                              |
| 最大质量下机翼表面载荷<br>Surface loading at maximum mass   | 450 kg 47.4 kg/m <sup>2</sup><br>472.4 kg 49.74 kg/m <sup>2</sup> |
| 副翼翼展/Aileron span                                | 1.16 m                                                            |
| 副翼面积/Aileron area                                | 0.281 m <sup>2</sup>                                              |
| 副翼向上最大偏转/Aileron maximum deflection – up         | 30°                                                               |
| 副翼向下最大偏转/Aileron maximum deflection – down       | 15°                                                               |
| 襟翼翼展/Flap span                                   | 2.37 m                                                            |
| 襟翼面积/Flap area                                   | 0.922 m <sup>2</sup>                                              |
| 襟翼起飞偏转/Flap take-off deflection                  | 20°                                                               |
| 襟翼着陆偏转/Flap landing deflection                   | 30°/40°                                                           |
| 水平尾翼翼展/Horizontal tail area                      | 2.94 m                                                            |
| 水平尾翼面积/Horizontal tail area                      | 2.154 m <sup>2</sup>                                              |
| 水平尾翼向上偏转/Horizontal tail deflection – up         | 26°                                                               |
| 水平尾翼向下偏转/Horizontal tail deflection – down       | 16°                                                               |
| 垂直尾翼面积/Vertical stabilizer area                  | 1.06 m <sup>2</sup>                                               |
| 方向舵偏转/Rudder deflection                          | 30°                                                               |
| 主轮距/Track width of the main wheels               | 1.694 m                                                           |
| 轴距/Wheelbase                                     | 1.488 m                                                           |
| 起落架轮胎尺寸/Landing gear wheels dimensions           | 350 x120 mm                                                       |
| 轮胎压力/Tire pressure                               | 主轮/Main 150 kPa<br>前轮/Nose 150 kPa                                |
| 主起落架弹性装置/Main landing gear springing             | 弹簧/Springs                                                        |
| 前起落架弹性装置/Nose landing gear springing             | 复合弹簧/Composite spring                                             |
| 发动机/Engine                                       | Rotax 912 ULS                                                     |

## 6. 重量/Weight

|                                                                                                                          |          |
|--------------------------------------------------------------------------------------------------------------------------|----------|
| 最大起飞重量/Max. take-off weight                                                                                              | 450 kg   |
| 最大起飞重量只有在安装整体救援系统时被超出<br>The maximum take-off weight can be exceeded only by the weight of the integrated rescue system. |          |
| 配备整体救援系统时的最大起飞重量<br>Max. take-off weight with integrated rescue system                                                   | 472.5 kg |

|                                                                       |              |
|-----------------------------------------------------------------------|--------------|
| 不含整体救援系统时的空重<br>Empty weight without integrated rescue system         | 290 kg       |
| 含整体救援系统时的空重/Empty weight with integrated rescue system                |              |
| 最大有效载荷/Max. useful load                                               | 160 kg       |
| 机组最小重量/Min. crew weight                                               | 55 kg        |
| 后座最大机组重量/Max. crew weight on the back seat                            | 95 kg        |
| 驾驶员最大重量/Max. pilot's weight                                           | 110 kg       |
| 仅前座一个驾驶员时最大行李重量<br>Max. baggage weight for solo flights on front seat | 25 kg        |
| 最大行李重量/Max. baggage weight                                            | 15 kg        |
| 燃油箱容积/Max. fuel tank capacity                                         | 2×50 L 100 L |
|                                                                       | 2×75 L 150 L |

7. 性能/Speeds and performances

以下性能数据是飞机在国际标准大气条件下确定的。  
The shown performances are determined under ISA conditions for the aircraft:

发动机/Engine: Rotax 912 ULS (73 kW / 100 hp)  
螺旋桨/Propeller: Neuform TXR2-V-70  
起飞重量/MTOW: 472,5 kg

速度为当量空速/Speeds are stated in EAS

|                                                      |          |
|------------------------------------------------------|----------|
| 襟翼放下失速速度/Stall speed – flaps down $V_{S0}$           | 65 km/h  |
| 襟翼收上失速速度/Stall speed – flaps up $V_{S1}$             | 80 km/h  |
| 襟翼伸出时最大速度/Maximum speed at extended flaps $V_{FE}$   | 140 km/h |
| 设计机动速度/Design maneuvering speed $V_A$                | 170 km/h |
| 最大平飞速度/Maximum speed in horizontal flight $V_H$      | 280 km/h |
| 不可超越速度/Never exceeding speed $V_{NE}$                | 333 km/h |
| 设计最大俯冲速度/Design maximum speed at diving flight $V_D$ | 270 km/h |
| 15 米越障起飞距离/Take off distance over 15 m obstacle      | 270 m    |
| 爬升率/Climb rate at 180 km/h                           | 7 m/s    |

8. 重心范围/C.G. range

前重心极限位置/Limit front c.g. position: 16% MAC  
后重心极限位置/Limit rare c.g. position: 34% MAC  
基准面是机翼前缘/The reference plane is the leading edge of the wing.  
平均气动弦/Mean aerodynamic chord:  
平均气动弦长/Length of the mean aerodynamic chord  $MAC = 1.237\text{ m}$   
平均气动弦起始点位于基准面—机翼前缘  
The beginning of the mean aerodynamic chord is on the reference plane - the leading edge of the wing.

