European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

Number: E.200
Issue: 05
Date: 26 March 2012
Type: Austro Engine
E4 series engines

Model
E4

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I - General

1. Type / Models: E4 / E4

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

4. EASA Certification Application Date:

E4				
26 June 2006				

5. EASA Certification Date:

E4				
28 January 2009				

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.

II - Certification Basis

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

2. Special Conditions (SC): none

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

4. Deviations: none

5. Environmental Standards: none (not required for piston engines)

III - Technical Characteristics

1. Type Design Definition:

TDD E4.08.01, Rev.4 dated 16. January 2009 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			
Overall Length	738 mm			
Overall Height	574 mm			
Width	855 mm			

5. Dry Weight:

Model	E 4			
Weight	185 kg			

6. Ratings: (see Note 1)

Rating		E4			
Power	Take-off	123.5 kW at 3880 rpm (2300 prop rpm)			
	Max. Continuous				
	Max. Recommended Cruising	114 kW at 3550 rpm (2100 prop rpm)			

Note: The performance values specified above correspond to minimum values defined under the conditions of 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.

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

8. Fluids (Fuel/Oil/Additives):

See Operation Manual E4.01.01 for approved fluids (see also Note 3, 13, and 14).

9. Aircraft Accessory Drives:

	Rotation	Speed (rpm)	Max. Torque	Type of Drive
Propeller control	CCW	2680	40 N.m	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 - Operational Limitations

1. Temperature limits:

	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	

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	

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	5490 m (18000 ft)

V - Operational and Service Instructions

	E4		
Installation Manual	E4.02.01		
Operation Manual	E4.01.01		
Maintenance Manual	E4.08.04		
Overhaul Manual	Not yet published		
Service Bulletins and Service Letters	as issued		

VI - Notes

Note 1: 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 2: The E4 engine is approved for the installation in Part 23 normal and utility category airplanes.

Note 3: The E4 engine is approved for operation with jet fuels (see Operation Manual E4.01.01). A minimum cetane number of 30 (determined according EN ISO 5165/ASTM D613) is recommended.

Note 4: The E4 engine is 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 5: No overhaul permitted before publication of the Overhaul Manual.

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: Dispatch Limitations: Currently no Time Limited Dispatch has been approved. 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.

Note 11: Containment has been demonstrated for max. turbocharger speed of 172000 rpm.

Note 12: Sales name of the model E4: AE 300

Note 13: The E4 engine is approved for the operation with Jet fuels (see Operation Manual E4.01.01) and 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 14: For EN 590 Diesel fuel operation SB-E4-014 must be accomplished for defined engine S/N therein.