TYPE-CERTIFICATE DATA SHEET

No. E.208

for
Rotax 501 / Rotax 505 series engines

Type Certificate Holder
BRP-Rotax GmbH & Co KG

Rotaxstraße 1
A-4623 Gunskirchen
Austria

For Models:

Rotax 501
Rotax 505
Rotax 505 without decompressor
Rotax 505 A
Rotax 505 A without decompressor

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I. General

1. Type/ Model

Rotax 501
Rotax 505
Rotax 505 without decompressor
Rotax 505 A
Rotax 505 A without decompressor

2. Type Certificate Holder

BRP-Rotax GmbH & Co KG
Rotaxstraße 1
A-4623 Gunskirchen, Austria
DOA EASA 21J.048

3. Manufacturer

As above

4. Date of Application

Rotax 501	Rotax 505	Rotax 505 without decompressor	Rotax 505 A	Rotax 505 A without decompressor
09 October 1978	09 October 1978	21 April 1982	28 April 1986	28 April 1986

5. EASA Type Certification Date

Rotax 501	Rotax 505	Rotax 505 without decompressor	Rotax 505 A	Rotax 505 A without decompressor
19 December 1978	24 June 1980	21 April 1982	28 April 1986	28 April 1986

Note: EASA type certificate for all these models is granted in accordance with article 2 paragraph 3(a) of EU Commission Regulation 1702/2003 replacing the BAZ/ACG Austria certification of these products (Austrian Type Certification no. TW 3/78)

II. Certification Basis

1. EASA Certification Basis

1.1. Airworthiness Standards

LFSM 1975, Appendix D, airworthiness requirements for engine powered sailplanes issued by Luftfahrt-Bundesamt Braunschweig, BRD (publication November 1st, 1975)

1.2. Special Conditions (SC)

none

1.3. Equivalent Safety Findings

none

1.4. Deviations

none

1.5. Environmental Protection

none

III. Technical Characteristics

1. Type Design Definition

As defined the type design definition number 79.501 (for Rotax 501 series engines) and 79.505 (for Rotax 505 series engines)

2. Description

ROTAX 501 series engine:

2 cylinders in line, two stroke engine, ram air cooling, mixture lubrication, single magneto ignition, 2 diaphragm carburetor, belt driven propeller, electric starter, alternator, fuel pump

Weight (dry):	33,5 kg (with muffler and starter)
Bore:	2 x 72 mm
Stroke:	61 mm
Displacement:	496,7 cm^3
Compression Ratio:	10,8
Crankshaft drive rotation:	counter clockwise (viewed from front)

ROTAX 505 series engine:

2 cylinders in line, two stroke engine, ram air cooling, mixture lubrication, dual magnetic high-voltage condenser ignition, contact less, diaphragm carburetor, propeller drive by belt, electric starter, alternator, fuel pump

Weight (dry):	34,4 kg (with muffler and electric starter)
Bore:	2 x 72 mm
Stroke:	61 mm
Displacement:	496,7 cm^3
Compression Ratio:	10,8
Crankshaft drive rotation:	counter clockwise (viewed from front)

3. Equipment

ROTAX 501 series engine:

Carburetor:	2 diaphragm carburetor Tillotson type HR., or 2 diaphragm carburetor Mikuni type BN 38
Fuel pump:	Mikuni diaphragm pump
Ignition system:	magneto ignition system (BOSCH) Generator SCP 2, 12 V, 140 W ignition point, 2,1 mm BTC Zündpunkt 2,1 mm v. OT
Spark plugs:	NGK B 8 ES, Bosch W 250 T2
Starter:	Bosch pinon starter, Type DG or screw drive-starter AB
Power drive:	Trapper 1:10, 30 mm ∅
Revolution measurement:	supply for an electronic tachometer, VDO

ROTAX 505 series engine:

Carburetor:	2 diaphragm carburetor Tillotson type HR, or 2 diaphragm carburetor Mikuni type BN 38
Fuel pump:	Mikuni diaphragm pump
Ignition system:	Dual magnetic high-voltage condenser ignition, contactless 12 V 100 W gen. Ignition-box Bosch or Ducati
Spark plugs:	For ignition-box Bosch: B8ES; Bosch W3CC, W3CP For ignition-box Ducati: BR8ES; Bosch WR3CC, WR3CP
Starter:	Bosch pinon starter, Type DG or screw drive-starter AB
Power drive:	Trapper 1:10, 30 mm ∅
Revolution measurement:	supply for an electronic tachometer, VDO

