

Model:ECF(K)8D450-PLHDAJ3-RF

Fan type:EC Backward curved centrifugal fan



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## Fan Introduction

This product consist of outer rotor(EC)motor, backward curved centrifugal impeller, with features of compact structure, large airflow, high static pressure, low vibration, low noise, convenient installation, energy saving, high efficiency etc..

## Scope of application

General purpose fan, can be widely used in purification of air conditioning systems, ventilation duct dust, environmental protection, refrigeration equipment and other fields.

## Environmental requirements

- Operating ambient temperature range:-25℃~+50℃
- Working environment humidity range:≤90%
- Transportation and storage temperature range:-40℃~+80℃
- Transportation and storage environment humidity range:≤80%
- The storage place is well ventilated, corrosive gases not contained.

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## Design, manufacturing, testing standards and certification

- JB-T10563 Technical specification for general purposes centrifugal fans
- GB/T 14711 General safety requirements for Medium and small rotary motor
- GB/T 755/IEC60034-1 rotary motor quota and performance
- GB 4706.32-2012/IEC 60335-2-40:2005 Household and similar electrical appliances - Safety - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
- The level of balance is in accordance with ISO 1940, G6.3
- Vibration testing and velocity is performed according to JB/T8689.
- This product is certified by China CCC and EU CE
- ISO 9001 quality system certification

## Technical features

Mass	23 kg
Size	φ450 mm
Impeller material	Sheet aluminium
Rotation	Counter-clockwise(Seen from cable exit)
Protection class	IP54
Insulation class	F
Mounting	Shaft horizontal or rotor on bottom; rotor on top on request
Mode of operation	S1(Continuous operation)
Bearings	Maintenance-free ball bearings
Controller	Controller integrated with motor, 0~10V or PWM control

## Structures

Inlet type	Single Inlet
Impeller type	Backward curved impeller
Housing	Without housing; With inlet ring;

## Technical parameters

Supply	3P,380~480V
Frequency	50/60 Hz

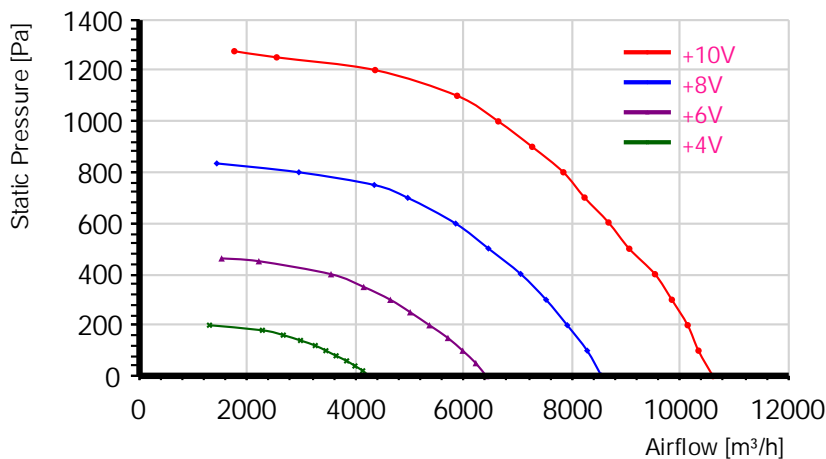
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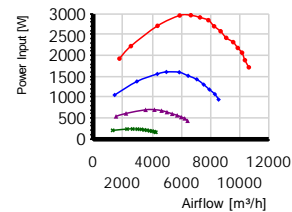
Rated voltage	400 VAC
Power input	2950 W
Rated current	4.5 A
Rated speed	2150 r/min
Max airflow	10600 m <sup>3</sup> /h (Static pressure=0Pa)
Acoustic	83 dB(A) measured at 1.0m from inlet side
ErP level	2015

