

型号认可证数据单
THE VALIDATION DATA SHEET

编号/No: VTC0210E

版次/Revision: 7

型别/Type:

CF34-10E2A1

CF34-10E7

CF34-10E6A1

CF34-10E5A1

CF34-10E6

CF34-10E5

CF34-10E7-B

CF34-10A16

CF34-10A16-B

CF34-10A16-C

CF34-10A16-D

批准人/Approved By:



职务/Title: Deputy Director General

日期/Date: 2023-12-12

本数据单是型号认可证（编号 VTC0210E）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 a part of Validation Type Certificate (No: VTC0210E), prescribes conditions and limitations 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:

1 Neumann Way

Cincinnati, Ohio,

45215-6310 USA

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	VTC0210E, 版次7, 2023年12月12日; No. VT0210E, Revision 7, Dec. 12, 2023	FAA TCDS No. E00070EN, Revision 13, July 14, 2021
历史 History	VTC0210E, 版次0, 2008年4月22日; No. VTC0210E, Revision 0, Apr. 22, 2008	FAA TCDS No. E00070EN, Revision 4, July 20, 2006
	VTC0210E, 版次1, 2011年7月19日; No. VTC0210E, Revision 1, July 19, 2011	FAA TCDS No. E00070EN, Revision 5, June 16, 2008
	VTC0210E, 版次2, 2011年11月14日; No. VTC0210E, Revision 2, Nov. 14, 2011	FAA TCDS No. E00070EN, Revision 6, July 22, 2010
	VTC0210E, 版次3, 2015年11月23日; No. VTC0210E, Revision 2, Nov. 23, 2015	FAA TCDS No. E00070EN, Revision 10, March 11, 2015
	VTC0210E, 版次4, 2016年10月9日; No. VTC0210E, Revision 4, Oct. 9, 2016	FAA TCDS No. E00070EN, Revision 10, March 11, 2015
	VTC0210E, 版次5, 2020年4月23日; No. VT0210E, Revision 5, Apr. 23, 2020	FAA TCDS No. E00070EN, Revision 11, August 30, 2019
	VTC0210E, 版次6, 2021年9月17日; No. VT0210E, Revision 6, Sep 17, 2021	FAA TCDS No. E00070EN, Revision 13, July 14, 2021

注：上表中出口国局方型号合格证数据单信息仅供参考/ Note: Above TCDS information of Certification Authority is only for reference.

CAAC 认可数据单修订情况说明 / CAAC VTCDS Change Record

CAAC 认可数据单版次/ CAAC VTCDS Revision	相对上一版次的修订情况/ CAAC VTCDS Change Record	备注/Remark
Rev 7	增加 CAAC 专用要求：燃油排泄和排气排排出物 CCAR-34-R1 Add CAAC Special Requirements: fuel venting and exhaust emissions requirements CCAR-34-R1	版次 7 认可数据单对应的 FAA 数据单版本与版次 6 对应的 FAA 数据单版本一致/ VTCDS Rev 7 corresponds to the same FAA TCDS as VTCDS Rev 6
Rev 6	1. 更新了“3号喷气燃料”国家标准（GB6537） National Standard of “No.3 Jet Fuel”（GB6537） has been updated 2.增加CF34-10A16-C 和CF34-10A16-D 型号/Addition of CF34-10A16-C and CF34-10A16-D models.	

2. 类别/Category: 发动机/ Engine
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: General Electric Company, GE Aviation
1 Neumann Way
Cincinnati, OH 45215-6310
5. 双发延程飞行/ETOPS: 不适用/NA
6. CAAC专用要求/CAAC Special Requirements: (1) 中华人民共和国国家标准“3号喷气燃料”(GB 6537);
National Standard of the People's Republic of China "No.3 Jet Fuel" (GB 6537) .
(2) 燃油排泄和排气排出物规定CCAR-34-R1
(仅CF34-10A16、CF34-10A16-B、CF34-10A16-C、CF34-10A16-D型别)
Fuel venting and exhaust emissions requirements
CCAR-34-R1
(Only CF34-10A16, CF34-10A16-B, CF34-10A16-C, CF34-10A16-D models)

第2部分 数据单

Section 2 DATA SHEET

I. 型别/Models	CF34-10E2A1	CF34-10E5	CF34-10E5A1	CF34-10E6	CF34-10E6A1	CF34-10E7	CF34-10E7-B
类型/Type	双转子，轴流式，高涵道比单级风扇，3级低压压气机，9级高压压气机，环形燃烧室，单级高压涡轮，4级低压涡轮，有反推，后部中心整流罩、尾喷口、起动机及全权数字式发动机控制（FADEC）。/Dual rotor, axial flow, high bypass ratio turbofan with single stage fan, 3-stage low pressure compressor, 9-stage high pressure compressor, annular combustion chamber, single stage high pressure turbine, 4-stage low pressure turbine, a thrust reverser, aft core cowling, exhaust nozzle, starter, and a full authority digital engine control (FADEC).						
额定值（见注1）海平面静推力，磅/ Ratings (see NOTE 1) Sea level static thrust, lb							
最大起飞（5分钟） （见注10和13）/ Maximum takeoff (5min.) (See NOTE 10 and 13)	16960	18820	18820	18820	18820	20360	--
正常起飞（5分钟） （见注10和13）/ Normal takeoff (5min.) (See NOTE 10 and 13)	16960	17390	18820	17390	18820	18820	--
最大持续/ Max continuous 平台额定环境温度 /Flat rate ambient Temperature	15110	17040	17040	17040	17040	17040	--
起飞/Takeoff	86°F/30C	--	--	95°F/35 C	--	86°F/30 C	--
最大持续/Max Continuous	77°F/25 C	--	--	--	--	--	--
控制系统部件/Control System Component							
燃油计量组件/ Fuel Metering Unit	2043M10	--	--	--	--	--	--
FADEC 硬件/ FADEC Hardware	2043M11	--	--	--	--	--	--
FADEC 软件/ FADEC Software	2043M65	--	--	--	--	--	--
构型插头/Configuration Plug							
硬件/Hardware	2162M48	--	--	--	--	--	--
发动机额定推力/ Engine Rating	2041M41P26	2041M41P31	2041M41P30	2041M41P29	2041M41P28	2041M41P32	2041M41P27
发动机构型/Engine Configuration	2041M42	--	--	--	--	--	--

