

型号认可证数据单

TYPE VALIDATION DATA SHEET

编号/No: VTC139E

版次/Revision: 0

型号/Type:

Rotax 912 A1	Rotax 912 A2	Rotax 912 A3
Rotax 912 A4	Rotax 912 F2	Rotax 912 F3
Rotax 912 F4	Rotax 912 S2	Rotax 912 S3
Rotax 912 S4	Rotax 912 iSc2 Sport	
Rotax 912 iSc3 Sport		

批准人/Approved By:



职务/Title: Director General of CAAC-AAD

日期/Date: 2021 年 10 月 29 日

本数据单是型号认可证（编号：VTC139E）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: VTC139E), 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:

BRP-Rotax GmbH & Co KG
Rotaxstraße 1
A-4623 Gunskirchen
Austria

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	VTC139E, 版次0, 2021年10月29日 No. VTC139E, Revision 0, 29 October 2021	TCDS No. E.121, 版次08, 2016年9月5日 TCDS No. E.121, Revision 08, 05 September 2016
历史 History	CAAC于2003年5月13日颁布了型号认可证(编号VTC139E), 未颁布CAAC型号认可证数据单。 CAAC issued VTC139E on 13 May 2003 without CAAC VTCDS issuance.	TCDS No. TW 8/89, 版次3, 1997年5月14日 TCDS No. TW 8/89, Edition 3, 14 May 1997 TCDS No. TW 9-ACG, 版次3, 2001年11月23日 TCDS No. TW 9-ACG, Edition 3, 23 November 2001

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 0	1. 补充编制了CAAC 2003年5月13日认可的Rotax 912 A/F/S系列发动机的型号认可证数据单/ Draft CAAC VTCDS for Rotax 912 A/F/S series engines validated by CAAC on 13 May 2003. 2. 增加 Rotax 912 iSc2 Sport和Rotax 912 iSc3 Sport型号/ Addition of the models Rotax 912 iSc2 Sport and Rotax 912 iSc3 Sport.	

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: BRP-Rotax GmbH & Co KG
Rotaxstraße 1
A-4623 Gunskirchen
Austria

5. 生产商/Manufacturer: BRP-Rotax GmbH & Co KG
Rotaxstraße 1
A-4623 Gunskirchen
Austria

6. ETOPS: 不适用/NA

7. CAAC专用要求/CAAC Special Requirements:

无

第2部分 审定基础

Section II 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:

Rotax 912 A1	Rotax 912 A2	Rotax 912 A3	Rotax 912 A4	Rotax 912 F2
1987 年 10 月 19 日 19 October 1987	1987 年 10 月 19 日 19 October 1987	1992 年 7 月 22 日 22 July 1992	1995 年 5 月 24 日 24 May 1995	1993 年 9 月 21 日 21 September 1993
Rotax 912 F3	Rotax 912 F4	Rotax 912 S2	Rotax 912 S3	Rotax 912 S4
1993 年 9 月 21 日 21 September 1993	1993 年 9 月 21 日 21 September 1993	1997 年 11 月 20 日 20 November 1997	1997 年 11 月 20 日 20 November 1997	1997 年 11 月 20 日 20 November 1997
Rotax 912 iSc2 Sport	Rotax 912 iSc3 Sport	-	-	-
2010 年 4 月 7 日 07 April 2010	2010 年 4 月 7 日 07 April 2010	-	-	-

2. EASA 审定基础/ EASA Certification Basis:

2.1 适航标准/ Airworthiness Standards

Rotax 912 A 系列: / Rotax 912 A series:

水上飞机发动机适航要求第1修正案JAR 22附录H, 1981年5月18日。/ JAR 22 Appendix H, Airworthiness requirements for engines of powered sailplanes, Amdt. 1 of May 18, 1981.

Rotax 912 F 系列和 S 系列: / Rotax 912 F series and S series:

FAR33部第15修正案, 和FAA NPRM文件#24922, 公告号92-14。/ FAR Part 33 Amdt. 15 plus FAA NPRM Doc. # 24922, Notice no. 92-14.

Rotax 912 iSc Sport 系列: / Rotax 912 iSc Sport series:

CS-E第三修正案 (2010年12月23日)。/ CS-E, Amendment 3 (December 23, 2010).

2.2 专用条件/ Special Conditions (SC):

Rotax 912 F 系列和 S 系列: / Rotax 912 F series and S series:

SC1 HIRF 的要求符合 RTCA; / SC1 HIRF Requirement according RTCA;

SC2 外部交流发电机。/ SC2 External Alternator.

2.3 等效安全/ Equivalent Safety Findings :

Rotax 912 F 系列和 S 系列: / Rotax 912 F series and S series:

螺旋桨调速器: / Propeller governor:

采取的等效安全措施是用JAR-E180(B)(1)(ii)替换FAR 33.19(b)中要求的FAR 35.42条款, 应用于液压调速器的工作试验, 符合FAR 33.25的规定, 组件的附件已得到验证。/ Instead of FAR 35.42 as stated in FAR 33.19(b), JAR-E180(B)(1)(ii)

has been applied for the operational test of the hydraulic governor. This was fixed as equivalent safety measure. Conformity with FAR 33.25, attachment of components has been proven.

2.4 豁免/Deviations:

无

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 III Technical Characteristics

1. 型号设计定义/Type Design Definition:

Rotax 912 iSc Sport系列: 按照型号设计定义编号35.912.0533进行定义。

Rotax 912 iSc Sport series: As defined by the type design definition No. 35.912.0533.