4. Dimensions

not determined

5. Dry Weight

ROTAX 501series engine 33,5 kg (with muffler and starter)
ROTAX 505 series engine 34,4 kg (with muffler and electric starter)

6. Ratings

ROTAX 501 / 505 engine:

	kw	**PS**	**1/min**
Take off power:	31,7	43	6200
max. continous:	29,5	40	6050

ROTAX 505 A engine:

	kw	**PS**	**1/min**
Take off power:	31,6	43	6800
max. continous:	31,6	43	6800

7. Fluids (Fuel, Oil, Coolant, Additives)

7.1. Fuel:

2 stroke mixture
super gasoline min 96 ROZ or AVGAS 100 LL

Description	Rotax 501 series engines		Rotax 505 series engines	
	German	English	German	English
See Operator's Manual	HB-501	OM-501	HB-505	OM-505
See Service Instruction	n.a.	n.a.	n.a.	n.a.

7.2. Oil

Lubrication: Mixture lubrication
mixing ratio 1:50
with super two stroke oil

Description	Rotax 501 series engines		Rotax 505 series engines	
	German	English	German	English
See Operator's Manual	HB-501	OM-501	HB-505	OM-505
See Service Instruction	n.a.	n.a.	n.a.	n.a.

7.3. Coolant

Description	Rotax 501 series engines		Rotax 505 series engines	
	German	English	German	English
See Operator's Manual	HB-501	OM-501	HB-505	OM-505
See Service Instruction	n.a.	n.a.	n.a.	n.a.

8. Aircraft Accessory Drives

none

IV. Operating Limitations

1. Temperature Limits

Cylinder head temperature	max. 250°C
measured with thermo couple under hottest cylinder	

2. Speed Limits

ROTAX 501 / 505 engine:

max. RPM	6800
recommended Cruising RPM:	6050
idling RPM:	approx. 2000

ROTAX 505 A engine:

max. RPM	6800
recommended Cruising RPM:	6800
idling RPM:	approx. 2000

V. Operating and Service Instructions

Description	**Rotax 501 series engines**		**Rotax 505 series engines**	
	german	**english**	**german**	**english**
Operation- and Maintenance instruction	HB-501	OM-501	HB-505	OM-505
Installation Manual	EBHB-501	n.a.	EBHB-505	n.a.
Repair Manual	RHB-501	RM-501	RHB-505	RM-505
Service Bulletins, Service Instructions and Service Letters	as issued	as issued	as issued	as issued

VI. Notes

Note 1: Fuel consumption

ROTAX 501 / 505 engine:
At 100 % power approx. 22,4 l/h (5,92 Gal/h) and at 75 % power approx. 17,2 l/h (5,54 Gal/h).

ROTAX 505 A engine:
At 100 % power approx. 22 l/h (5,9 Gal/h) and at 75 % power approx. 16 l/h (5,5 Gal/h).

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

ACG	Austro Control GmbH
AS 8020	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	Aviation Gasoline
CHT	Cylinder Head Temperature
CT	Coolant Temperature
CW	clockwise
CCW	counter-clockwise
CS-E	Certification Specifications Engines
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
HIRF	High Intensity Radiated Fields
IM	Installation Manual
IPC	Illustrated Parts Catalog
JAR	Joint Aviation Requirements
JAR-E	Joint Aviation Requirements Engines
MMH	Maintenance Manual Heavy
MML	Maintenance Manual Line
OM	Operators Manual
OHM	Overhaul Manual
OHMA	Overhaul Manual, Appendix
rpm	revolutions per minute
RTCA	Radio Technical Commission for Aeronautics
SB	Service Bulletin
SI	Service Instruction
TBO	Time between Overhaul
TCDS	Type Certificate Data Sheet
TCU	Turbo Control Unit

II. Type Certificate Holder Record

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

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	26 February 2010	Initial Issue	Initial Issue, 26 February 2010
Issue 02	14 May 2014		
Issue 03	05 September 2016	Name change to BRP-Rotax GmbH & Co KG as of June 15, 2016	05 September 2016

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