I. 型别/Models	CF34-10E2A1	CF34-10E5	CF34-10E5A1	CF34-10E6	CF34-10E6A1	CF34-10E7	CF34-10E7-B
N1 配平设定/ N1 Trim Setting	2041M43	--	--	--	--	--	--
点火系统/Ignition System							
2 点火激励器/ 2 Ignition Exciters	9238M66	--	--	--	--	--	--
2 点火插头/ 2 Ignition Plugs	1374M12	--	--	--	--	--	--
燃油泵/Fuel Pump	2043M12	--	--	--	--	--	--
燃油/FUEL	符合 GE 喷气燃油规范 No.D50TF2 和 CF34-10E 安装手册 GEK112083 的燃油与添加剂适用于所有 CF34-10E 型号。 Fuel and additive conforming to GE Jet Fuel Specification No. D50TF2 and GEK 112083, CF34-10E Installation Manual, is applicable for all CF34-10E models.						
滑油/OIL	符合 GE 规范 No.D50TF1 和 CF34-10E 安装手册 GEK112083 的滑油适用于所有 CF34-10E 型号。 Oil conforming to GE Specification No. D50TF1 and GEK 112083, CF34-10E Installation Manual, is applicable for all CF34-10E models.						
主要尺寸（联邦条例 14 章 33 部推进系统见安装手册 GEK 112083）/ Principal Dimensions and Measurements (14 CFR Part 33 Propulsion System: see Installation Manual GEK 112083)							
长度, 英寸/ Length, inches	177.93	--	--	--	--	--	--
最大直径, 英寸/ Maximum diameter, inches	73.38×86.59	--	--	--	--	--	--
重量.磅（干重）/ Weight, pounds (Dry)	4584.2	--	--	--	--	--	--
重心位置, 英寸/Center of Gravity Location, inches							
发动机站位/Engine Station	208.2	--	--	--	--	--	--
纵剖线/Butt Line	99.2	--	--	--	--	--	--
水平线/Water Line	100.4	--	--	--	--	--	--

II. 型别/Models	CF34-10A16	CF34-10A16-B	CF34-10A16-C	CF34-10A16-D
类型/Type	双转子, 轴流式, 高涵道比单级风扇, 3 级低压压气机, 9 级高压压气机, 环形燃烧室, 单级高压涡轮, 4 级低压涡轮, 有反推, 后部中心整流罩、尾喷口、起动机及全权数字式发动机控制 (FADEC)。 /Dual rotor, axial flow, high bypass ratio turbofan with single stage fan, 3-stage low pressure compressor, 9-stage high pressure compressor, annular combustion chamber, single stage high pressure turbine, 4-stage low pressure turbine, a thrust reverser, aft core cowl, exhaust nozzle, starter, and a full authority digital engine control (FADEC).			
额定值 (见注 1) 海平面静推力, 磅/ Ratings (see NOTE 1) Sea level static thrust, lb				
最大起飞 (5 分钟) (见注 10 和 13) / Maximum takeoff (5min.) (See NOTE 10 and 13)	17640	--	--	--
正常起飞 (5 分钟) (见注 10 和 13) / Normal takeoff (5min.) (See NOTE 10 and 13)	17300	--	--	--
最大持续/ Max continuous	16110	--	--	--
平台额定环境温度/Flat rate ambient Temperature				
起飞/Takeoff	86°F/30C	--	--	--
最大持续/Max Continuous	77°F/25C	--	--	--
控制系统部件/Control System Component				
燃油计量组件/ Fuel Metering Unit	2044M33	--	--	--
FADEC 硬件/ FADEC Hardware	2043M11	--	--	--
FADEC 软件/ FADEC Software	2413M46	--	--	--
构型插头/Configuration Plug				
硬件/Hardware	2162M48	--	--	--
发动机额定推力/ Engine Rating	2041M41P34	2041M41P34	2041M41P39	2041M41P40
发动机构型/Engine Configuration	2041M42	--	--	--
N1 配平设定/ N1 Trim Setting	2041M43	--	--	--
点火系统/Ignition System				
2 点火激励器/ 2 Ignition Exciters	9238M66	--	--	--
2 点火插头/ 2 Ignition Plugs	1374M12	--	--	--
燃油泵/Fuel Pump	2044M34	--	--	--
燃油/FUEL	符合 GE 喷气燃油规范 No.D50TF2 和 CF34-10E 安装手册 GEK112093 的燃油与添加剂适用于所有型号。 Fuel and additive conforming to GE Jet Fuel Specification No. D50TF2 and GEK 112093, CF34-10A Installation Manual, is applicable for all models.			