2. 描述/Description:

Rotax 912发动机是4冲程, 4缸水平对置的火花点火发动机, 通过集成的减速齿轮进行螺旋桨驱动, 液冷式气缸盖, 冲压空气冷却式气缸, 干式强制润滑。

The Rotax 912 engine is a 4-stroke, 4 cylinder horizontally opposed, spark ignition engine, propeller drive via integrated reduction gear, liquid cooled cylinder heads, ram-air cooled cylinders, dry sump forced lubrication.

对于A系列和F系列:

For A Series and F Series:

缸径 Bore	79.5mm	3.13 in.
行程 Stroke	61.0mm	2.40 in.
排量 Displacement	1211cm ³	73.9 cu.in.
压比 Compression ratio	9.0:1	
齿轮比 (曲轴: 传动轴) Gear ratio (crankshaft: propeller shaft)	2.2727:1 or 2.4286:1 (optional)	

对于S系列:

For S Series:

缸径 Bore	84.0mm	3.30 in.
行程 Stroke	61.0mm	2.40 in.
排量 Displacement	1352cm ³	82.5cu.in.
压比 Compression ratio	10.5:1	
齿轮比 (曲轴: 传动轴) Gear ratio (crankshaft: propeller shaft)	2.4286:1 (optional)	

对于iSc Sport系列:

For iSc Sport Series:

缸径 Bore	84.0mm	3.31 in.
行程 Stroke	61.0mm	2.40 in.
排量 Displacement	1352cm ³	82.5cu.in.
压比 Compression ratio	10.8:1	
齿轮比（曲轴：传动轴） Gear ratio(crankshaft: propeller shaft)	2.4286:1	

Model A1

基本型号：4冲程，4个水平对置气缸，1个中央凸轮轴，推杆，顶置阀，液冷气缸盖，冲压空气冷却气缸，干式强制润滑，双重无间断电容放电点火，两个恒定低压汽化器，机械燃油泵，固定螺距螺旋桨法兰：螺距100mm，通过带集成减震器和过载保护的减速齿轮的驱动输出，电起动机，集成直流发电机，真空泵驱动器（可选），外部交流发电机（可选）。

Basic model: 4-stroke, four cylinder horizontally opposed, one central camshaft, push-rods-OHV, liquid cooled cylinder heads, ram-air cooled cylinders, dry sump forced lubrication, dual breakerless capacitive discharge ignition, 2 constant depression carburetors, mechanical fuel pump, fixed pitch propellershaft with flange: P.C.D 100 mm, drive via reduction gear with integrated shock absorber and overload protection, electric starter, integrated DC generator, vacuum pump drive (optional), external alternator (optional).

Model A2

除带有用于定距或电调螺旋桨轴的法兰（螺距为75/80/4"）之外，与A1类似。

similar to A1, however propellershaft with flange: P.C.D 75/80/4" for fixed or electr. Adjustable Propeller.

Model A3

除带有附加驱动与适配器的液压调速器和用于恒速螺旋桨轴的法兰（螺距为75/80/4"）之外，与A1类似。

similar to A1, however additional drive and adapter for hydraulic governor, propellershaft flange: P.C.D 75/80/4" for constant speed propeller.

Model A4

除带有用于定距螺旋桨轴的法兰（螺距为75/80/4"），以及适用液压恒速螺旋桨的转换接口（无驱动、适配器和调速器）之外，与A3类似。

similar to A3, however propellershaft with flange: P.C.D 75/80/4" for fixed pitch propeller, prepared for conversion to hydraulic constant speed propeller (without drive, adapter and governor).

Model S2/F2

基本型号：4冲程，火花点火，4个水平对置气缸，1个中央凸轮轴，推杆，顶置阀，液冷气缸盖，冲压空气冷却气缸，干式强制润滑，双重无间断电容放电点火，两个恒定低压汽化器，机械燃油泵，固定螺距螺旋桨配置，通过带集成减震器和过载保护的减速齿轮的驱动输出，电起动机，集成交流发电机，真空泵驱动器（可选），外部交流发电机（可选）。

Basic model: 4-stroke, spark ignition, 4 cylinder horizontally opposed, one central camshaft, push-rods, overhead valves, liquid cooled cylinder heads, ram-air cooled cylinders, dry sump forced lubrication, dual breakerless capacitive discharge ignition, two constant depression carburetors, mechanical fuel pump, fixed pitch propeller configuration, drive output via reduction gear with

integrated shock absorber and overload protection, electric starter, integrated AC generator, vacuum pump drive (optional), external alternator (optional).

Model S3/F3

除带有附加驱动与适配器的液压调速器和用于恒速螺旋桨轴的法兰（螺距为75/80/4"）之外，与S2/ F2相同。

Same as S2/F2, except: additional drive and adapter for hydraulic governor, hydraulic governor and propeller shaft for constant speed propeller.

Model S4/F4

除带有用于定距螺旋桨轴的法兰（螺距为75/80/4"），以及适用液压恒速螺旋桨的转换接口（无驱动、适配器和调速器）之外，与S3/ F3相同。

Same as S3/F3, except: fixed pitch propeller, prepared for hydraulic governor for constant speed propeller (without drive, adapter and governor).

