

European Aviation Safety Agency

EASA TYPE-CERTIFICATE DATA SHEET

Number : IM.P.133
Issue : 01
Date : 06 October 2011
Type : Hartzell Propeller Inc.
HC-D4, HC-E4 series propellers

Models
HC-D4N-(2,3,5)
HC-D4P-5
HC-E4A-(2,3)
HC-E4N-(2,3,5)
HC-E4P-5

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I. General

1. Type / Models:

HC-D4 / HC-D4N-(2,3,5), HC-D4P-5
HC-E4 / HC-E4A-(2,3), HC-E4N-(2,3,5), HC-E4P-5

2. Type Certificate Holder:

Hartzell Propeller Inc.
Piqua, OH 45356
USA

3. Manufacturer:

Hartzell Propeller Inc.

4. Date of Application:

HC-D4N-(2,3,5):	04 February 2003
HC-D4P-5:	04 February 2003
HC-E4A-(2,3):	04 February 2003
HC-E4N-(2,3,5):	19 November 1999
HC-E4P-5:	04 February 2003

The Date of Application has been taken over from an individual EU Member State.

HC-E4A-3 propeller with E10478 blades: 19 May 2011
HC-E4N-3 propeller with NC9208 blades: 25 October 2010
HC-E4N-3 propeller with D9900 blades: 25 October 2010

5. EASA Certification Reference Date:

04 December 1984

6. EASA Certification Date:

HC-D4N-(2,3,5):	12 February 2003
HC-D4P-5:	12 February 2003
HC-E4A-(2,3):	12 February 2003
HC-E4N-(2,3,5):	31 January 2000
HC-E4P-5:	12 February 2003

The EASA Certification Date has been taken over from an individual EU Member State.

II. Certification Basis

1. FAA Certification Basis: Refer to FAA TCDS no. P10NE

2. EASA Certification Basis:

2.1 Airworthiness Standards:

HC-D4N-(2,3); HC-D4P-5;

14 CFR Part 35 effective 14 October 1980 with amendments 35-1 through 35-5.

HC-D4N-5; HC-E4A-2; HC-E4N-(2,5); HC-E4P-5

14 CFR Part 35 effective 18 August 1990 with amendments 35-1 through 35-6.

HC-E4N-3; HC-E4A-3

14 CFR Part 35 effective 23 December 2008 with amendments 35-1 through 35-8.

Note:

Application was made to EU Member States before EASA was established. The applicable airworthiness standards were established in accordance with the rule in the Member States at the time of application. Refer to Commission Regulation (EC) No 375/2007 of 30 March 2007 amending Regulation (EC) No 1702/2003.

2.2 Special Condition: None

2.3 Equivalent Safety Findings: None

2.4 Deviations: None

III. Technical Characteristics

1. Type Design Definition:

The HC-D4 and HC-E4 propeller types are defined by the following assembly drawings or later approved revisions.

HC-D4N-2: D-460, E-6350, E-6503

HC-D4N-3: D-450, E-2810, E-2808, D-1770, E-6407, D-6340, E-6577, E-6107

HC-D4N-5: D-530, D-440

HC-D4P-5: D-3370

HC-E4A-2: E-6287, E-7018

HC-E4A-3: E-5130, E-6007, E-6358, E-6824, E-4696

HC-E4N-2: E-6772

HC-E4N-3: E-2820, E-6347, E-6381, E-6578, E-6968, E-7383, E-6953, E-7184,
101576

HC-E4N-5: E-5963, E-6115, E-6823

HC-E4P-5: D-3220

2. Description:

The HC-D4 and HC-E4 propellers have 4 blades and a hydraulically operated variable pitch control with constant speed, feathering and unfeathering capability.

The -2 models do not reverse. The -3 and -5 models incorporate reverse. (See Notes 1 and 4).

The hub is milled out of Aluminium alloy. The blade materials are:

- Aluminium alloy.
- Composite (E11990, E10950, E8190, NC9208 blades).

Optional equipment includes spinner and ice protection.

3. Equipment:

Spinner:	See Note 7
Governor:	See Note 3
Ice Protection:	See Note 7

4. Dimensions:

See Table of Section IV.

5. Weight:

Depending on Propeller-Design Configuration:
See Table of Section IV.

6. Hub/Blade-Combinations:

See Table of Section IV.