II. 型别/Models	CF34-10A16	CF34-10A16-B	CF34-10A16-C	CF34-10A16-D
滑油/OIL	符合 GE 规范 No.D50TF1 和 CF34-10A 安装手册 GEK112093 的滑油适用于所有 CF34-10A 型号。 Oil conforming to GE Specification No. D50TF1 and GEK 112093, CF34-10A Installation Manual, is applicable for all CF34-10A models.			
主要尺寸（联邦条例 14 章 33 部推进系统见安装手册 GEK 112093）/ Principal Dimensions and Measurements (14 CFR Part 33 Propulsion System: see Installation Manual GEK 112093)				
长度, 英寸/ Length, inches	158.6	--	--	--
最大直径, 英寸/ Maximum diameter, inches	79.313×71.534	--	--	--
重量.磅（干重）/ Weight, pounds (Dry)	4644	--	--	--
重心位置, 英寸/Center of Gravity Location, inches				
发动机站位/Engine Station	205.90	--	--	--
纵剖线/Butt Line	101.10	--	--	--
水平线/Water Line	97.23	--	--	--

审定基础 (所有10E型号) / CERTIFICATION BASIS: (All 10E models)	(1) 联邦条例14章33部, 生效日期1965年2月1日, 修正案33-1至33-20。/ 14 Code of Federal Regulation (CFR), Part 33, effective February 1, 1965, as amended by amendments 33-1 through 33-20.		
	(2) 联邦条例14章34部, 生效日期2013年10月23日, 修正案34-5A。此外, 联邦条例40章87部, 生效日期2012年7月18日。/ 14 CFR Part 34, effective October 23, 2013, amendment 34-5A. In addition, 40 CFR Part 87, effective July 18, 2012.		
	(3) 等效安全 8040-ELOS-04-NE-01, §33.83(c)(1) 振动试验。/ Equivalent level of safety 8040-ELOS-04-NE-01 §33.83(c)(1) Vibration Test		
	型号合格证/Type Certificate		
	<u>型别/Model</u>	<u>申请日期/Date of Application</u>	<u>发布/修订/Issued/Amended</u>
	CF34-10E5	2001年2月9日/February 9, 2001	2004年12月22日/December 22, 2004
	CF34-10E5A1	2001年2月9日/February 9, 2001	2004年12月22日/December 22, 2004
	CF34-10E6	2001年2月9日/February 9, 2001	2004年12月22日/December 22, 2004
	CF34-10E6A1	2001年2月9日/February 9, 2001	2004年12月22日/December 22, 2004
	CF34-10E2A1	2006年1月2日/January 2, 2006	2006年7月20日/July 20, 2006
审定基础 (所有10A16型号) / CERTIFICATION BASIS: (All 10A16)	(1) 联邦条例14章33部, 生效日期1965年2月1日, 修正案33-1至33-20。/ 14 Code of Federal Regulation (CFR), Part 33, effective February 1, 1965, as amended by amendments 33-1 through 33-20.		
	(2) 联邦条例14章34部, 生效日期2013年10月23日, 修正案34-5A。此外, 联邦条例40章87部, 生效日期2012年7月18日。/ 14 CFR Part 34, effective October 23, 2013, amendment 34-5A. In addition, 40 CFR Part 87, effective July 18, 2012.		
	(3) 等效安全 8040-ELOS-04-NE-01, §33.83(c)(1) 振动试验。/ Equivalent level of safety 8040-ELOS-04-NE-01 §33.83(c)(1) Vibration Test		
	型号合格证/Type Certificate		
	<u>型别/Model</u>	<u>申请日期/</u> <u>Date of Application</u>	<u>发布/修订/</u> <u>Issued/Amended</u>
			<u>删除/Deleted</u>

	CF34-10A16	2006年1月25日/ January 25, 2006	2010年7月22日/ July 22, 2010
	CF34-10A16-B	2018年4月30日/ April 30, 2018	2019年8月28日/ August 28, 2019
	CF34-10A16-C	2020年7月2日/ July 2, 2020	2021年4月16日/ April 16, 2021
	CF34-10A16-D	2020年7月2日/ July 2, 2020	2021年4月16日/ April 16, 2021
	发动机燃油排泄和排放审定基础的详细摘要见注释11(3)。/ See note 11 (3) for detailed summary of the certification basis for fuel venting and exhaust emissions.		
生产许可证/PRODUCTION CERTIFICATE	CF34-10E/10A 生产许可证号PC108/ CF34-10E/10A Production Certificate No. PC108		

CAAC认可审定基础/ CAAC VALIDATION BASIS

接受FAA的审定基础作为认可审定基础/Accept FAA certification basis as validation basis.

注释/Notes

注1/NOTE 1 发动机额定值 / ENGINE RATINGS

发动机额定功率是基于校准的试车台性能，性能计算是基于生产型数据资料采用的可接受的参数修正方法。这些计算基于以下假设条件：/Engine ratings are based on calibrated test stand performance, and performance calculations are based on accepted parameter correction methods documented in the production data folder. These calculations assume the following conditions:

1. 标准海平面静态条件，59°F和29.92英寸汞柱。/Static sea level standard conditions of 59°F and 29.92 inches Hg.
2. 美国标准大气 1962 （零湿度）。 /US standard atmosphere 1962 (zero humidity).
3. 无飞机附件负载或引气提取。/No aircraft accessory loads or air extraction.
4. 生产型发动机进气道和生产型飞行排气系统。/Production engine inlet and production flight exhaust system.
5. 标准低热值 18550BTU/磅。 /Standard lower heating value of 18550 BTU/LB.
6. 无防冰；无进气道畸变；无进气滤网损失；100%冲压恢复。 /No anti-icing; no inlet distortion; no inlet screen losses; and 100% ram recovery.

注 2/NOTE 2 温度限制 /TEMPERATURE LIMITS

- (1) 最大允许指示温度如下表所列。另外，风扇转速高于慢车时，CF34-10E2A1 型发动机的 EGT 有 30°C 偏移，因此指示 1801°F (983°C)EGT 时，测量 EGT 为 1747°F (953°C)。所有的 CF34-10E/10A 型发动机起飞 EGT 允许瞬时超温。可接受的正常和最大起飞 EGT 瞬时超出量为：最大到 5.5°C 持续 2 秒，最大到 4.4°C 持续 5 秒，最大 3.6°C 持续 15 秒，最大 2.4°C 持续 30 秒。/Indicated maximum permissible temperatures are listed below. In addition, the CF34-10E2A1 model incorporates an EGT shunt of 30°C at fan speeds above idle. Thus, for an indicated EGT of 1801°F (983°C), the measured EGT is 1747°F (953°C). All CF34-10E/10A series engines are certified with a takeoff EGT transient allowance. This allowance applies to normal and maximum takeoff EGT, up to 5.5 °C for 2 seconds, 4.4 °C for 5 seconds, 3.6 °C for 15 seconds and 2.4 °C for 30 seconds.