Model 912 iSc Sport

基本模型：该发动机是4缸水平对置4冲程活塞发动机，具有液冷式缸盖，冲压空气冷却式气缸，干式强制润滑，由全权限数字电子控制（FADEC）控制的2个电动燃油泵用于点火和喷射控制系统。发动机配备了带有一体式减震器（爪形离合器型）和过载保护装置的减速齿轮箱，可将曲轴转速降低到设计的传动轴转速。螺旋桨速度可以由安装在曲轴箱上的调速器（912 iSc3 Sport）进行控制，并由螺旋桨轴驱动。该发动机可使用汽车汽油或AVGAS进行运行。

Basic model: The engine is a 4 cylinder horizontally opposed, 4-stroke piston engine with liquid cooled cylinder heads, ram-air cooled cylinders, dry sump forced lubrication, 2 electrical fuel pumps and it is controlled by a dual channel Full Authority Digital Engine Control (FADEC) system for ignition and injection. The engine is equipped with a reduction gear box with integrated shock absorber (dog clutch type) and overload protection to reduce the crankshaft speed to the designed propeller shaft speed. The prop speed could be controlled by a governor mounted on the crankcase (912 iSc3 Sport), driven by the propeller shaft. The engine will be operated with automotive gasoline or AVGAS.

Model iSc2 Sport

除了带有用于定距螺旋桨轴的法兰外，与912 iSc Sport基本模型一致。

Same as 912 iSc Sport basic model except: Prop shaft with flange for fixed prop.

Model iSc3 Sport

除了带有用于恒速螺旋桨轴的法兰和用于驱动恒速螺旋桨的液压调速器外，与912 iSc Sport基本模型一致。

Prop shaft with flange for constant speed propeller and drive for hydraulic governor for constant speed propeller.

3. 设备/Equipment:

912 A系列:

912 A series:

汽化器：2个BING恒压汽化器，型号64/32，主喷嘴158或155；

Carburetor: 2 × BING constant pressure carburetor type 64/32, main nozzle 158 or 155.

燃油泵：机械，PIERBURG 720 971.55. ROTAX P/N 996 590；

Fuel Pump: mech., PIERBURG 720 971.55. ROTAX P/N 996 590.

点火系统：ROTAX双磁高压冷凝器点火，非接触式正常和SMD型；

Ignition System: ROTAX Dual magnetic high-voltage condenser ignition, contactless Normal and SMD type.

火花塞: NGK DCPR 7E;

Spark Plugs: NGK DCPR 7E.

集成发电机: DUCATI, 带外部整流调节器的永磁发电机;

Integrated Generator: DUCATI, Permanent magnet generator with external rectifier regulator.

外部交流发电机: 具有集成调节器的NIPPONDENSO F3A (可选), 编号887251;

External Alternator: NIPPONDENSO F3A with integrated regulator (optional) P/N: 887251.

起动器: NIPPONDENSO 12V/0.6kW, 通过减速齿轮和自由轮啮合;

Starter: NIPPONDENSO 12V/0.6 kW, engagement via reduction gear and freewheel.

真空泵: AIRBORN 211CC, 包括驱动器 (可选);

Vacuum Pump: AIRBORN 211 CC, incl. drive (optional).

转速计数器: 电子转速表连接器机械转速表驱动 (可选);

Rpm Counter: electronic tachometer connector mechanical tachometer drive (optional);

调速器 (仅F3): 标准: WOODWARD () 210 786, 可选: WOODWARD () 210 790.

Governor (F3 only): Standard: WOODWARD () 210 786, Optional: WOODWARD () 210 790.

912 F系列:

912 F series:

汽化器: 2个BING恒压汽化器, 类型64/32, 主喷嘴158或155;

Carburetor: 2 x BING constant depression carburetors Type 64/32, main jet 158 or 155.

燃料泵: 机械泵, Pierburg 720.971.55;

Fuel pump: mechanical pump, Pierburg 720.971.55.

点火装置: ROTAX双磁高压冷凝器点火, SMD型; ;

Ignition unit: Rotax, dual, breakerless capacitor discharge ignition, SMD design.

火花塞: NGK DCPR 7E;

Spark plugs: NGK DCPR 7E.

集成发电机: DUCATI, 带外部整流调节器的永磁发电机;

Integrated generator: Ducati permanent magnet generator external rectifier-regulator.

外部交流发电机: 具有集成调节器的NIPPONDENSO F3A (可选);

External alternator: NIPPONDENSO F3A with integrated regulator (optional).

起动器: NIPPONDENSO 12V/0.5kW, 通过减速齿轮和自由轮啮合;

Electric starter: NIPPONDENSO, permanent magnet, 12V/0.5kW, engagement via reduction gear and free wheel.

真空泵: AIRBORN 211CC, 215 CC包括驱动器 (可选);

Vacuum pump: Airborne 211 CC, 215 CC including drive (optional).

转速计数器: 电子转速表连接, 机械转速表驱动器 (可选);

Rev-counter: connection for electronic rev-counter, drive for mechanical rev-counter (optional).

螺旋桨控制:

Propeller control:

Woodward液压调速器, 210.786 (仅适用于F3), 传动比 $i=2.27$;

Woodward-hydraulic governor, 210.786 (for F3 only) for ratio $i=2.27$.

Woodward210.786 (仅适用于F3), 传动比 $i=2.43$;

Woodward 210.786 (for F3 only), for ratio $i=2.43$.

Woodward液压调速器, 210.790 (仅适用于F3), 传动比 $i=2.27$ 和 $i=2.43$, 带顺桨装置;

Woodward- hydraulic governor, 210.790 (for F3 only) for ratio $i= 2.27$ and $i= 2.43$ with feathering arrangement.

