

## 型号认可证数据单

### THE VALIDATION DATA SHEET

编号/No.: VTC0346P

版次/Revision: 0

型号/Type:

3C1

批准人/Approved by: Xu Chaoqun



职务/Title: Director General of CAAC-AAD

日期/Date: 2018-3-30

本数据单是型号认可证（编号：VTC0346P）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: VTC0346P), 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:

Hartzell Propeller Inc.

One Propeller Place, Piqua, OH 45356, U.S.A

#### 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, Revision and<br>issuance date | 型号合格证数据单号、版次和颁发日期<br>Type Certificate Data Sheet Number, Revision<br>and issuance date |
|---------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 当前<br>Current | VTC0346P, 版次0, 2018年3月30日<br>VTC0346P, Revision 1, March 30, 2018                         | P00016CH, 版次0, 2016年7月20日<br>P00016CH, Revision 0, July 20, 2016                       |

2. 类别/Category: 螺旋桨/Propeller
3. 认可当局/Validation Authority: 中国民用航空局/CAAC  
审定当局/Certifying Authority: 美国联邦航空局/FAA
4. 型号合格证持有人/Type Certificate Holder: Hartzell Propeller Inc.  
One Propeller Place, Piqua, OH 45356, U.S.A
5. 双发延程飞行/ETOPS: 不适用/NA
6. CAAC 专用要求/CAAC Special Requirements: 无/None

## 第2部分 数据单

## SECTION 2 DATA SHEET

类型/Type: 恒速; 液压 (见注 3 和 4) /Constant speed; hydraulic (see Notes 3 and 4).  
 发动机轴/Engine Shaft: 特殊法兰 (见注 1) /Special flange (see Note 1).  
 桨毂材料/Hub Material: 铝合金/Aluminum Alloy  
 桨叶材料/Blade Material: 碳纤维复合材料 (见注 10) /Carbon Composite (See Note 10)  
 桨叶数/Number of Blades: 3/Three  
 桨毂型号/Hub Model: 3C1 (见注 1 和注 4) /3C1 (see Notes 1 and 4)

| 桨叶(见注 2)<br>Blade<br>(see Note 2)                                              | 最大连续<br>Max. Cont. |           | 起飞/Takeoff |           | 直径限制 (见注 2)<br>Diameter Limits<br>(see Note 2) | 近似最大全重 (仅供参考)<br>(见注 3 和 7)<br>Approx. Max. Wt. Complete<br>(Ref Only) (See Note 3 and 7) | 桨叶构造 (见注 10)<br>Blade Construction<br>(See Note 10) |
|--------------------------------------------------------------------------------|--------------------|-----------|------------|-----------|------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------|
|                                                                                | 马力<br>HP           | 转速<br>RPM | 马力<br>HP   | 转速<br>RPM |                                                |                                                                                           |                                                     |
| 桨毂型号/Hub models: 3C1-L (430 至/to 919) , 3C1-R (430 至/to 919) (见注 1/See Note 1) |                    |           |            |           |                                                |                                                                                           |                                                     |
| 76C03-0 to<br>76C03-10                                                         | 285                | 2700      | 285        | 2700      | 76" to 66"<br>(-0 to -10)                      | 45.5 lb.                                                                                  | 碳纤维复合材料<br>Carbon Composite                         |

审定基础:  
Certification Basis: 螺旋桨型号根据 14CFR183 部 D 分部 ODA 程序进行批准  
Propeller models are approved in accordance with Organization Designation Authorization procedures of 14 CFR Part 183 Subpart D.

本型号合格证审定基础符合 2013 年 3 月 19 日生效的 14 CFR 35 部第 35-1 至 35-9 修正案。螺旋桨型号包括:

The certification basis for this Type Certificate is in accordance with 14 CFR Part 35 with amendments 35-1 through 35-9 effective March 19, 2013. Propellers model(s) include:

3C1-L( ), 3C1-R( )