指示排气温度 (EGT*) /Indicated Exhaust Gas Temperature (EGT*), °F (°C)

	CF34-10E2A1	CF34-10E5	CF34-10E5A1	CF34-10E6	CF34-10E6A1	CF34-10E7	CF34-10E7-B
最大起飞/ Maximum takeoff (5 min)	1801(983)	--	--	--	--	--	--

正常起飞/ Normal takeoff (5 min)	1801(983)	1733(945)	1801(983)	1737(947)	1801(983)	1729(943)	--
最大持续/ Maximum continuous	1760(960)	--	--	--	--	--	--
地面起动/ At start-up, ground	1364(740)	--	--	--	--	--	--
空中起动/ At start-up, inflight	1607(875)	--	--	--	--	--	--

	<u>CF34-10A16</u>	<u>CF34-10A16-B</u>	<u>CF34-10A16-C</u>	<u>CF34-10A16-D</u>
最大起飞/ Maximum takeoff (5 min)	1801(983)	--	--	--
正常起飞/ Normal takeoff (5 min)	1744(951)	--	--	--
最大持续/ Maximum continuous	1760(960)	--	--	--
地面起动/ At start-up, ground	1364(740)	--	--	--
空中起动/ At start-up, inflight	1607(875)	--	--	--

*排气温度通过 9 个探头测量，平均布置安装在第二级低压涡轮静叶上。/The exhaust gas temperature is measured by 9 probes, which are equally spaced and mounted in the second-stage low-pressure turbine vanes.

(2) 当发生超限时,参考 GE 发动机手册 GEK 112081 和 GE 航线维护手册 GEK 112081-1(所有 CF34-10E 型别),GEK 112091 (CF34-10A 所有型别) 的检查要求。/Refer to GE Engine Manual GEK 112081 and GE Line Maintenance Manual GEK 112081-1(CF34-10E all models), GEK 112091 (CF34-10A all models) for inspection requirements when limits are exceeded.

(3) 滑油温度限制(滑油供油温度在滑油箱内测量) /Oil temperature limit (oil supply temperature measured in the oil tank), °F (°C)

型号/models	所有 10E 型别/All 10E models	所有 10A 型别/All 10A models
持续运行/Continuous operation	311 (155)	--

(4)燃油进口温度(吊架接口处)/ Fuel inlet temperature (at pylon interface), °F (°C)

型号/models	所有 10E 型别/All 10E models	所有 10A 型别/All 10A models
持续运行/Continuous operation	155 (68.3)	135 (57.2)

注 3/NOTE 3. 燃油和滑油压力限制/ FUEL AND OIL PRESSURE LIMITS

(1) 燃油/Fuel: 对于所有 10E 型别, 在发动机泵进口处: 当飞机增压泵工作时, 对于气液比为 0 的燃油, 至少比真实燃油蒸汽压力高 5PSID; 工作范围是 5PSIG 至 50PSIG。在发动机动流出口处: 在慢车或以上状态时, 最小压力为 150PSIG, 工作范围为 150PSIG 至 1209PSIG。其它限制见 GE 安装手册 GEK 112083。/For all 10E models, at engine pump inlet: minimum pressure of 5 PSID above the true vapor pressure of the fuel with a vapor/liquid ratio of zero with aircraft boost operative. Operating range 5 PSIG to 50 PSIG. At engine motive flow discharge: minimum pressure of 150 PSIG at idle or above. Operating range is 150 PSIG to 1209 PSIG. See GE Installation Manual GEK 112083 for additional limits.

对于 10A 型别, 在发动机泵进口处: 当飞机增压泵工作时, 对于气液比为 0 的燃油, 至少比真实燃油蒸汽压力高 5PSID; 工作范围是 5PSIG 至 50PSIG。其它限制见 GE 安装手册 GEK 112093。/ For 10A models, at engine pump inlet: minimum pressure of 5 PSID above the true vapor pressure of the fuel with a vapor/liquid ratio of zero with aircraft boost operative. Operating range 5 PSIG to 50 PSIG. See GE Installation Manual GEK 112093 for additional limits.

- (2) 滑油/Oil: 最小滑油压力限制是 25PSID。当滑油温度低于 -20°C, 发动机启动后最初 2 分钟内最小滑油压力为 5PSID。2 分钟后, 慢车状态或发动机功率增加高于慢车以上状态时, 最小滑油压力为 25PSID。其它限制见 GE 安装手册 GEK 112083 (所有 10E 型别), GEK 112093 (所有 10A 型别)。/Minimum oil pressure limit is 25 psid. For oil temperatures less than -20C, the minimum oil pressure is 5 psid for the first two minutes following an engine start. After two minutes at idle or if the engine power is increased above idle, the minimum oil pressure is 25 psid. See GE Installation Manual GEK 112083 (10E all models), GEK 112093 (10A all models) for additional limits.

