TYPE-CERTIFICATE DATA SHEET

E.200

for
Austro Engine
E4 series engines

Type Certificate Holder
Austro Engine GmbH
Rudolf-Diesel-Straße 11
A-2700 Wiener Neustadt
Austria

For Models:
E4
E4P

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TABLE OF CONTENTS

I. General

1. Type/ Model

E4 / E4, E4P

2. Type Certificate Holder

Austro Engine GmbH
Rudolf-Diesel-Straße 11
A-2700 Wiener Neustadt
Austria

DOA EASA.21J.399

3. Manufacturer

Austro Engine GmbH
POA AT.21G.0010

Wuhu Diamond Aeroengine Co. LTD
Xinwu Economic Zone, Wuhu Country
Anhui Province -– China
POA PC0047E-HD
Ref. to Note 14

4. Date of Application

E4	E4P			
26 June 2006	11 March 2014			

5. EASA Type Certification Date

E4	E4P			
28 January 2009	26 March 2015			

II. Certification Basis

1. EASA Certification Basis

1.1. Airworthiness Standards
CS-E, initial issue effective 23 October 2003

1.2. Special Conditions (SC)
Addition to CS-E 40(d) Engine Flame Out during Flight (E4P)

1.3. Equivalent Safety Findings
CS-E 130(h) Fire Proof Engine Attachment Points

1.4. Deviations

none

1.5. Environmental Protection

none (not required for piston engines)

III. Technical Characteristics

1. Type Design Definition

E4: TDD E4.08.01, Rev.4 dated 16. January 2009 or later approved revisions
E4P: TDD E4.08.01 Chapter A001, Rev. 0, dated 27.Feb.2015 or later approved revisions

2. Description

The E4 engine is a 4-cylinder, four stroke Diesel piston engine with an displacement of 1991 cm^3, equipped with common rail high pressure direct injection, turbocharger, gearbox with reduction ratio of 1 : 1.69 and an Electronic Engine Control Unit (EECU).

3. Equipment

See Installation Manual. E4.02.01

4. Dimensions

Model	E4	E4P		
Overall Length	738 mm	738 mm		
Overall Height	574 mm	574 mm		
Width	855 mm	855 mm		

5. Dry Weight

Model	E4	E4P		
Weight	185 kg	185 kg		

6. Ratings

Rating		E4	E4P		
Power	Take-off	123.5 kW at 3880 rpm (2300 prop rpm)	132 kW at 3880 rpm (2300 prop rpm)		
	Max. Continuous		126 kW at 3720 rpm (2200 prop rpm)		

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

7. Control System

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

E4:
EECU P/N E4A-92-100-00-010 or later approved standard
Software: VC33_0_01_01 or later approved standard

E4P:
EECU P/N E4A-92-100-00-010 or later approved standard
Software: VC33_2P_05_18_pre1 or later approved standard

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

See Operation Manual E4.01.01 and E4.01.02 for approved fluids (see also Note 4, 12, and 13).

9. Aircraft Accessory Drives

	Rotation	Speed (rpm)	Max. Torque	Type of Drive
Propeller control	CCW	2680	40 Nm	AND 20010

CCW = Counter-Clock-Wise
Speed is indicated for a reference engine speed of 3880 rpm.
Accessory drive direction of rotation is as viewed facing the drive.

IV. Operating Limitations

1. Temperature Limits

E4:

	Temperature in °C / °F	Comments
Minimum opening up Oil Temperature	50 °C / 122 °F	
Oil Temperature (normal operation)	50 °C - 135 °C / 122 °F - 275 °F	
Max. Oil Temperature:	140 °C / 284 °F	
Minimum Ambient Temperature for Starting	-22 °C / -8 °F	normal
	-30 °C / -22 °F	special procedure required, see Operation Manual
Minimum Fuel Temperature during operation	-30 °C / -22 °F	Operation with Jet Fuels
	-10 °C / 14 °F	Operation with Diesel Fuel Class D, E or F
	- 5 °C / 23 °F	Operation with Diesel Fuel Class C
	+ 5 °C / 41 °F	Operation with Diesel Fuel Unknown Class
Minimum opening up Cooling Fluid Temperature	60 °C / 140 °F	
Max. Cooling Fluid Temperature	105 °C / 221 °F	
Max. Gearbox Temperature	120 °C / 248 °F	

E4P:

	Temperature in °C / °F	Comments
Minimum opening up Oil Temperature	50 °C / 122 °F	
Max. Oil Temperature:	139 °C / 282 °F	
Minimum Ambient Temperature for Starting	-22 °C / -8 °F	normal
	-30 °C / -22 °F	special procedure required, see Operation Manual
Minimum Fuel Temperature during operation	-30 °C / -22 °F	
Minimum opening up Cooling Fluid Temperature	60 °C / 140 °F	
Max. Cooling Fluid Temperature	100 °C / 212 °F	
Max. Gearbox Temperature	120 °C / 248 °F	

2. Speed Limits

Maximum Engine Over-speed (Crankshaft Speed)	4220 rpm (2500 prop rpm)
Take-off speed	3880 rpm (2300 prop rpm)
Max. continuous speed E4	
Max. continuous speed E4P	3720 rpm (2200 prop rpm)

3. Pressure Limits

Minimum Fuel Pressure (at inlet of HP engine pump)	4 bar (58 psi)
Maximum Fuel Pressure (at inlet of HP engine pump)	7 bar (101.5 psi)
Minimum Oil Pressure at Idle Conditions	0.9 bar (13.05 psi)
Minimum Oil Pressure at Maximum Continuous Conditions	2.5 (36.3 psi)
Maximum Oil Pressure	6.5 bar (94.3 psi)

4. Operating Altitude

Maximum altitude E4	5490 m (18 000 ft)
Maximum altitude E4P	6096 m (20 000 ft)

5. Time Limited Dispatch (TLD)

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 E4.01.01 and OM E4.01.02.