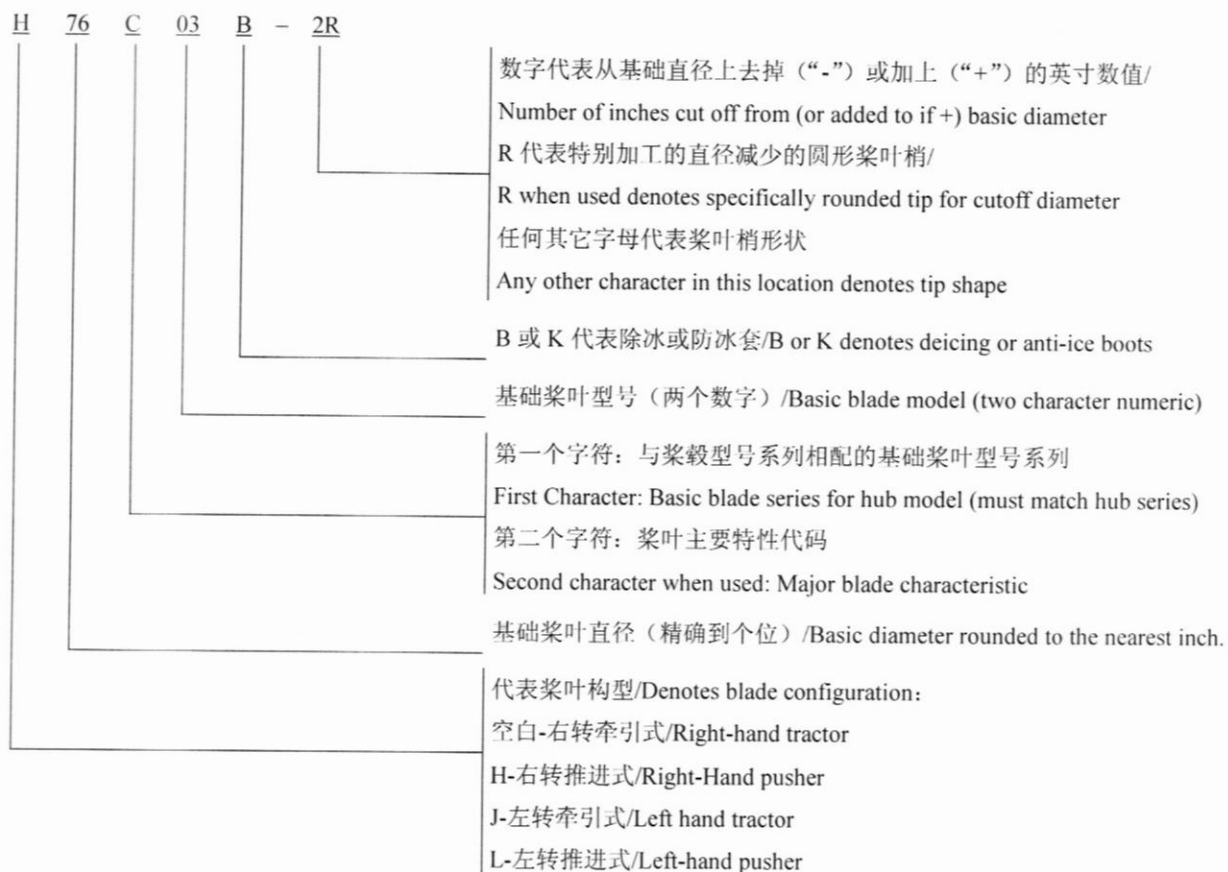
生产基础:  
Production Basis: 生产许可证 10  
Production Certificate no.10

注 1/NOTE 1

桨毂型号命名 (见注 4 和注 5) /Hub Model Designation (See Notes 4 and 5)