注 4/NOTE 4. 附件驱动设备限制 /ACCESSORY DRIVE PROVISIONS LIMITS

所有 10E 型别/All 10E models:

附件/ Accessory	AGB 轴位置 / Location on AGB Axis	转速/ Speed (RPM)	马力(额 定)/ HP (Rated)	旋转方向/ Direction of Rotation facing AGB	扭矩(磅-英寸), 静态/持续/过载/ Torque (lb-in) Static / Continuous / Overload	最大附件 重量(磅)/ Max Acc. Wt. (lb)	瞬间悬垂 力矩(磅-英 寸)/ Overhung Moment (lb-in)	剪切力矩 (磅-英寸)/ Shear Torque (lb-in)
滑油泵/ Lube & Scavenge Oil Pump	Axis-J Aft	8575	7	CCW	300 (1) / 48 / NA	10.3	33	750-850
整体驱动发 电机/IDG	Axis-G Fwd	7928	74.8 (2)	CW	675 (1) / 595 / 1129 (5 min) (4) 1605 (5 sec) (4)	81.2 (6)	720 Maximum	3144-3648
空气涡轮起 动机/ Air Turbine Starter	Axis-D Fwd	12281	NA	CW	2112, 4200 (3) / NA / NA	27.7	113	6300-7500
液压泵/ Hydraulic Pump	Axis-F Fwd	5567	35	CW	573 (1) (5) / 392 / 670	13.9 dry	38.4	2004 maximum
交流发电机 /Alternator	Axis-J Fwd	8575	4	CW	NA / NA / NA	3.0	2.6	NA
燃油泵/ Fuel Pump	Axis-E Aft	7928	55	CW	150/240/NA	28.6	142	1400-1540

CW—顺时针方向 (Clockwise) CCW—逆时针方向/ (Counter Clockwise)

附件速度是基于核心机速度/Accessory Speeds are based on Core Speed: 17160 rpm

(1) -40°F标准海平面/SLS

(2) 由于因效率改变导致的变化很微小, 可以认为 HP (马力) 在整个工作范围内是基本不变的。在 7898RPM (盘速度) 时是 74.8 马力, 4618RPM (盘速度) 时是 73.5 马力。5 分钟过载额定值是 82.7 马力, 5 秒钟过载额定值是 137.37 马力。
HP is constant over the operating range with slight variations due to changes in efficiency. HP extraction is 74.8 HP at 7898 rpm (pad speed) and 73.5 HP at 4618 rpm (pad speed). The 5-minute overload rating is 82.7 HP and the 5 second overload rating is 137.37

(3) 在 59°F, 标准海平面下为 2112 磅-英寸, 在 -40°F, 标准海平面下为 4200 磅-英寸/2112 in-lbs at 59°F SLS, 4200 in-lbs at -40°F SLS

(4) 过载为 4618RPM (盘速度) /Overload at 4618 rpm (pad speed)

(5) 626RPM 时 (盘速度) 为 573 磅-英寸/573 in-lbs at 626 rpm (pad speed)

(6) 包括滑油和 V 型连接器/Includes oil and V band coupling

所有 CF34-10A 型别/All CF34-10A models:

附件/ Accessory	AGB 轴位置/ Location on AGB Axis	转速/ Speed (RPM)	马力(额 定)/ HP (Rated)	旋转方向/ Direction of Rotation facing AGB	扭矩(磅-英寸), 静态/持续/过载/ Torque (lb-in) Static / Continuous / Overload	最大 重量(磅)/ Max Weight. (lb)	瞬间悬垂 力矩(磅- 英寸)/ Overhung Moment (lb-in)	剪切力矩 (磅-英寸)/ Shear Torque (lb-in)
滑油泵/ Lube & Scavenge Oil Pump	Axis-F, AFT	7982	6.2	CCW	33 / 47 (1) / 56	16.2	59.94	750-850
整体驱动发 电机/IDG	Axis-F, FWD	7982	76.7	CW	675 (2) / 610 (3) / 2184 (4)	80	610	3150-3650
空气涡轮起 动机/ Air Turbine Starter	Axis-C, FWD	12269	N/A	CW	NA /3360 / NA	29.46	125.91	6300-7500
液压泵/ Hydraulic Pump	Axis-D, AFT	5593	38.0	CW	550 / 108 / 670	14.70	43.07	2000 Max
交流发电机 /Alternator	Axis-G, FWD	8604	0.38	CCW	NA / 3.5 / 5.8	3.04	2.16	N/A
燃油泵/ Fuel Pump	Axis-E, FWD	7888	26.3	CW	90 / 210 / 353	21	73.94	1400-1540

CW—顺时针方向 (Clockwise) CCW—逆时针方向/ (Counter Clockwise)

附件速度是基于核心机速度/Accessory Speeds are based on Core Speed: 17160 rpm

- (1) 在 6 马力输入条件下, 以 7982 转每分钟转速进行校准/ Calculated at rated speed of 7982 rpm at 6 HP input.
- (2) 在 -40°F 条件下冷起动, 且最大转速变化速率为每秒 450 转每分钟。在 500 转每分钟转速时达到扭矩峰值。转速为零时扭矩为零/Cold start @ -40°F and max ramp rate of 450 rpm/sec. Torque peaks at 500 rpm. Zero Torque at zero speed.
- (3) 在 76.5 马力和 7898 转每分钟转速连续工作点进行校准/Calculated at continuous operating point 76.5 HP and 7898 rpm
- (4) 在 160 马力和 4618 转每分钟转速条件下, 最多工作 5 秒钟/5 sec max at 160 HP and 4618 rpm.

注 5/NOTE 5. 型号描述 / MODEL DESCRIPTION

型号/Model	特性/Characteristics
CF34-10E2A1	Embraer 基本型号/ Embraer Basic Model
CF34-10E5	Embraer 基本型号, 有更高的最大起飞、正常起飞、最大连续额定推力/ Embraer Basic Model with additional thrust on Maximum Takeoff, Nominal Takeoff and Maximum Continuous rating
CF34-10E5A1	Embraer 基本型号, 有更高的最大起飞、正常起飞、最大连续额定推力/ Embraer Basic Model with additional thrust on Maximum Takeoff, Nominal Takeoff and Maximum Continuous rating
CF34-10E6	Embraer 基本型号, 有更高的最大起飞、正常起飞、最大连续额定推力, 并在起飞时具有更高的平台额定环境温度/ Embraer Basic Model with additional thrust on Maximum Takeoff, Nominal Takeoff and Maximum Continuous rating, with higher flat rate ambient temperature capability at Takeoff
CF34-10E6A1	Embraer 基本型号, 有更高的最大起飞、正常起飞、最大连续额定推力, 并在起飞时具有更高的平台额定环境温度/ Embraer Basic Model with additional thrust on Maximum Takeoff, Nominal Takeoff and Maximum Continuous rating, with higher flat rate ambient temperature capability at Takeoff
CF34-10E7	Embraer 基本型号, 有更高的最大起飞、正常起飞、最大连续额定推力/ Embraer Basic Model with additional thrust on Maximum Takeoff, Nominal Takeoff and Maximum Continuous rating