V. Operating and Service Instructions

	E4	E4P	
Installation Manual	E4.02.01	E4.02.01	
Operation Manual	E4.01.01	E4.01.02	
Maintenance Manual	E4.08.04	E4.08.04	
Overhaul Manual	E4.12.01	E4.12.01	
Service Bulletins and Service Letters	as issued		

VI. Notes

Note 1: The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the applicable "Maintenance Manual" document, chapter 04-00-00 "Airworthiness Limitations".

Note 2: Engine model numbers may include suffixes to define minor engine changes related to installation specific configurations. See SB-E4-002 for configuration specifications. The software of the electronic engine control for each application has specific software application data. See SB-E4-003 for the installation versions. Also refer to Installation Manual E4.02.01 for appropriate installation.

Note 3: The E4 series engines are approved for the installation in Part 23 normal and utility category airplanes.

Note 4: The E4 series engines are approved for operation with jet fuels (see Operation Manual E4.01.01 and E4.01.02). A minimum cetane number of 36 (determined according to EN ISO 5165/ASTM D613) is recommended.

Note 5: The E4 series engines are approved for use with propellers and propeller governors as listed in IM E4.02.01 This approval does not include the approval of the propellers and their governors.

Note 6: The recommended Time Between Overhaul (TBO) is published in Maintenance Manual E4.08.04

Note 7: The engine control system has been tested according to DO-160D for lightning protection and magnetic interference. The demonstrated levels are declared in the Installation Manual.

Note 8: The EECU must not be installed in a dedicated fire zone. The installation conditions are defined in the Installation Manual.

Note 9: Installation Assumptions: See Installation Manual.

Note 10: Containment has been demonstrated for max. turbocharger speed of 172 000 rpm (E4) resp. 178 000 rpm (E4P).

Note 11: Sales name of the model E4: AE 300
E4P: AE 330

Note 12: The E4 and E4P engine is approved for the operation with Jet fuels (see Operation Manual E4.01.01 and E4.01.02) and the E4 model for Diesel fuel according to EN 590. However, the cloud point (CFPP) of Diesel fuel is regulated by national appendices to the EN 590 Standard, and it varies between the countries and the time of the year. Means have to be provided which enables the observation of the fuel temperature limits during operation (e.g. fuel temperature sensor in tank refer to Installation Manual E4.02.01).

Note 13: For EN 590 Diesel fuel operation of the E4 model SB-E4-014 must be accomplished for defined engine S/N therein.

Note 14: The WDAE engine serial number is structured as: "Engine Type" + "WDAE Manufacturer Code: **156W**" + "Progressive 5 digits Numbering System". The engine serial numbers produced by WDAE are:
E4-A-156W00001 and subsequent
E4-B-156W00001 and subsequent
E4-C-156W00001 and subsequent

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

WDAE Wuhu Diamond Aeroengine Co. LTD

II. Type Certificate Holder Record

The Type Certificate was transferred from Diamond Aircraft Industries GmbH, N.-A.-Otto-Straße 5, A-2700 Wiener Neustadt, DOA EASA.21J.052 to Austro Engine GmbH on 30 October 2009.

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	28 January 2009	Initial Issue	Initial Issue, 28 January 2009
Issue 02	30 October 2009	Change of the TC holder from Diamond Aircraft Industries GmbH to Austro Engine GmbH Increase of the oil temp. for normal operation from 125°C to 130°C	Revision 30 October 2009
Issue 03	26 October 2010	Increase of the max. continuous power rating from 114 kW to 123.5 kW Increase of the oil temp. for normal operation from 130°C to 135°C Increase of the max. engine speed from 3550 crankshaft rpm (2100 prop rpm) to 3880 rpm (2300 prop rpm) Reduction of the minimum oil pressure at idle from 1.5 bar to 0.9 bar	
Issue 04	21 November 2011	Reduction of the minimum recommended cetane number from 37 to 30	
Issue 05	26 March 2012	Approval of EN 590 diesel fuel for operation in the E4 engine	
Issue 06	24 September 2013	Approval of the implementation of instructions for engine overhaul	
Issue 07	26 March 2015	Approval of E4P model	Revision 26 March 2015
Issue 08	15 April 2015	Correction of power ratings	
Issue 09	15 April 2016	Correction of turbocharger speeds and minimum cetane number	

Issue	Date	Changes	TC issue
Issue 10	18 April 2016	Editorial Changes	
Issue 11	23 January 2019	Change of Note 1 due to ALS update per MM-TR-MDC-E4-454	
Issue 12	30 June 2020	Additional Manufacturer Wuhu Diamond Aeroengine Co. LTD (WDAE); Note 14 added, WDAE engine S/N(s) (EASA Major Change Approval 10073594)	

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