| 3        | C                               | 1-   | L    | 675 | AI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                             |      |      |   |                                 |      |   |
|----------|---------------------------------|------|------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|------|------|---|---------------------------------|------|---|
|          |                                 |      |      |     | <p>一个或多个包含字母和数字的桨毂描述符号 (第一个字符必须是字母)</p> <p>One or more alphanumeric hub descriptor (first character must be alpha)</p> <p>L 代表螺旋桨左旋/L when used denotes left-hand rotation</p> <p>任何字母字符是指不影响合格性的微小改变</p> <p>Any alpha character listed here denotes a minor change not affecting eligibility</p> <p>任何数字字符是指不影响合格性的微小改变</p> <p>Any numeric character indicates minor configuration change not affecting eligibility</p> <p>桨毂连接/Extension:</p> <p>发动机安装法兰和桨叶中心线的距离 (英寸)</p> <p>Distance in inches from engine mounting flange to blade centerline</p> <p>(隐含小数点在第一位数字后面/implied decimal after first digit)</p> <p>例如: 675 = 6.75 英寸/Example: 675 = 6.75 inches</p> <p>安装法兰盘/Mounting flange:</p> <p>第一个字符代表安装法兰盘类型/First character is mounting flange type:</p> <p>L: 在 4-3/4 英寸螺栓圆周上有 6 个 7/16 英寸螺栓和 4 个 5/8 英寸衬套的 SAE #2 法兰</p> <p>SAE #2 flange with six 7/16" bolts and four 5/8" drive bushings on a 4-3/4" bolt circle</p> <p>R: 在安装边 4-3/4 英寸螺栓圆周上有 6 个 1/2 英寸螺栓和 5 个 3/4 英寸衬套的 SAE #2 法兰</p> <p>SAE #2 flange with six 1/2" bolts and five 3/4" bushings on a 4-3/4" bolt circle</p> <p>第二个字符表示面对螺旋桨法兰盘顺时针观察时, 安装法兰盘相对于 1 号桨叶的角度指数:</p> <p>Second character, when used indicates flange index with respect to #1 blade, viewed clockwise facing propeller flange:</p> <p>第二个字符/Second character 角度指数/Angular index 法兰孔特点/Clocking Feature 法兰/Flange</p> <table><tr><td>空白/Blank</td><td>0 和 180 度/0 and 180 degrees</td><td>非埋头孔</td><td>L, R</td></tr><tr><td>B</td><td>120 和 300 度/120 and 300 degrees</td><td>非埋头孔</td><td>R</td></tr></table> <p>操作形式/Operating Mode (见注 3 和注 4/See Notes 3 and 4):</p> <p>1 - 恒速, 滑油增加桨矩, 没有桨叶配重/Constant speed, oil to increase pitch, no blade</p> <p>预加载类型/Preload type:</p> <p>基础桨毂系列/Basic hub series (C)</p> <p>桨叶数量/Number of blades</p> | 空白/Blank | 0 和 180 度/0 and 180 degrees | 非埋头孔 | L, R | B | 120 和 300 度/120 and 300 degrees | 非埋头孔 | R |
| 空白/Blank | 0 和 180 度/0 and 180 degrees     | 非埋头孔 | L, R |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                             |      |      |   |                                 |      |   |
| B        | 120 和 300 度/120 and 300 degrees | 非埋头孔 | R    |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                             |      |      |   |                                 |      |   |

## 注 2/NOTE 2

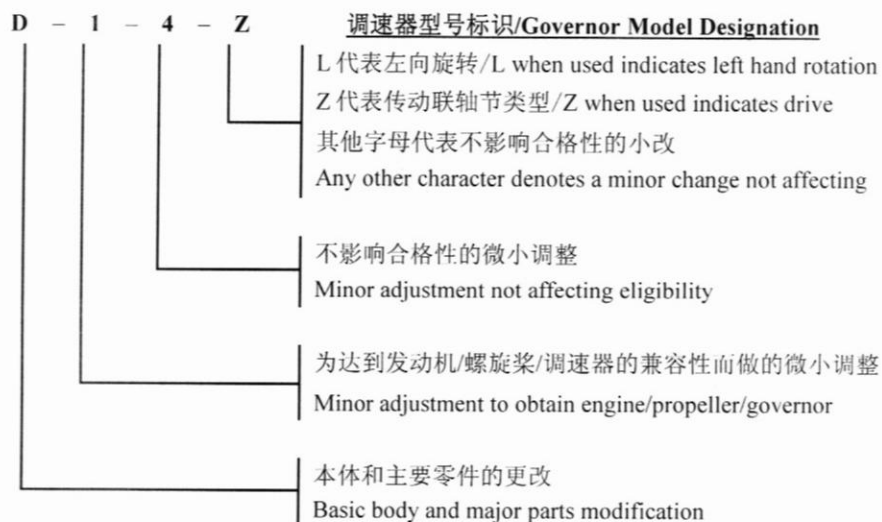
桨叶型号标识 (见注 5 和注 6) /Blade Model Designation (See Notes 5 and 6)