7. Control System:

See Note 3

8. Adaptation to Engine:

Special flange: See Note 1

9. Direction of Rotation:

Direction of rotation (viewed in flight direction) as identified by a letter-code in the propeller designation. (See Notes 5)

IV. Operational Limits

Blades (see Note 2)	Maximum Continuous		Takeoff		Diameter Limits (cm) (see Note 2)	Approx. Max Wt. Complete (kg) (see Notes 3 and 7)	Blade Construction (see Note 10)
	kW	RPM min ⁻¹	kW	RPM min ⁻¹			
<u>HC-D4N-(2,3)</u>							
D9383-0 to D9383-10	708,4	2000	708,4	2000	238,8 to 213,4 (-0 to -10)	68,9	Aluminium Alloy
D9512-0 to D9512-10	708,4	2040	708,4	2040	243,8 to 218,4 (-0 to -10)	68,9	Aluminium Alloy
<u>HC-D4N-3</u>							
D9083-0 to D9083-10	708,4	2000	708,4	2000	231,1 to 205,7 (-0 to -10)	65,8	Aluminium Alloy
D9290-0 to D9290-10	559,3	2200	559,3	2200	236,2 to 210,8 (-0 to -10)	61,7	Aluminium Alloy
D9511-0 to D9511-10	633,8	2200	633,8	2200	243,8 to 218,4 (-0 to -10)	68,9	Aluminium Alloy
<u>HC-D4N-5</u>							
D9327-0 to D9327-10	820,3	2000	820,3	2000	238,8 to 213,4 (-0 to -10)	68,5	Aluminium Alloy
<u>HC-D4P-5</u>							
D10541-0 to D10541-10	745,7	1700	745,7	1700	269,2 to 243,8 (-0 to -10)	74,8	Aluminium Alloy
<u>HC-E4A-3; HC-E4N-(3,5); HC-E4P-5</u>							
E9083-0 to E9083-10	708,4	2000	708,4	2000	238,8 to 213,4 (-0 to -10)	67,8	Aluminium Alloy
D9390-0 to D9390-10	708,4	2000	708,4	2000	238,8 to 213,4 (-0 to -10)	67,8	Aluminium Alloy
D9391-0 to D9391-10	708,4	2000	708,4	2000	238,8 to 213,4 (-0 to -10)	67,8	Aluminium Alloy
<u>HC-E4A-2</u>							
E9612-0 to E9612-10	969,4	2000	969,4	2000	246,4 to 221,0 (-0 to -10)	70,3	Aluminium Alloy
<u>HC-E4A-3</u>							
E10477-0 to E10477-10	894,8	1700	894,8	1700	266,7 to 241,3 (-0 to -10)	72,6	Aluminium Alloy
E10478-0 to E10478-10	894,8	1700	894,8	1700	266,7 to 241,3 (-0 to -10)	76,4	Aluminium Alloy
E10950	1044,0	1735	1044,0	1735	279,4	59,9	Aramid Composite
<u>HC-E4N-2</u>							
E9512-0 to E9512-10	708,4	2040	708,4	2040	243,8 to 218,4 (-0 to -10)	68,9	Aluminium Alloy

Blades (see Note 2)	Maximum Continuous		Takeoff		Diameter Limits (cm) (see Note 2)	Approx. Max Wt Complete (kg) (see Notes 3 and 7)	Blade Construction (see Note 10)
	kW	RPM min ⁻¹	kW	RPM min ⁻¹			
<u>HC-E4N-3</u>							
E8190	559,3	2200	559,3	2200	207,6	54,4	Aramid Composite
D8292-0 to D8292-6	596,6 or 507,1	2000 or 2200	596,6 or 507,1	2000 or 2200	209,6 to 194,3 (-0 to -6)	54,9	Aluminium Alloy
E8501-0 to E8501-10	596,6 or 507,1	2000 or 2200	596,6 or 507,1	2000 or 2200	218,4 to 193,0 (-0 to -10)	59,0	Aluminium Alloy
D8990-0 to D8990-10	559,3	2200	559,3	2200	228,6 to 203,2 (-0 to -10)	64,4	Aluminium Alloy
NC9208+2 to NC9208-10	633,8	2000	633,8	2000	241,3 to 210,8 (+2 to -10)	52,2	Carbon Composite
D9290-0 to D9290-10	559,3	2200	559,3	2200	236,2 to 210,8 (-0 to -10)	61,7	Aluminium Alloy
D9511-0 to D9511-10	633,8	2200	633,8	2200	243,8 to 218,4 (-0 to -10)	68,9	Aluminium Alloy
D9900-0 to D9900-10	633,8	2000	633,8	2000	254,0 to 228,6 (-0 to -10)	65,8	Aluminium Alloy
<u>HC-E4N-5</u>							
E8501-0 to E8501-10	596,6	2000	596,6	2000	218,4 to 193,0 (-0 to -10)	59,0	Aluminium Alloy
D9690-0 to D9690-10	708,4	2000	708,4	2000	246,4 to 221,0 (-0 to -10)	69,9	Aluminium Alloy
<u>HC-E4P-5</u>							
E11990	745,7	1540	745,7	1540	304,8	59,9	Aramid Composite

