

型号认可证数据单

THE VALIDATION DATA SHEET

编号/No.: VTC0366E

版次/Revision: 0

型别//Models:
Centurion 3.0

批准人/Approved By:



职务/Title:
Director General of CAAC-AAD

日期/Data:
2020 年 12 月 24 日

本数据单是型号认可证（编号：VTC0366E）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: VTC0366E), prescribes conditions and limitations under which the product for which the Validation Type Certificate was issued meets the airworthiness requirements of the Chinese Civil Aviation Regulations.

型号认可证持有人/Validation of Type Certificate Holder: Technify Motors GmbH
Platanenstr. 14
D-09356 Sankt Egidien
Germany

中国民用航空局
CIVIL AVIATION ADMINISTRATION OF CHINA

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

	中国民用航空总局认可数据单号、版次和颁发日期 CAAC Validation Data Sheet Number, Revision and issuance date	型号合格证数据单号、版次和颁发日期 Type Certificate Data Sheet Number, Revision and issuance date
当前 Current	VTC0366E, 版次0, 2020年12月24日 VTC0366E, Revision 0, 2020-12-24	TCDS No. E.104, 版次01, 2017年6月20日 TCDS No. E.104, Revision 01, 20 June 2017
历史 History		

2. 类别/Category: 航空发动机/Aviation Engine

3. 认可当局/Validation Authority: 中国民用航空局/CAAC
审定当局/Certifying Authority: 欧洲航空安全局/EASA

4. 型号合格证持有人 Type Certificate Holder

Technify Motors GmbH
Platanenstr. 14
D-09356 Sankt Egidien
Germany
DOA EASA.21J.010

5. 生产商 Manufacturer

Technify Motors GmbH
POA DE.21G.0269

6. 申请EASA审定日期/Date of Application

Centurion 3.0
19 December 2013

7. EASA发证日期/EASA Type Certification Date:

Centurion 3.0
20 June 2017

8. ETOPS: 不适用/NA

9. CAAC专用要求/CAAC Special Requirements:

满足中华人民共和国国家标准“3号喷气燃料”(GB 6537-2018)的要求/Compliance with requirement of National Standard of the People's Republic of China“3号喷气燃料”(GB 6537-2018)

第2部分 审定基础
Section 2 Certification Basis

1. 确认适用的适航要求的参考日期/ Reference Date for determining the applicable airworthiness requirements:
20 June 2014
2. EASA审定基础/EASA Certification Basis:
 - 2.1 适航标准/ Airworthiness Standards
CS-E, 第三修正案, 2010年12月23日/ CS-E, Amendment 3, dated 23 December 2010
 - 2.2 专用条件/Special Conditions (SC):
CS-E 210失效分析的额外要求/Addition to CS-E 210 Failure Analysis,
CS-E 240(d)发动机飞行过程中熄火的额外要求/Addition to CS-E 240(d) Engine Flame Out during Flight
 - 2.3 等效安全/Equivalent Safety Findings :
CS-E 70, 100, 110 – 型号设计/ CS-E 70, 100, 110 – Type design
CS-E 130(h) –发动机连接点防火/ CS-E 130(h) – Fireproofness of engine attachment points
CS-E 440(b)(3) 持久试验-涡轮增压发动机的测试循环/ CS-E 440(b)(3) Endurance Test – Schedule for Engine Incorporating a Turbocharger
 - 2.4 豁免/Deviations:
无/none
 - 2.5 环境标准/Environmental Standards:
无(活塞发动机不要求)/none (not required for piston engines)

第3部分 技术特性
Section 3 Technical Characteristics

1. 型号设计定义/Type Design Definition:
TDD-06-01, 2016年10月10日第一版/ TDD-06-01, Issue 1 dated 10 October 2016
2. 描述/Description:
Centurion 3.0发动机是装有高压共轨直喷系统、涡轮增压器、1:1.66减速齿轮箱和EECU的排量2987 cm³的V型6缸四冲程柴油活塞发动机。
The Centurion 3.0 engine is a V6-cylinder, four stroke Diesel piston engine with an displacement of 2987 cm³, equipped with common rail high pressure direct injection, turbocharger, gearbox with reduction ratio of 1:1.66 and an Electronic Engine Control Unit (EECU).

3. 设备/Equipment:
见安装手册/See Installation Manual.