## 注 3/NOTE 3

桨距控制 (桨距控制附加的重量) (见注 4 和注 10)Pitch Control (weight of pitch control extra) (See Notes 4 and 10)

(a) 根据图纸 C-4770 和 C-4772 与 Hartzell 调速器一同批准。重量: 4.5 磅 (见注 10)

Approved with Hartzell governors per drawings C-4770 and C-4772. Wt: 4.5 lb (See Note 10)



(b) 最大输出压力/Maximum output pressure: 350 psi

(c) 3C1 型号螺旋桨使用调速器滑油增加桨矩, 其桨叶没有配重 (见注 4)

The 3C1 models use governor oil to increase pitch and do not have counterweighted blades. (See Note 4)

(d) 所有调速器和螺旋桨控制系统都必须作为航空器安装的一部分获得批准 (见注 10)

All governors and propeller control systems must be approved as part of the aircraft installation regardless of manufacturer. (See Note 10)

注 4/NOTE 4

顺桨/Feathering 不适用/Not applicable

反桨/Reversing 不适用/Not applicable

注 5/NOTE 5

左转向型号 (见注 1 和注 2) /Left-Hand Models (see Notes 1 and 2)

经批准的螺旋桨型号的左转向和右转向版本的额定值和直径都是一样的

The left-hand version of an approved propeller model is approved at the same rating and diameter as listed for the right-hand model.

注 6/NOTE 6

互换性/Interchangeability

(a) 螺旋桨/Propellers

不适用/Not applicable

(b) 调速器/Governors:

型号命名后缀带有“Z”的Hartzell调速器与相对应的型号后缀不带有“Z”的调速器可以互换。  
例如: F-6-24Z可以替换F-6-24, 反之亦然。

Hartzell governors with a “Z” suffix in their model designation may be used interchangeably with corresponding governors without the “Z”. For example, the F-6-24Z is a replacement for the F-6-24 and the F-6-24 is a replacement for the F-6-24Z.

(c) 桨叶/Blades

不适用/Not applicable

(d) 防冰系统/Ice Protection Systems

防冰系统部件的互换性参见Hartzell服务信函HC-SL-30-260

Refer to Hartzell service Letter HC-SL-30-260 for ice protection system component interchangeability.

注 7/NOTE 7

附件/Accessories

(a) 螺旋桨整流罩 (桨帽附加的重量) /Propeller spinner. (weight of spinner extra)

(1) 与列于Hartzell型号设计资料上的Hartzell和其他厂家的整流罩一同批准

Approved with Hartzell and other manufacturers' spinners when listed on Hartzell type design

data.

- (2) 所有螺旋桨整流罩必须作为航空器安装的一部分被批准, 不管哪个厂家 (见注10)。

All propeller spinners must be approved as part of the aircraft installation regardless of manufacturer. (See NOTE 10)

- (b) 螺旋桨防冰系统 (防冰装置附加的重量)

Propeller ice protection system (weight of ice protection equipment extra)

- (1) 本数据单所列的螺旋桨型号被批准使用Hartzell手册159( )或其他Hartzell型号设计资料中所列的防冰设备

Propeller models listed in this data sheet are approved for use with propeller ice protection equipment listed in Hartzell Manual 159( ) or in other Hartzell type design data.

- (2) 所有螺旋桨防冰设备必须作为飞机整体安装的一部分被批准, 不管哪个厂家 (见注10)。

All propeller ice protection equipment must be approved as part of the aircraft installation regardless of manufacturer. (See NOTE 10)

注 8/NOTE 8

叶根整流罩/Shank Fairings

不适用/Not applicable

注 9/NOTE 9

特殊限制/Special Limits

#### 螺旋桨-发动机匹配表

#### Table of Propeller-Engine Combinations

从振动考虑被批准使用在正常类单发牵引式飞机上

Approved Vibrationwise for Use on Normal Category Single-Engine Tractor Aircraft

从振动考虑确定的最大与最小螺旋桨直径见下表。不允许比最小直径值小的情况发生, 因为最小直径数值已经考虑了由于修理而造成的可接受尺寸减少的情况。

The maximum and minimum propeller diameters that can be used from a vibration standpoint are shown below. No reduction below the minimum diameter listed is permissible, since this figure includes the diameter reduction allowable for repair purposes.