传动比 $i=2.27$ 时, McCauley DCFU 290 D17B/T1 (仅适用于F3) 带和不带顺桨装置;

McCauley DCFU 290 D17B/T1 (for F3 only) for ratio $i=2.27$ execution with and without feathering arrangement.

传动比 $i=2.43$ 的McCauley DCFU290D17B/T2（仅适用于F3），带和不带顺桨装置。

McCauley DCFU 290 D17B/T2 (for F3 only) for ratio $i=2.43$, execution with and without feathering arrangement.

912 S系列:

912 S series:

汽化器: 2个BING恒压汽化器, 型号64/32, 主喷嘴155;

Carburetor: 2 x BING constant depression carburetors Type 64/32, main jet 155.

燃油泵: 机械泵, Pierburg 720.971.55;

Fuel pump: mechanical pump, Pierburg 720.971.55.

点火装置: ROTAX双磁高压冷凝器点火, SMD型;

Ignition unit: Rotax, dual, breakerless capacitor discharge ignition, SMD design.

火花塞: NGK DCPR TE

Spark plugs: NGK DCPR 8E.

集成发电机: DUCATI, 带外部整流调节器的永磁发电机;

Integrated generator: Ducati permanent magneto generator, external rectifier-regulator.

外部交流发电机: 具有集成调节器的NIPPONDENSO F3A（可选）;

External alternator: NIPPONDENSO F3A with integrated regulator (optional).

起动器: NIPPONDENSO 12V/0.5kW, 通过减速齿轮和自由轮啮合;

Electric starter: NIPPONDENSO, permanent magneto, 12V/0.5kW engagement via reduction gear and free wheel.

真空泵: AIRBORN 211CC, 215 CC包括驱动器（可选）;

Vacuum pump: Airborne 211 CC, 215 CC including drive (optional).

转速计数器: 电子转速表连接, 机械转速表驱动器（可选）;

Rev-counter: connection for electronic rev-counter, drive for mechanical rev-counter (optional).

螺旋桨控制:

Propeller control:

Woodward液压调速器, 210.786（仅适用于S3）， $i=2.43$;

Woodward-hydraulic governor, 210.786 (for S3 only), for $i=2.43$.

Woodward液压调速器, 210.790（仅适用于S3）， $i=2.43$, 带顺桨装置;

Woodward-hydraulic governor, 210.790(for S3 only), for $i=2.43$, with Feathering arrangement.

McCauley DCFU290D17B/T2（仅适用于S3）， $i=2.43$,带和不带顺桨装置。

McCauley DCFU290D17B/T2 (for S3 only), for $i = 2.43$, execution with and without feathering arrangement.

912 iSc Sport系列:

Description 912 iSc Sport series:

请参阅图解零件目录ETK-912 i（德语）和IPC-912 i（英文）。

See Illustrated Parts Catalog ETK-912 i (German) and IPC-912 i (English).

4. 尺寸/Dimensions:

912 iSc Sport系列:

912 iSc Sport series:

类型/Description	mm	in.
总长度/Overall Length	596	23.46

带有悬挂架的总长度/Overall length with suspension frame	596	23.46
总高度/Overall Height	398	15.67
带有排气系统的总高度/Overall height with exhaust system	541	21.30
带有悬挂架的总高度/Overall height with suspension frame	430	16.93
总宽度/Overall Width	578	22.76

5. 干重/Dry Weight:

912 A系列:

912 A series:

类型/Description	kg	lbs
带有点火装置和内部发电机, 汽化器, 过载离合器, 油箱和电起动机, 但没有消音器和散热器/ With ignition unit and internal generator, carburetors, overload clutch, oil tank and electric starter but without muffler and radiator	57.1	125.9
带有螺旋桨法兰 P.C.D. 75/80 mm / 4 in, 驱动齿轮, 适配器和用于恒速螺旋桨的液压调速器/ With propeller flange P.C.D. 75/80 mm/4 in., drive gear, adapter and hydraulic governor for constant speed propeller	62.8	138.5
外部交流发电机/ External alternator	3.0	6.6
重心: 请参阅安装手册 P/N 897860/Center of gravity: see Installation Manual P/N 897860	-	-

912 F系列:

912 F series:

类型/Description	kg	lbs
带有点火装置和内部发电机, 汽化器, 过载离合器, 油箱和电起动机, 但没有消音器和散热器/ With ignition unit and internal generator, carburetors, overload clutch, oil tank and electric starter but without muffler and radiator	57.1	125.9
带有螺旋桨法兰 P.C.D. 75/80 mm / 4 in, 驱动齿轮, 适配器和用于恒速螺旋桨的液压调速器/ With propeller flange P.C.D. 75/80 mm/4 in., drive gear, adapter and hydraulic governor for constant speed propeller	59.8	131.8
外部交流发电机/ External alternator	3.0	6.6
重心: 请参阅安装手册 part no. 897.786 /Center of gravity: see Installation Manual part no. 897.786	-	-