4. 尺寸/Dimensions:

型号/Model	Centurion 3.0
总长度/Overall Length	980mm
总高度/Overall Height	700mm
宽度/ Width	790mm

5. 干重/Dry Weight:

型号/Model	Centurion 3.0
重量/ Weight	265kg

6. 额定值(见注1)/Ratings: (See Note 1)

额定值/Rating	Centurion 3.0
------------	---------------

中国民用航空局
CIVIL AVIATION ADMINISTRATION OF CHINA

功率 Power	起飞(5 分钟) /Take-off(5min)	221 kW (300 HP) at 3880 engine rpm (2340 prop rpm)
	最大连续 Max. Continuous	202 kW (272 HP) at 3880 engine rpm (2340 prop rpm)

注释:上表性能值对应ICAO or ARDC标准大气条件下定义的最小值。

Note: The performance values specified above correspond to minimum values defined under the conditions of ICAO or ARDC standard atmosphere.

7. 控制系统/Control System

发动机装有发动机电子控制单元(EECU)。软件按RTCA DO-178B C级认可。

The engine is equipped with an Electronic Engine Control Unit (EECU). Software verified to level C according to RTCA Document DO-178B.

FADEC 件号06-7610-E000202

FADEC P/N 06-7610-E000202

软件D6-v1.00

Software: D6-v1.00

软件图谱:批准的软件号参见服务通告TM TAE 000-0007

Software Mapping: Refer to Service Bulletin TM TAE 000-0007 for approved software P/N.

8. 油料(燃油, 滑油, 添加剂)/Fluids (Fuel/Oil/Additives):

批准的油料见使用和维护手册(也可见注4)

See Operation & Maintenance Manual for approved fluids (see also Note 4)

9. 航空器附件驱动//Aircraft Accessory Drives:

	转向/Rotation	转速/Speed (rpm)	最大扭矩/Max. Torque	驱动器连接形式 /Type of Drive
附件驱动 /Accessory Drive	CCW	3900	13Nm	AND 20000 modified

CCW = 逆时针/Counter-Clock-Wise

显示为发动机参考转速3880转/分钟/Speed is indicated for a reference engine speed of 3880 rpm.

附件驱动方向为定义为面向驱动轴/Accessory drive direction of rotation is as viewed facing the drive.

第4部分 使用限制 Section 4 Operational Limitations

1. 温度限制/Temperature limits:

中国民用航空局
CIVIL AVIATION ADMINISTRATION OF CHINA

	温度/Temperature in °C / °F	备注/Comments
最低滑油节温器打开温度/Minimum opening up Oil Temperature	50 °C / 122 °F	
最大滑油温度/Max. Oil Temperature:	139 °C / 282 °F	
最低起动大气温度/Minimum Ambient Temperature for Starting	+5 °C / 41 °F	32 ≤ 十六烷值 < 38 / With 32 ≤ Cetane N° < 38
	-25 °C / -13 °F	十六烷值 ≥ 38 / With Cetane N° ≥ 38
最低燃油工作温度/Minimum Fuel Temperature during operation	-25 °C / -13 °F	
最低冷却液节温器打开温度/Minimum opening up Cooling Fluid Temperature	60 °C / 140 °F	
最大冷却液温度/Max. Cooling Fluid Temperature	105 °C / 221 °F	
最大齿轮箱温度/Max. Gearbox Temperature	130 °C / 266 °F	
最大排气温度/Max. Exhaust Gas Temperature	850 °C / 1562 °F	

2. 速度限制/Speed Limits:

最大超转转速（曲轴转速）/Maximum Engine Over-speed (Crankshaft Speed)	4220 rpm (螺旋桨转速 2500 /prop rpm)
起飞转速/Take-off speed	3880 rpm (螺旋桨转速 2340/ prop rpm)
最大连续转速/Max. continuous speed	

3. 压力限制/pressure Limits

最低燃油压力（低压泵进口）/Minimum Fuel Pressure (at inlet of feed pump)	200 mbar (2.9 psi) (绝对压力 absolute)
最高燃油压力（低压泵进口）/Maximum Fuel Pressure (at inlet of feed pump)	3 bar (43.5 psi) (绝对压力 absolute)
最低怠速滑油压力/Minimum Oil Pressure at Idle Conditions	1 bar (14.5 psi)
滑油压力(正常工作条件)Oil Pressure (normal operation)	2.3... 6.0 bar (33.4 ... 87 psi)
最高滑油压力/Maximum Oil Pressure	6.5 bar (94.3 psi)

4. 运行高度/ Operating Altitude

最大高度/ Maximum altitude	7620 m (25000 ft)
------------------------	-------------------

5. 限时派遣/Time Limited Dispatch (TLD)

该发动机没有获得限时派遣认可。在飞机起飞前所有发动机系统及设备必须功能完整。任何已知的发动机系统和设备失效必须在下次飞行前纠正。对于特定指南请参见OM-06-01

The engine is not approved for Time Limited Dispatch. All engine systems and equipment must be functional prior to aircraft take-off. Any detected engine system or equipment failure must be corrected before next flight. For special instructions, see OM-06-01.