CF34-10E7-B	Embraer 商务机基本型号/ Embraer Business Jet Basic Model
CF34-10A16	COMAC 基本型号/ COMAC Basic Model
CF34-10A16-B	COMAC 商务机基本型号/ COMAC Business Jet Basic Model
CF34-10A16-C	COMAC 基本型号, 有多 5% 的最大巡航额定推力/ COMAC Basic Model with additional 5% thrust on Max Cruise rating
CF34-10A16-D	COMAC 基本型号, 有多 5% 的最大巡航额定推力, 在 20,000 到 30,000 英尺高度具有多 3% 的最大连续额定推力/ COMAC Basic Model with additional 5% thrust on Max Cruise rating and additional 3% thrust on Max Continuous rating at altitudes between 20,000 ft and 30,000 ft.

注 6/NOTE 6. 满足飞机要求的典型的飞机附件、零件或系统组件作为发动机型号设计的一部分/ TYPICAL AIRCRAFT ACCESSORIES, COMPONENTS, OR SYSTEM ASSEMBLIES, WITH AIRCRAFT LEVEL REQUIREMENTS PROVIDED AS PART OF ENGINE TYPE DESIGN:

对于 CF34-10E/10A 系列发动机, 14CFR33 部发动机型号设计的定义包括作为短舱系统一部分的反推装置系统。件号如下表所列。

For the CF34-10E/10A model series, the 14CFR Part 33 engine type design definition includes thrust reverser system, which is part of the nacelle system, and is identified as follows:

发动机部件清单/Engine Parts List

CF34-10E2A1GXX
CF34-10E5GXX
CF34-10E5A1GXX
CF34-10E6GXX
CF34-10E6A1GXX
CF34-10E7GXX
CF34-10E7-BGXX
CF34-10A16GXX
CF34-10A16-BGXX
CF34-10A16-CGXX
CF34-10A16-DGXX

反推装置部件清单/Thrust Reverser Parts List

601E0001-5XX
601E0001-5XX
601E0001-5XX
601E0001-5XX
601E0001-5XX
601E0001-5XX
601E0001-5XX
604C0010-5XX
604C0010-5XX
604C0010-5XX
604C0010-5XX

GE 发动机手册 GEK112081 和 GE 航线维护手册 GEK 112081-1 (CF34-10E 所有型别) 和 GEK 112091 (CF34-10 所有型别) 详细说明了 GXX 或 -5XX 代表的所有部件清单的安装要求, 例如 G01、G02、-501、-502 等。/The GE Engine Manual, GEK 112081 and GE Line Maintenance Manual GEK 112081-1(CF34-10E all models) and GEK 112091 (CF34-10A all models), defines the installation requirements for the engine GXX or -5XX indicates all parts list designations, for example G01, G02, -501, -502, etc.

注 7/NOTE 7. 安装于发动机, 但不属于发动机型号设计的飞机附件、零件或系统组件: / AIRCRAFT ACCESSORIES, COMPONENTS, OR SYSTEM ASSEMBLIES INSTALLED ON THE ENGINE THAT ARE NOT PART OF ENGINE TYPE DESIGN:

不适用 / Not Applicable

注 8/NOTE 8. 特殊的防冰、除冰要求/ SPECIAL ANTI-ICING OR DE-ICING REQUIREMENTS

不适用 / Not Applicable

注 9/NOTE 9. 发动机吊挂系统要求/ ENGINE MOUNT SYSTEM PROVISIONS

不适用 / Not Applicable

注 10/NOTE 10. 适用的功率提升、引射或增强系统及限制/ POWER BOOST, INJECTION OR AUGMENTATION SYSTEMS AND LIMITS AS APPLICABLE

本发动机装配了在起飞时一发不工作的情况下的自动推力保持功能。在起飞期间,当自动推力保持功能被激活,不工作的发动机控制会发一个信号给工作中的发动机控制系统。根据收到的信号,工作中的发动机会自动的由正常起飞(NTO)时相应的低推力提高到最大起飞推力(MTO)。全最大起飞推力可以通过飞行员在任何时间的手柄操作来实现。

This engine is equipped with an automatic power reserve function for takeoff operation with one engine inoperative. During takeoff, when the automatic power reserve function is activated, the engine control of the inoperative engine sends an input signal to the engine control of the operating engine. Upon receiving this signal, the engine thrust of the operating engine automatically increases from normal takeoff (NTO) or lower thrust to the corresponding, pre-determined maximum takeoff (MTO) thrust. Full MTO thrust is available to the pilot at any time by throttle selection.

在自动推力控制功能激活的情况下,即使一台发动机功能退化,发动机控制系统也可以保证在正常起飞的低推力情况下完成最大起飞推力的转换,并且不超出发动机操作限制。

The engine control system also incorporates schedules that assure a fully degraded engine, during operation at the NTO of lower thrust, will achieve the specified MTO thrust without exceeding the engine operating limits when the automatic power reserve function is activated.

注 11/NOTE 11. 特殊安装要求/ SPECIAL INSTALLATION REQUIREMENT

(1) 最大可允许的进气畸变在发动机手册 GEK 112083 (CF34-10E 所有型别) 和 GEK 112093 (CF34-10A 所有型别) 中有注明。侧风情况下地面操作限制和程序在 GE 特殊操作指南 GEK 112084 (CF34-10E 所有型别) 和 GEK 112094 (CF34-10A 所有型别) 中有说明。

(1) The maximum permissible inlet distortion for these engines is specified in GE Installation Manual GEK 112083 (CF34-10E all models) and GEK 112093 (CF34-10A all models). Ground operational limits and procedures for operation in crosswind are specified in GE Specific Operating Instructions GEK 112084 (CF34-10E all models) and GEK 112094 (CF34-10A all models).