912 S系列:

912 S series:

类型/Description	kg	lbs
带有点火装置和内部发电机, 汽化器, 油箱, 过载离合器和电起动机, 但没有消声器, 空气箱和散热器/ With ignition unit and internal generator, carburetors, oil tank, overload clutch and electric starter but without muffler, airbox and radiator	58.3	128.5
带有螺旋桨法兰 P.C.D. 75/80 mm / 4 in, 驱动齿轮, 适配器和用于恒速螺旋桨的液压调速器/ With propeller flange P.C.D. 75/80 mm/4 in., drive gear, adapter and	61.0	134.5

hydraulic governor for constant speed propeller		
外部交流发电机/ External alternator	3.0	6.6
重心: 请参阅安装手册 part no. 899.366/Center of gravity: see Installation Manual part no. 899.366	-	-

912 iSc Sport系列:

912 iSc Sport series:

类型/Description	kg	lbs
带电气系统: 线束 ECU, 保险丝盒和启动继电器; 带油箱; 没有发动机悬架, 排气系统, 燃油泵总成, 冷却挡板, 散热器和机油冷却器。/ With electric system: wiring harness ECU, fuse box and start relay. With oil tank. Without engine suspension frame, exhaust system, fuel pumps assy., cooling baffle, radiator and oil cooler.	63.6	140.2
外部交流发电机/ External alternator	3.0	6.61
重心: 请参阅安装手册 EBHB-912 (德语) 和 IM-912 (英语) /Center of gravity: see Installation Manual EBHB-912 i (German) and IM-912 i (English)	-	-

6. 额定值/Ratings:

912 A系列和F系列:

912 A series and 912 F series:

类型/Description	kW	rpm
海平面压力高度下的最大连续性能/ Max. continuous performance at sea level pressure altitude	58.0	5500
海平面压力高度下的起飞性能转速 (最大 5 分钟) / Take-off performance rpm (max. 5 min.) at sea level pressure altitude	59.6	5800

912 S系列:

912 S series:

类型/Description	kW	rpm
海平面压力高度下的最大连续性能/ Max. continuous performance at sea level pressure altitude	69.0	5500
海平面压力高度下的起飞性能转速 (最大 5 分钟) / Take-off performance rpm (max. 5 min.) at sea level pressure altitude	73.5	5800

912 iSc Sport系列:

912 iSc Sport series:

类型/Description	kW	rpm
海平面压力高度下的最大连续性能/ Max. continuous performance at sea level pressure altitude	72	5500
海平面压力高度下的起飞性能转速 (最大 5 分钟) / Take-off performance rpm (max. 5 min.) at sea level pressure altitude	73.5	5800

7. 控制系统/Control System

912 iSc Sport发动机由全权限双通道数字控制（FADEC）系统控制，该系统用于点火和喷射，主要部件是发动机控制单元（ECU）。

有关更多信息，请参阅《安装/操作手册》。

The 912 iSc Sport engines are controlled by a dual channel Full Authority Digital Engine Control (FADEC) system for ignition and injection which main item is the Engine Control Unit (ECU).

Refer to the Installation / Operator's Manuals for further information.

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

912 A系列:

912 A series:

燃油: 普通汽油, 无铅汽油, 最低RON 90

Fuel: regular gasoline, unleaded, minimum RON 90

EN 228 Regular

EN 228 Super

EN 228 Super plus or AVGAS 100LL

滑油特性: 见操作手册P/N. 897625

Oil Specification: see Operator's Manual P/N. 897625

冷却液: 见操作手册P/N. 897625

Coolant: see Operator's Manual P/N. 897625

912 F系列:

912 F series:

燃油: 普通汽油, 无铅汽油, 最低RON 90

Fuel: regular gasoline, unleaded, minimum RON 90

EN 228 Regular

EN 228 Premium

EN 228 Premium plus or AVGAS 100LL

滑油特性: 见操作手册P/N. 899.420

Oil Specification: see Operator's Manual P/N. 899.420

冷却液: 见操作手册P/N. 899.420

Coolant: see Operator's Manual P/N. 899.420

912 S系列:

912 S series:

燃油: 优质汽油, 无铅汽油, 最低RON 95

Fuel: Premium gasoline, unleaded, minimum RON 95

EN 228 Premium

EN 228 Premium plus or AVGAS 100LL

滑油特性: 见操作手册P/N. 899.420

Oil Specification: see Operator's Manual P/N. 899.420

冷却液: 见操作手册P/N. 899.420

Coolant: see Operator's Manual P/N. 899.420

912 iSc Sport系列:

912 iSc Sport series:

请参阅《操作手册HB-912 i (德语), OM-912 i (英语)》。

see Operators Manual HB-912 I (German), OM-912 I (English).

请参阅服务说明SI-912i-001 (德语P/N), SI-912i-001 (英语P/N)。

see Service Instruction SI-912i-001 (German P/N), SI-912i-001 (English P/N).

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

912 A系列:

912 A series:

构型 912 A 系列/Model 912 A Series									
附件 Accessory	A1	A2	A3	A4	面向驱动板的 旋转方向/ Rotation facing drive pad	曲轴转速比/speed ratio to crankshaft		最大扭矩 Nm /Max. torque Nm	最大悬伸 力矩 Nm/Max. overhang moment Nm
						i=2.2727	i=2.4286 可选的 /optional		
起动机 /Starter	*	*	*	*	CW	25.25:1	25.25:1	0.5	-
交流发电机 /Alternator	-	**	**	**	CCW	1.32:1	1.24:1	2.0	-
真空泵 /Vacuum	**	**	-	**	CCW	0.585:1	0.548:1	0.1	0.4
调速器 /Governor	-	-	*	-	CCW	0.585:1	0.548:1	2.0	1.04
燃油泵/Fuel pump	*	*	*	*	CW	0.44:1	0.41:1	-	0.14
转速表 /Tachometer	**	**	**	**	CW	0.25:1	0.25:1	-	-
水泵/Water pump	*	*	*	*	CCW	0.87:1	0.87:1	0.5	-
滑油泵/Oil pump	*	*	*	*	CCW	0.50:1	0.50:1	0.7	-
“_”	表示“没有安装使用”/Indicates "does not apply"								
“**”	标配/Standard								
“***”	可选择安装/Optional								
“CW”	顺时针/Clockwise								
“CCW”	逆时针/Counter-clockwise								