第5部分 使用和服务说明
Section 5 Operational and Service Instructions

手册/Manual	Centurion 3.0
安装手册/Installation Manual	IM-06-01
操作手册/ Operation Manual	OM-06-01

持续适航文件/Instructions for Continued Airworthiness (ICA)	Centurion 3.0
维修手册/Maintenance Manual	OM-06-01
大修手册/Overhaul Manual	未发布/not issued yet

服务通告如发布。/Service Bulletins as issued.

第6部分 注释
Section 6 Notes

注1/note1:

EASA认证关于持续适航的适航限制章节在“操作与维护手册”第 06-OM-05-01 章"适航限制"。该章节空白的原因是该型号没有寿命限制。

The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable "Operation & Maintenance Manual" document, chapter 06-OM-05-01 "Airworthiness Limitations". This ALS section is empty because no life limit is necessary for these models.

注2/Note 2:

发动机型号后可能添加后缀在括号中，来定义特定的构型更改。发动机电控软件在不同的应用中会有特定的软件图谱。请参见TM TAE 000-0007服务通告获得安装构型和软件图谱。并参考安装手册进行适当的安装。

Suffixes in parentheses may be added to the engine model number to define installation specific configuration changes. The software of the electronic engine control for each application has a specific software mapping. See Service Bulletin TM TAE 000-0007 for the installation versions and software mappings. Also refer to Installation Manual for appropriate installation.

注3/ Note 3:

Centurion 3.0发动机被批准安装于23部审定的正常和实用类飞机。

中国民用航空局
CIVIL AVIATION ADMINISTRATION OF CHINA

The Centurion 3.0 series engines are approved for the installation in Part 23 normal and utility category airplanes.

注4/ Note 4:

Centurion 3.0系列发动机被批准可用喷气燃料（见操作手册OM-06-01）。该发动机已经过测试可用最大点火延迟6.78毫秒，等效最小十六烷值为32的燃料。（试验方法见EN 15195/ASTM D6890）

The Centurion 3.0 series engines are approved for operation with jet fuels (see Operation Manual OM-06-01). The engine has been tested for fuels up to a maximum ignition delay time of 6,78 ms resp. a minimum derived cetane number of 32 (determined according EN 15195/ASTM D6890)

注5/Note 5:

Centurion 3.0发动机包括FADEC,批准使用MTV--12-D/210-56型螺旋桨。该批准不包括螺旋桨本身及其控制系统的批准。

The Centurion 3.0 engine, including the FADEC, is approved for use with the propeller MTV--12-D/210-56 models. This approval does not include the approval of the propellers and their control systems.

注6/Note 6:

该发动机FADEC构型中集成了螺旋桨控制。FADEC的软件按照DO-178B的C级标准研发。发动机及其FADEC的批准不包括螺旋桨控制系统的批准。

This engine design features an integrated propeller control in the FADEC. The software in the FADEC has been developed in accordance with DO-178B at level C. The approval of the engine and its FADEC does not include approval of the propeller control system.

注7/Note 7:

推荐的大修周期见SB TMG 300-0001。

The recommended Time Between Overhaul (TBO) is published in SB TMG 300-0001.

注8/Note 8:

发动机控制系统按照DO-160G进行闪电防护和电磁干扰测试。防护等级见安装手册。

The engine control system has been tested according to DO-160G for lightning protection and magnetic interference. The demonstrated levels are declared in the Installation Manual.

注9/Note 9:

EECU一定不能安装在可能的火区。按照条件在安装手册中定义。

The EECU must not be installed in a dedicated fire zone. The installation conditions are defined in the Installation Manual.

注10/Note 10:

安装假设：见安装手册/ Installation Assumptions: See Installation Manual.

注10/Note 11:

转子包容测试在最大转速192500转/分钟条件下完成。

Containment has been demonstrated for max. turbocharger speed of 192500 rpm.

注12/Note 12:

Centurion3.0的销售名称为CD-300

Sales name of the model Centurion 3.0: CD-300

结束
....END....