(2) 关于发动机控制系统的放行和维护要求在发动机手册 GEK 112081 (CF34-10E 所有型别) 和 GEK 112091 (CF34-10A 所有型别) 的适航章节中有详细说明, 手册中定义了多种构型的最大工作间隔。

(2) Criteria pertaining to the dispatch and maintenance requirements for the engine control systems are specified in the airworthiness section of the Engine Manual, GEK 112081 (CF34-10E all models) and GEK 112091 (CF34-10A all models), which define the various configurations and maximum operating intervals.

(3) 以下发动机型号 (CF34-10A16, CF34-10A16-B, CF34-10A16-C, CF34-10A16-D, CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, CF34-10E7-B) 已经满足了联邦法规第 14 部第 34 部分第 5A 修订案 (2013 年 10 月 23 日生效) 和联邦法规第 40 部第 87 部分 (2012 年 7 月 18 日生效) 中发布的以下排放标准。

- 燃油排泄排放标准: 14 CFR 第 34.10(a) 和 34.11 条款以及 40 CFR 87.10(a) and 87.11 条款
- 发烟指数 (SN) 排放标准: 14 CFR 第 34.21(e)(2) 条款, 以及 40 CFR 第 87.23(c)(1) 条款
- 一氧化碳 (CO) 排放标准: 14 CFR 第 34.21(d)(1)(ii) 条款, 以及 40 CFR 第 87.23(c)(1) 条款
- 碳氢化合物 (HC) 排放标准: 14 CFR 第 34.21(d)(1)(i) 条款, 以及 40 CFR 第 87.23(c)(1) 条款。
- 氮氧化合物 (NOX) 排放标准: 14 CFR 第 34.23(b)(1) 条款, 以及 40 CFR 第 87.23(c)(3) 条款。

除了基于此 TCDS 中所定义审定要求的 FAA 符合性规定之外, 发动机制造商已经声明通过验证满足了 ICAO 的以下排放标准: 附件 16, 第 2 卷, 第四版, 2017 年 7 月

- 第 II 部分, 第二章, 关于燃油排泄
- 第 III 部分, 第二章, 2.3.2 部分, 关于一氧化碳 (CO) 和 碳氢化合物 (HC)
- 第 III 部分, 第二章, 2.3.2. e.1(ii) 部分, 关于氮氧化合物 (NOX) (CAEP/8) 以及
- 第 III 部分, 第四章, 4.2.2 部分, 关于 nvPM (CAEP/10)

(3) The following emissions standards promulgated in 14 CFR Part 34, Amendment 5A, effective October 23, 2013, and 40 CFR Part 87, effective July 18, 2012, have been complied with for: CF34-10A16, CF34-10A16-B, CF34-10A16-C, CF34-10A16-D, CF34-10E2A1, CF34-10E5, CF34-10E5A1, CF34-10E6, CF34-10E6A1, CF34-10E7, CF34-10E7-B.

- Fuel Venting emission standards: 14 CFR 34.10(a) and 34.11; in addition, 40 CFR 87.10(a) and 87.11
- Smoke Number (SN) emission standards: 14 CFR 34.21(e)(2); in addition, 40 CFR 87.23(c)(1)
- Carbon Monoxide (CO) emission standards: 14 CFR 34.21(d)(1)(ii); in addition, 40 CFR 87.23(c)(1)
- Hydrocarbons (HC) emission standards: 14 CFR 34.21(d)(1)(i); in addition, 40 CFR 87.23(c)(1)
- Oxides of Nitrogen (NOx) emission standards: 14 CFR 34.23(b)(1); in addition, 40 CFR 87.23(c)(3)

In addition to the FAA's finding of compliance based on the certification requirements defined in this TCDS, the engine manufacturer has declared that the ICAO emissions standards identified in Annex 16, Volume II, Fourth Edition, July 2017, have also been demonstrated for the following:

- Part II, Chapter 2 for Fuel Venting
- Part III, Chapter 2, Section 2.3.2 for Carbon monoxide and Hydrocarbons,
- Part III, Chapter 2, Section 2.3.2. e.1(ii) for Oxides of Nitrogen (also known as CAEP/8), and
- Part III, Chapter 4, Section 4.2.2 for non-volatile Particulate Matter (also known as CAEP/10)

(4) 以下发动机型别 (CF34-10A16, CF34-10A16-B, CF34-10A16-C, CF34-10A16-D) 满足中国民航规章《涡轮发动机飞机燃油排泄和排气排出物规定》(CCAR-34R1) (2023 年 1 月 1 日生效) 的下列标准:

- 非挥发性颗粒物排放标准: CCAR 34.21(e)款 (CAEP/10 与 CAEP/11)

(4) The following emissions standards promulgated in CAAC regulation CCAR-34R1, effective January 1st, 2023, have been complied with for: CF34-10A16, CF34-10A16-B, CF34-10A16-C, CF34-10A16-D:

- Non-volatile Particulate Matter emission standards: CCAR 34.21(e) (CAEP/10 and CAEP/11)

注 12/NOTE 12. 制造商的服务通告或其他说明/ MANUFACTURER'S SERVICE BULLETINS OR OTHER INSTRUCTIONS
推荐的维修检查间隔公布在 CF34-10E 服务公告 71-0000 和 CF34-10A GE 服务公告 71-0000 中。
Recommended maintenance inspection intervals are published in CF34-10E Service Bulletin 71-0000 and CF34-10A GE Service Bulletin 71-0000.