1. Maximum Take Off Power and Speed:

See Table of Section IV.

2. Maximum Continuous Power and Speed:

See Table of Section IV.

3. Propeller Pitch Angle:

See Note 3.

V. Operating and Service Instructions

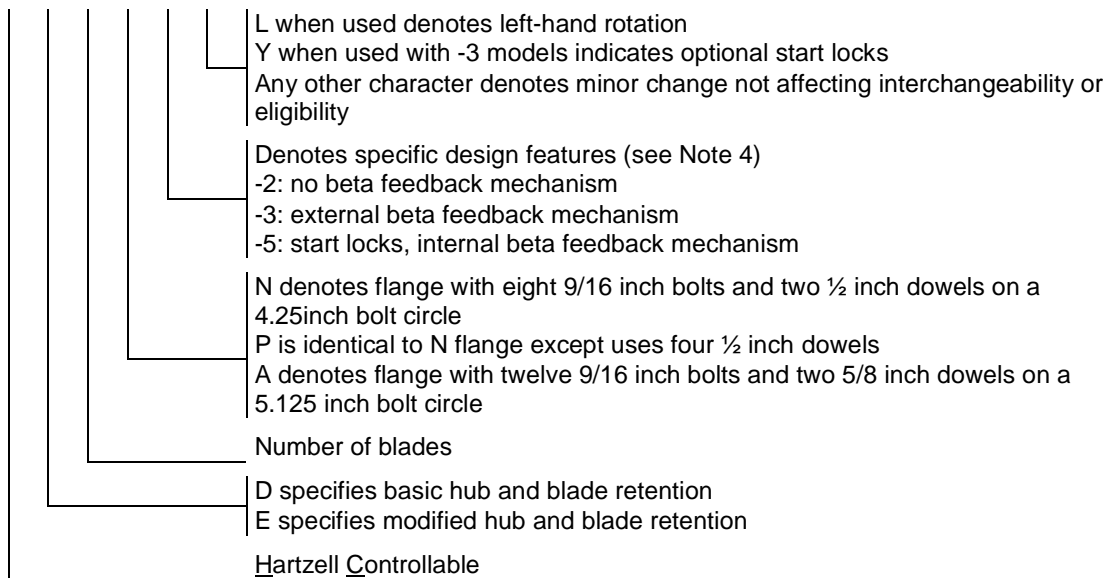
Airworthiness Limitations	Hartzell Manual 149 for propellers with aluminium blades Hartzell Manual 147 for propellers with composite blades
Overspeed and Overtorque Limits	Hartzell Manual 202A (*)
Propeller Owner's Manual	Hartzell Manual 149 for propellers with aluminium blades Hartzell Manual 147 for propellers with composite blades
Service Bulletins	