912 F系列:

912 F series:

构型 912 F 系列/Model 912 F Series							
附件 Accessory	F2	F3	F4	面向驱动板的 旋转方向/ Rotation facing drive pad	曲轴转速比/speed ratio to crankshaft	最大扭矩 Nm /Max. torque Nm	最大悬伸 力矩 Nm /Max. overhang moment Nm
起动机/Starter	*	*	*	CW	25.25:1	0.5	-
交流发电机 /Alternator	**	**	**	CCW	1.32:1	2.0	-
真空泵/Vacuum	**	-	**	CCW	0.58:1	0.1	0.4
调速器/Governor	-	*	-	CCW	0.58:1	2.0	1.04
燃油泵/Fuel pump	*	*	*	CW	0.44:1	-	0.14
转速/Tachometer	**	**	**	CW	0.25:1	-	-
水泵/Water pump	*	*	*	CCW	0.87:1	0.5	-
滑油泵/Oil pump	*	*	*	CCW	0.50:1	0.7	-
“_”	表示“没有安装使用”/Indicates "does not apply"						
“*”	标配/Standard						
“**”	可选择安装/Optional						
“CW”	顺时针/Clockwise						
“CCW”	逆时针/Counter-clockwise						

912 S系列:

912 S series:

构型 912 S 系列/Model 912 S Series							
附件 Accessory	S2	S3	S4	面向驱动板的 旋转方向/ Rotation facing drive pad	曲轴转速比 /speed ratio to crankshaft	最大扭矩 Nm /Max. torque Nm	最大悬伸力矩 Nm /Max. overhang moment Nm
起动机/Starter	*	*	*	CW	25.25:1	0.5	-
交流发电机 /Alternator	**	**	**	CCW	1.32:1	2.0	-
真空泵/Vacuum	**	-	**	CCW	0.54:1	0.1	0.4
调速器/Governor	-	*	-	CCW	0.54:1	2.0	1.04
燃油泵/Fuel pump	*	*	*	CW	0.44:1	-	0.14
转速/Tachometer	**	**	**	CW	0.25:1	-	-
水泵/Water pump	*	*	*	CCW	0.87:1	0.5	-
滑油泵/Oil pump	*	*	*	CCW	0.50:1	0.7	-

“_”	表示“没有安装使用”/Indicates "does not apply"			
“*”	标配/Standard			
“**”	可选择安装/Optional			
“CW”	顺时针/Clockwise			
“CCW”	逆时针/Counter-clockwise			

912 iSc Sport系列:

912 iSc Sport series:

构型 912 iSc Sport 系列/Model 912 iSc Sport Series						
附件 Accessory	iSc2 Sport	iSc3 Sport	面向驱动板的 旋转方向/ Rotation facing drive pad	曲轴转速比 i=2.4286 /speed ratio to crankshaft i=2.4286	最大扭矩 Nm /Max. torque Nm	最大悬伸力矩 Nm /Max.overhang moment Nm
起动机/Starter	*	*	CW	25.25:1	0.45	-
交流发电机 /Alternator	**	**	CCW	1.24:1	1.6	-
真空泵/Vacuum pump	**	-	CCW	0.548:1	0.9	0.4
调速器/Governor	-	*	CCW	0.548:1	1.8	1.04
水泵/Water pump	*	*	CCW	0.87:1	0.5	-
滑油泵/Oil pump	*	*	CCW	0.50:1	0.8	-
“_”	表示“没有安装使用”/Indicates "does not apply"					
“*”	标配/Standard					
“**”	可选择安装/Optional					
“CW”	顺时针/Clockwise					
“CCW”	逆时针/Counter-clockwise					

第4部分 使用限制

Section IV Operational Limitations

1. 温度限制/Temperature limits:

912 A系列和F系列:

912 A series and 912 F series:

温度限制（最大可能）/Temperature limits (max permissible)	°C	°F
气缸盖/Cylinder head	150	300
进口滑油/Oil at inlet	140	285

912 S系列:

912 S series:

温度限制（最大可能）/Temperature limits (max permissible)	°C	°F
气缸盖/Cylinder head	135	275
进口滑油/Oil at inlet	130	266

912 iSc Sport系列:

912 iSc Sport series:

温度限制（最大可能）/Temperature limits (max permissible)	°C	°F
冷却液温度 (根据安装手册 EBHB-912 (德语), IM-912 i (英语) 和操作手册 HB-912 (德语), OM-912 i (英语)) Coolant temperature (according installation manual EBHB-912 (German), IM-912 (English) and operator's manual HB-912 (German), OM-912 (English))	120	248
进口滑油温度/Oil temperature at inlet	130	266

2. 速度限制/Speed Limits:

起飞速度, 最大 5 分钟/Take-off Speed, max. 5 min	5800 rpm
最大连续转速/Max. continuous speed	5500 rpm