注 13/NOTE 13. 特殊的运行程序或限制 / SPECIAL OPERATING PROCEDURES OR LIMITATIONS

(1) 正常起飞功率情况下的时间限制是 5 分钟, 包括起飞期间超过正常起飞功率的任何时间。对于多发飞机的单发不工作时, 5 分钟的起飞限制时间可以延长到 10 分钟。

(1) The time limit at the normal takeoff rating is five minutes and shall include any time accumulated above the normal takeoff rating for that takeoff. The 5-minute takeoff time limit may be extended to 10 minutes for one engine inoperative operation in multi-engine aircraft.

(2) 发动机 warm-up 程序要根据操作指南 GEK 112084 (CF34-10E 所有型别) 和 GEK 112094 (CF34-10A 所有型别) 进行。

(2) Refer to Operating Instructions GEK 112084 (CF34-10E all models) and GEK 112094 (CF34-10A all models) for engine warm-up procedure.

(3) 发动机反推操作要根据操作指南 GEK 112084 (CF34-10E 所有型别) 和 GEK 112094 (CF34-10A 所有型别) 进行。

(3) Refer to Operating Instructions GEK 112084 (CF34-10E all models) and GEK 112094 (CF34-10A all models) for thrust reverser operation.

注 14/NOTE 14. 特殊的修理或大修限制 / SPECIAL REPAIR OR OVERHAUL LIMITATIONS
不适用 / Not Applicable

注 15/NOTE 15. 使用的安装、维修和大修手册 / APPLICABLE INSTALLATION, MAINTENANCE AND OVERHAUL MANUALS

对于 CF34-10E/10A 系列发动机, 以下手册已被批准或接受/The following manuals are approved or accepted for the CF34-10E/10A model series:

	CF34-10E (所有型别/all models)	CF34-10A (所有型别/all models)
操作指南 Operating Instructions	GEK 112084	GEK 112094
安装手册 Installation Manual	GEK 112083	GEK 112093
发动机手册 Engine Manual	GEK 112081	GEK 112091
航线维护手册 Line Maintenance Manual	GEK112081-1	NA

注 16/NOTE 16. 外国制造发动机的进口要求 / IMPORT REQUIREMENTS FOR FOREIGN MANUFACTURED ENGINES
不适用 / Not Applicable

注 17/NOTE 17. 寿命限制件信息 / LIFE LIMITED PARTS INFORMATION

关键件的寿命限制和强制检查要求在发动机手册 GEK112081 (CF34-10E 所有型别) 和 GEK 112091 (CF34-10A16) 的适航限制部分有详细说明。

Life limits established for critical components and mandatory inspection requirements are specified in the Airworthiness Limitation Section of GE Engine Manual GEK 112081 (CF34-10E all models) and GEK 112091 (CF34-10A all models).

注 18/NOTE 18. 军用型号信息 / MILITARY MODEL INFORMATION
不适用 / Not Applicable

注 19/NOTE 19. 主转子的最大允许转速 / MAXIMUM PERMISSIBLE MAIN ROTOR SPEEDS

	CF34-10E (所有型别) /CF34-10E(all models)	CF34-10A (所有型别) / CF34-10A16(all models)
低压转子 (N1) RPM Low pressure rotor (N1), rpm		
最大起飞/Maximum takeoff	6325	6325
正常起飞/Normal takeoff	6325	6325
最大持续/Maximum continuous	6325	6325
高压转子 (N2) RPM High pressure rotor (N2), rpm		
最大起飞/Maximum takeoff	18018	18018
正常起飞/Normal takeoff	18018	18018
最大持续/Maximum continuous	18018	18018

当发生超限时, 参考 GE 发动机手册 GEK 112081 和 GE 航线维护手册 GEK 112081-1 (所有 10E 型别), GEK 112091 (所有 10A 型别), 和其它手册或检查要求。/

Refer to GE Engine Manual GEK 112081 and GE Line Maintenance Manual GEK 112081-1 (all 10E models), GEK112091 (10A all models), and other manual or inspection requirements when limits are exceeded.

100%N1 转速为 5954.4RPM, 100%N2 转速为 17160RPM (所有 10E / 10A 型别)。

100 percent N1 rotor speed is 5954.4 rpm, 100 percent N2 rotor speed is 17,160 rpm (all 10E / 10A models).

注 20/NOTE 20. 输出轴、螺旋桨轴的扭矩限制 / OUTPUT/PROPELLER SHAFT TORQUE LIMITS

不适用 / Not Applicable

注 21/NOTE 21. 允许的最大引气/ MAXIMUM PERMISSIBLE BLEED AIR EXTRACTION

引气提取—最大客户端引气提取如下：在所有工作条件下或在慢车以上状态，5 级或 9 级压气机出口的引气提取可用（慢车以下状态，不允许从压气机处引气）。客户端引气在低功率时取自第 5 级，高功率时取自第 9 级。GE 安装手册 GEK112083（CF34-10E 所有型别）和 GEK112093（CF34-10A 所有型别）中有相关说明。

Air Bleed Extraction - maximum customer air bleed extraction is as follows: Customer bleed air is available from either stage 5 or 9 (compressor discharge) of the compressor at all operating conditions at or above idle (No compressor bleed is permitted below idle). Customer bleed is scheduled to switch from stage 9 bleed at low power operation to stage 5 bleed at high power operation as described in GE Installation Manual GEK 112083 (CF34-10E all models) and GEK 112093 (CF34-10A all models).

CF34-10E/10A（所有型别/all models）

位置/Location

最大证明引气（占整个压气机流量的百分比）

Maximum Demonstrated Bleed Air (% of Total Compressor Airflow)

压气机 5 级/Compressor Stage 5	8.0
压气机 9 级（压气机出口）/ Compressor Stage 9 (Compressor Discharge)	12.0
最大允许引气/Maximum Allowable Bleed	12.0

注 22/NOTE 22. 转子盘完整性和转子叶片包容性（适用特殊要求）/ ROTOR DISK INTEGRITY AND ROTOR BLADE CONTAINMENT (where special requirements apply)

不适用 / Not Applicable

--结束--

-- END--