9. 极限载荷系数/Limit load factors

最大正/负载荷系数/Maximum positive/negative load factor: +4.0 / -2.0

10. 发动机/Engine

Rotax 912 ULS

## 发动机运行限制/Operational engine limitations:

最大起飞功率/Maximum take-off power 73,5 kW/5800 (最大 5 分钟/max. 5 min)

最大连续功率/Maximum continues power 69 kW/5500

## 11. 螺旋桨及其限制/Propellers and its limitations

|                  |                                                              |
|------------------|--------------------------------------------------------------|
| 型号/Type          | Neuform TXR2-V 70                                            |
| 生产商/Manufacturer | NEUFORM COMPOSITES GMBH & CO. KG, Germany                    |
| 描述/Description   | 空中可调, 复合材料, 2 桨叶<br>in-flight adjustable, composite, 2-blade |
| 直径/Diameter      | Ø 1700 mm/69"                                                |

|                  |                                                              |
|------------------|--------------------------------------------------------------|
| 型号/Type          | DUC SWIRL                                                    |
| 生产商/Manufacturer | DUC Hélices Propellers, France                               |
| 描述/Description   | 地面可调, 复合材料, 3 桨叶<br>on ground adjustable, composite, 3-blade |
| 直径/Diameter      | Ø 1680 mm                                                    |

|                  |                                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------|
| 型号/Type          | KW 20W                                                                                               |
| 生产商/Manufacturer | WOODCOMP s.r.o.                                                                                      |
| 描述/Description   | 空中可调, 液压变距, 木质—复合材料, 2 桨叶<br>in-flight adjustable, hydraulic variable pitch, wood-composite, 2-blade |
| 直径/Diameter      | Ø 1700 mm                                                                                            |

|                  |                                                                                                     |
|------------------|-----------------------------------------------------------------------------------------------------|
| 型号/Type          | SR 3000N/ 2WN                                                                                       |
| 生产商/Manufacturer | WOODCOMP s.r.o.                                                                                     |
| 描述/Description   | 空中可调, 电动变距, 木质—复合材料, 2 桨叶<br>in-flight adjustable, electric variable pitch, wood-composite, 2-blade |
| 直径/Diameter      | Ø 1700 mm                                                                                           |

## 12. 燃油/Fuel

符合 DIN 51607 的 EUROSUPER RON 95 无铅汽油, 和符合 Ö-NORM 1100 的 100LL 航空汽油。

EUROSUPER RON 95 lead free, according to DIN 51607, Ö-NORM 1100 AVGAS 100 LL

捷克共和国内推荐 BA 95 号燃油。

For the Czech Republic, BA 95 Natural fuel is recommended.

## 13. 滑油/Oil

Rotax 912: 滑油等级为 API SF(SG)或更高, 设计用于 4 冲程摩托车的滑油 (带有齿轮润滑添加剂)

Rotax 912: API SF (SG) or higher, Designed for 4-stroke motorcycles (with gear lubrication additives)

## IV. 运行和维护文件/Operations and maintenance documents

- SHARK 飞机飞行手册和运行手册, 以及安装选装设备的补充资料  
SHARK Aircraft Flight Manual and Operations Manual, and supplements resulting from the installation of optional equipment

- ROTAX 912 ULS 发动机用户指南  
User guide ROTAX 912 ULS
- 螺旋桨的技术描述和使用说明  
Technical description and operating instructions for a built-in propeller
- 按照用户要求安装的选装设备的说明  
Optional equipment instructions installed on customer request

**注释/Notes:**

1. 每一架符合运动型飞行装置适航证的飞机必须配带重量和重心位置协议, 包括包含在空重飞机内的设备列表。  
Each airplane presented for the issue of the SFE Technical Card shall be equipped with the current Weighing and Positioning Center Positioning Protocol, containing a list of equipment included in the weight of the empty airplane.
2. 飞机应具备飞行手册里规定的标记标牌。  
The airplane shall be provided with the inscriptions and labels specified in the Airplane Flight Manual.
3. 中文标记标牌/Chinese markings and placards  
所有中文标记标牌应符合 SHARK 飞机飞行手册中飞机标牌章节的要求。  
All Chinese markings and placards must conform to SHARK - Flight Manual - Aircraft labelling.

- 结束 / END -