3. 压力限制/pressure Limits

3.1 燃油压力/Fuel Pressure

912 A/F/S 系列:

912 A/F/S series:

汽化器进口燃油压力/Fuel pressure at inlet to Carburetor:

最小/min. 0.15 bar (2.2 psi)

最大/max. 0.4 bar (5.8 psi)

912 iSc Sport系列:

912 iSc Sport series:

2,8 - 3,2 bar / 40.61 - 46.41 psi

3.2 滑油压力/ Oil Pressure

912 A 系列:

912 A series:

Oil Pressure	bar	psi
正常工作/ Normal operating	1.5~5	22~73
慢车状态的最小值/ Idling minimum	1.5	22
启动和暖机的最大值/ Starting and Warm up maximum	7.0	102

912 S 系列:

912 S series:

Oil Pressure	bar	psi
正常工作范围/ Normal operating range	2.0~5.0	29~73
慢车状态的最小值/ at idle speed minimum	0.8	12
在冷启动和预热期（最大）/ At cold start and warming up period (maximum)	7.0	103

912 F 系列:

912 F series:

Oil Pressure	bar	psi
正常工作范围/ Normal operating range	2.0~5.0*	29~73
慢车状态的最小值/ at idle speed minimum	0.8**	12
在冷启动和预热期（最大）/ At cold start and warming up period (maximum)	7.0	103

*) 正常工作范围/ normal operating range: 编号在4412.764以上的912F发动机为1.5 bar~5.0 bar /1.5 bar~5.0 bar for 912 F up to engine No.4,412.764

**) 慢车状态/at idle speed: 编号在4412.764以上的912F发动机最小值为1.5 bar /1.5 bar min for 912 F up to engine No. 4,412.764

912 iSc Sport系列:

912 iSc Sport series:

Oil Pressure	bar	psi
正常工作范围高于 3500 rpm/ Normal operating range above 3500 rpm	2.0~5.0	29~72.5
最低低于 3500 rpm/ Minimum below 3500 rpm	0.8	11.6
在冷启动和预热期（最大）/ At cold start and warming up period (maximum)	7.0	101.5

4. 滑油容量，消耗限制/ Oil capacity, consumption limit

912 A/F/S 系列:

912 A/F/S series:

滑油容量/ Oil capacity: 3 Liter (2.84 qt, 0.8 gal. US)

912 iSc Sport系列:

912 iSc Sport series:

发动机滑油/Engine oil	Lit	Liq pt	US gal
滑油容量（最大标记油箱） Oil capacity (maximum-mark tank)	3.0	6.34	0.79
滑油容量（最小标记油箱） Oil capacity (minimum-mark tank)	2.5	5.28	0.66
每小时滑油消耗量（最大） Oil consumption per hour (maximum)	0.06	0.127	0.016

第5部分 使用和服务说明

Section V Operational and Service Instructions

912 A 系列:

912 A series:

操作手册: 编号897625, 第2版, 1996年5月31日, 版本1;

Operators Manual No.897 625 Edition 2 dated 1996 05 31, Rev.1.

安装手册: 编号897860, 第0版, 1997年1月16日;

Installation Manual No.897 860 Edition 0 dated 1997 01 16.

维修手册: 编号897955, 第0版, 1996年12月28日。

Maintenance Manual No.897 955 Edition 0 dated 1996 12 28.

最新版本和修订的德国版本是强制性的。

The latest edition and revision of German version is compulsory.

在发动机大修手册出版前, 发动机检修只能由发动机制造商完成。

Engine overhaul may only be accomplished by the engine manufacturer until such time as the Engine Overhaul Manual is published.

912 F 系列:

912 F series:

操作手册, 经ACG批准的最新修订版本编号899 420;

Operators Manual for Rotax 912, part no.899 420 in the latest revised version and ACG approved.

维修手册, 经ACG批准的最新修订版本编号899 422;

Maintenance Manual for Rotax 912, part no.899 422 in the latest revised revision and ACG approved.

安装手册, 经ACG批准的最新修订版本编号897 786;

Installation Manual for Rotax 912 F, part no.897 786 in the latest revised revision and ACG approved.

发动机大修手册, 编号897 784, 包括附录号897 785。

Overhaul Manual for Rotax engine 912 F, part no.897 784 inclusive Appendixes 897 785.

912 S 系列:

912 S series:

操作手册, 经ACG批准的最新修订版本编号899 370;

Operator's Manual for Rotax 912, part no. 899 370 in the latest revised version and ACG approved.

维护手册, 经ACG批准的最新修订版本编号899 372;

Maintenance Manual for Rotax 912, part no. 899 372 in the latest revised revision and ACG approved.

安装手册, 版本编号899 376。

Installation Manual for Rotax 912 S, part no.899 376.

在大修手册出版之前, 由Rotax专门进行发动机大修。

Engine overhaul exclusively by Rotax until Overhaul Manual has been published.