下列发动机型号来自发动机型号合格证上的构型 (除非另有说明)。任何发动机或飞机结构的更改, 如果致使在飞机运行的任何阶段下列发动机的动力发生改变, 有可能会增加对螺旋桨的压力, 且不在此清单批准范围内。此类更改包括 (但不限于) 增加涡轮增压器或涡轮稳压器, 增加增压压力, 增加压缩比, 增加转速, 改变点火器正时、电子点火器、发动机全权限数字控制器(FADEC), 或者调节进气或排气。同时, 对于曲轴、配重的质量或硬度的更改也不在此表的批准范围内。

The engine models listed below are the configurations on the engine type certificate unless specifically stated otherwise. Modifications to the engine or airframe that alter the power of the engine models listed below during any phase of operation have the potential to increase propeller stresses and are not approved by this list. Such modifications include, but are not limited to, the addition of a turbocharger or turbonormalizer, increased boost pressure, increased compression ratio, increased RPM, altered ignition timing, electronic ignition, full authority digital engine controls (FADEC), or tuned induction or exhaust. Also, any change to the mass or stiffness of the crankshaft/counterweight assembly is not approved by this list.

| 桨毂型号<br>Hub Model | 桨叶型号<br>Blade Model | 发动机型号<br>Engine Model | 最大直径 (英寸)<br>Max. Dia. (inches) | 最小直径 (英寸)<br>Min. Dia. (inches) | 标牌<br>Placards |
|-------------------|---------------------|-----------------------|---------------------------------|---------------------------------|----------------|
|-------------------|---------------------|-----------------------|---------------------------------|---------------------------------|----------------|

## 注 10/NOTE 10

螺旋桨安装必须作为航空器型号合格证的一部分批准, 并表明对适用的航空器适航要求的符合性。  
Propeller installation must be approved as part of the aircraft Type Certificate and demonstrate compliance with the applicable aircraft airworthiness requirements.

此数据单所列的螺旋桨型号包括基本的桨毂和桨叶型号。大多数螺旋桨型号包括附加字母以表明注 1 和 2 中所解释的小改和特定特征。参考航空器型号合格证数据单以确定适用的螺旋桨的具体型号。  
Propeller models listed herein consist of basic hub and blade models. Most propeller models include additional characters to denote minor changes and specific features as explained in Notes 1 and 2. Refer to the aircraft Type Certificate Data Sheet for the specific propeller model applicable to the installation.

装配复合材料桨叶的螺旋桨在批准安装在任何型号航空器之前, 必须评价其抗鸟击能力。Hartzell 螺旋桨公司必须基于航空器构型和运行条件完成相关测试及分析, 以确定鸟击的潜在危害。

Propellers with composite blades must be evaluated for bird impact resistance prior to approval on any type aircraft. Hartzell Propeller must perform tests and/or analyses based on aircraft configuration and operating conditions to determine the potential hazard as a result of a bird strike.

## 注 11/NOTE 11

特殊限制/Special Limits

## (a) 寿命值和强制检查/Life Limits and Mandatory Inspections

## (1) Hartzell 手册 480 规定了适航限制 (如有)。

Airworthiness limitations, if any, are specified in Hartzell Manual 480.

螺旋桨证书管理飞机认证办公室 (CMACO) 必须就螺旋桨的每一次新的航空器应用的安装进行评估, 以确定适航限制是否有任何可能的更改。

The propeller CMACO must evaluate the propeller installation for each new aircraft installation to assess possible changes in the airworthiness limitations.

## 注 12/NOTE 12

特别提示/Special Notes

## (a) 超速和超扭限制参见 Hartzell 手册第 202( ) 号。

Refer to Hartzell Manual No. 202( ) for overspeed and overtorque limits.

## (b) 螺旋桨大修周期参见 Hartzell 服务信函 HC-SL-61-61( )

Refer to Hartzell Service Letter HC-SL-61-61( ) for overhaul periods.

结束

....END....