(*) or later approved revision

VI. Notes

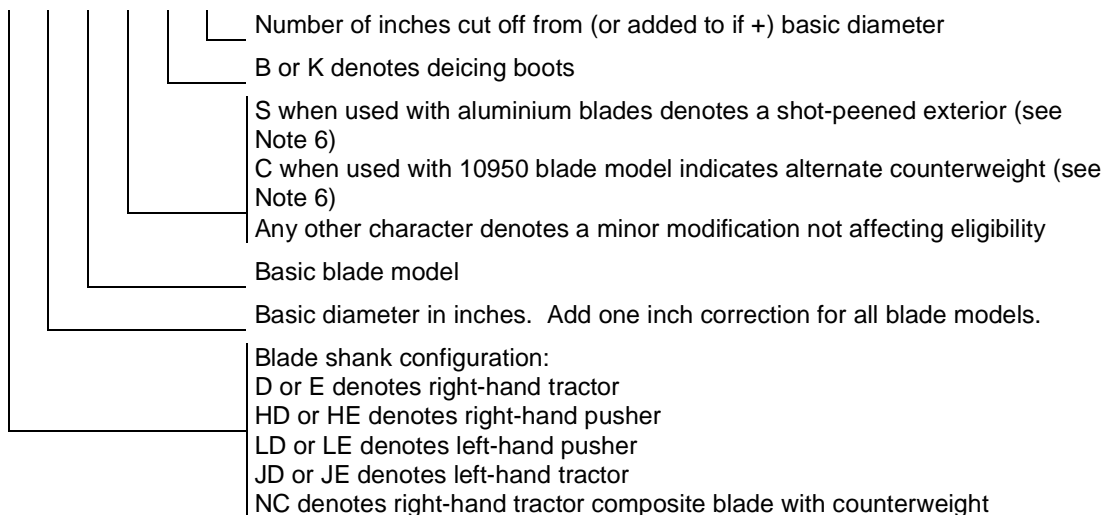
1. Hub Model Designation:

HC - D 4 N - 2 A



2. Blade Model Designation:

D 90 83 A K - 2



7. Accessories:

(a) Propeller spinner. (weight of spinner extra)

- (1) Approved with Hartzell and other manufacturers' spinners when listed on Hartzell type design data.
- (2) All propeller spinners must be approved as part of the aircraft installation regardless of manufacturer. (See NOTE 10)

(b) Propeller deicing (weight of deicing equipment extra)

- (1) Approved with Goodrich electrical deicing kit 5EXXXX-X, 7EXXXX-X, 65-XXX, 67-XXX, or 77-XXX when the specific kit number is listed on Hartzell type design data and installed in accordance with Goodrich Report no. ATA 30-60-07, Goodrich drawing no. 7E1284 or Beech installation drawing no. 50T-389045.
- (2) Approved with Safeway deice equipment when installed in accordance with Safeway Installation Manual no. 6927 or E-5735-14 and Hartzell Manual 133() for aluminium blades or Manual 135() for composite blades, and associated STC or PMA documents.
- (3) Propeller models listed in this data sheet are approved for use with propeller ice protection equipment listed in Hartzell Manual 159() or in other Hartzell type design data.
- (4) All propeller ice protection equipment must be approved as part of the aircraft installation regardless of manufacturer. (See NOTE 10)

(c) Propeller pulley drive. (weight of pulley drive extra)

- (1) Propeller model HC-E4A-2() with blade model E9612() is approved with Raytheon Aircraft air conditioning system pulley drive P/N 133-910029-7 and centering ring P/N 133-910029-11.
- (2) Propeller model HC-D4N-2() with blade model D9512() is approved with Pilatus Aircraft Ltd. air conditioning system pulley drive P/N PC-9-1401-1 and pulley centering ring P/N PC-9-1402-1.

8. Shank Fairings: Not applicable.

9. Special Limits: Not applicable

10. Propeller installation must be approved as part of the aircraft Type Certificate and demonstrate compliance with the applicable aircraft airworthiness requirements.

Propeller models listed herein consist of basic hub and blade models. Most propeller models include additional characters to denote minor changes and specific features as explained in Notes 1 and 2. Refer to the aircraft Type Certificate Data Sheet for the specific propeller model applicable to the installation.

Propellers with composite blades must be evaluated for bird impact resistance prior to approval on any type aircraft. Hartzell Propeller must perform tests and/or analyses based on aircraft configuration and operating conditions to determine the potential hazard as a result of a bird strike.

11. Retirement Time:

(a) Life Limits and Mandatory Inspections

- (1) Airworthiness limitations, if any, are specified in Hartzell Manuals 141(), 142(), 143(), 147(), 149() or 156().

12. Special Notes:
 - (a) Refer to Hartzell Manual no. 202() for overspeed and overtorque limits.
 - (b) Refer to Hartzell Service Letter HC-SL-61-61() for overhaul periods.
13. EASA considers that all Airworthiness Directives (ADs) issued by the EU Member States related to these products are still applicable unless EASA replaced or cancels them.
14. EASA Type Certificate and Type Certificate Data Sheet No. IM.P.133 replace the associated Type Certificates and Type Certificate Data Sheets of the EU Member States.