912 iSc Sport系列:

912 iSc Sport series:

类型/Description	德语/german	英语/english
操作手册/Operator's Manual	HB-912 i	OM-912 i
安装手册/Installation Manual	EBHB-912 i	IM-912 i
维修手册/Maintenance Manual Line	WHBL-912 i	MML-912 i
维修手册/Maintenance Manual Heavy	WHBH-912 i	MMH-912 i
大修手册/Overhaul Manual	GHB-912 i	OHM-912 i
大修手册附录/Overhaul Manual, Appendix	GHBA-912 i	OHMA-912 i
图解零件目录/Illustrated Parts Catalog	ETK-912 i	IPC-912 i
服务通告, 服务说明和服务信函/Service Bulletins, Service Instructions and Service Letters	as issued	as issued

第6部分 注释

Section VI Notes

注1: 发电机和交流发电机并联工作/note1:Generator / Alternator parallel operation

为了认证可选的外部交流发电机, 已将航空航天标准AS 8020确定为适用要求。

但是, 尚未证明符合内部发电机(作为发动机的集成部分)和可选的外部交流发电机并联运行的适用部件的要求。

For the certification of the optional external alternator the aerospace standard AS 8020 has been determined as applicable requirement.

However, compliance to the applicable parts for parallel operation of the internal generator (as integrated part of the engine) and the optional external alternator has not been demonstrated.

注2: 真空泵/ Note 2: Vacuum pump

912 A系列: 仅表明符合FAR 33.25中指定的附件要求。

912 A series: Compliance has only been shown to the attachment requirements specified in FAR 33.25.

912 S和F系列: 已证明与FAR 33.25附件的符合性。

912 S series and 912 F series: Conformity with FAR 33.25 attachment of component has been proven.

注3: TBO/Note3: TBO

有关推荐的TBO, 请参阅服务通告SB-912-057。

For recommended TBO see Service Bulletin SB-912-057.

注4: 912 iSc Sport设备资格认证 RTCA/DO-160912/ iSc Sport Equipment Qualification acc.RTCA/DO-160

设备符合RTCA/DO-160G的规定。适用的安装手册EBHB-912 i (德语), IM-912 i (英语)的第24-00-00章记录了对RTCA / DO-160G的偏差。

Equipment is qualified according to RTCA/DO-160G. Deviations to RTCA/DO-160G are documented in chapter 24-00-00 of applicable Installation Manual EBHB-912 i (German), IM-912 i (English).

注5: 912 iSc Sport模型名称更改/Note 5: 912 iSc Sport editorial model designation change

发动机型号Rotax 912 iSc2 Sport和Rotax 912 iSc3 Sport最初已通过型号名称Rotax 912 iSc2和Rotax 912 iSc3认证。

Engine models Rotax 912 iSc2 Sport and Rotax 912 iSc3 Sport have been initially certified under the model designations Rotax 912 iSc2 and Rotax 912 iSc3.

第7部分 管理

Section VII. ADMINISTRATIVE

I. 略缩语/Acronyms and Abbreviations

ACG	奥地利控制有限公司/Austro Control GmbH
AS 8020	航空航天标准：民用飞机的直流（DC）电力系统中使用的发电机/起动发电机和相关电压调节器的通用最低性能标准/Aerospace Standard: General minimum performance standards for generators/starter-generators and associated voltage regulators for use in direct current (DC) electric systems for civil aircraft
AVGAS	航空汽油/Aviation Gasoline
CHT	缸盖温度/Cylinder Head Temperature
CT	冷却液温度/Coolant Temperature
CW	顺时针/clockwise
CCW	逆时针/counter-clockwise
CS-E	发动机取证规章/Certification Specifications Engines
DO-160	机载设备的环境条件和测试程序/Environmental Conditions and Test Procedures for Airborne Equipment
EASA	欧洲航空安全局/European Aviation Safety Agency
ECU	发动机控制单元/Engine Control Unit
FAA	联邦航空管理局/Federal Aviation Administration
FADEC	全权限数字发动机控制/Full Authority Digital Engine Control
FAR	联邦航空规章/Federal Aviation Regulations
HIRF	高强度辐射场/High Intensity Radiated Fields
IM	安装手册/Installation Manual
IPC	图解零件目录/Illustrated Parts Catalog
JAR	联合航空要求/Joint Aviation Requirements
JAR-E	联合航空要求发动机/Joint Aviation Requirements Engines
MMH	维修手册/Maintenance Manual Heavy
MML	维修手册/Maintenance Manual Line
OM	操作手册/Operators Manual
OHM	大修手册/Overhaul Manual
OHMA	大修手册附录/Overhaul Manual, Appendix
rpm	每分钟转速/revolutions per minute
RTCA	航空无线电技术委员会/Radio Technical Commission for Aeronautics
SB	服务通告/Service Bulletin
SI	服务说明/Service Instruction
TBO	大修间隔时间/Time between Overhaul
TCDS	型号合格证数据单/Type Certificate Data Sheet

II. 型号合格证持有人记录/Type Certificate Holder Record

2016年6月15日之前 Before June 15, 2016	BRP-Powertrain GmbH & Co KG Rotaxstraße 1 A-4623 Gunskirchen Austria DOA EASA.21J.048
2014年3月15日之前 Before March 15, 2014	BRP-Powertrain GmbH & Co KG Welser Straße 32 A-4623 Gunskirchen, Austria DOA EASA.21J.048
2009年2月3日之前 Before February 3, 2009	BRP-Rotax GmbH & Co KG Welser Straße 32 A-4623 Gunskirchen, Austria DOA EASA.21J.048
2004年6月16日之前 Before June 16, 2004	Bombardier-Rotax GmbH & Co KG Welser Straße 32 A-4623 Gunskirchen, Austria
2001年12月29日之前 Before December 29, 2001	Bombardier-Rotax Gesellschaft mbH Welser Straße 32 A-4623 Gunskirchen, Austria

--结束--

--END--