## Performance curve

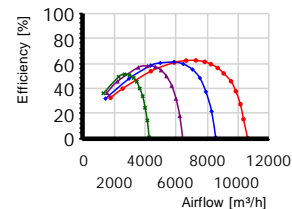
Airflow curve



Power input curve



Efficiency on static pressure



## Performance test with reference to GB/T 1236-2017, equivalent to ISO 5801

TestID	2018011501			Control voltage	10 VDC
Test environment					
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density
531.6mm	0.222m <sup>2</sup>	11°C	81%	102.2kPa	1.2kg/m <sup>3</sup>

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m <sup>3</sup> /h	Pa	Pa	Pa	Pa	mm
401	50	2146	1925	3.07	1763	1275	3	1278	495	150+189*0
402.5	50	2146	2225	3.49	2546	1251	6	1258	409	+189*1
397.2	50	2146	2713	4.25	4365	1201	19	1219	453	150+189*1
397	50	2146	2962	4.62	5880	1100	34	1134	316	150+189*2
400.9	50	2146	2968	4.61	6640	1000	43	1043	212	150+189*3
400.9	50	2146	2915	4.5	7268	900	52	952	254	150+189*3

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402.6	50	2146	2848	4.41	7843	800	60	861	295	150+189*3
400.6	50	2146	2703	4.21	8234	701	66	768	200	150+189*4
399	50	2146	2582	4.04	8678	603	74	676	222	150+189*4
400.6	50	2146	2425	3.79	9061	500	80	580	242	150+189*4
399.7	50	2146	2321	3.65	9536	400	89	489	268	150+189*4
401.7	50	2146	2182	3.44	9847	300	95	395	286	150+189*4
400.7	50	2146	2067	3.28	10141	200	100	300	303	150+189*4
399.2	50	2146	1888	3.01	10340	100	104	204	315	150+189*4
400.8	50	2146	1717	2.77	10607	0	110	110	332	150+189*4

TestID	2018011502			Control voltage	8 VDC					
Test environment										
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density					
531.6mm	0.222m <sup>2</sup>	12°C	77%	102.2kPa	1.2kg/m <sup>3</sup>					

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m <sup>3</sup> /h	Pa	Pa	Pa	Pa	mm
399.6	50	1745	1051	1.82	1438	835	2	837	330	150+189*0
399.9	50	1745	1376	2.3	2956	800	8	809	550	+189*1
400.5	50	1745	1556	2.57	4350	750	18	768	450	150+189*1
401	50	1745	1604	2.63	4969	700	24	724	226	150+189*2
401.4	50	1745	1597	2.61	5853	599	33	633	313	150+189*2
400	50	1745	1511	2.48	6458	501	41	541	381	150+189*2
398.6	50	1745	1428	2.35	7055	401	48	449	454	150+189*2
400	50	1745	1300	2.14	7524	300	55	355	516	150+189*2
400.3	50	1745	1182	2.01	7914	200	61	261	301	150+189*3
401.3	50	1745	1071	1.82	8284	100	67	167	329	150+189*3
399.2	50	1745	942	1.63	8541	3	71	74	350	150+189*3

TestID	2018011503			Control voltage	6 VDC					
Test environment										
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density					
531.6mm	0.222m <sup>2</sup>	12°C	77%	102.2kPa	1.2kg/m <sup>3</sup>					

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m <sup>3</sup> /h	Pa	Pa	Pa	Pa	mm
399.9	50	1300	538	1.09	1529	462	2	464	373	150+189*0
400.5	50	1300	609	1.21	2215	451	5	455	310	+189*1
400	50	1300	695	1.32	3551	400	12	413	300	150+189*1
399.2	50	1300	698	1.31	4154	350	17	367	410	150+189*1
400.7	50	1300	675	1.3	4645	300	21	321	512	150+189*1

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399.7	50	1300	640	1.27	5013	251	24	275	230	150+189*2
400.8	50	1300	599	1.18	5368	200	28	228	264	150+189*2
400.5	50	1300	563	1.12	5709	150	32	182	298	150+189*2
399.2	50	1300	522	1	5983	100	35	135	327	150+189*2
400.7	50	1300	489	0.96	6225	51	38	89	354	150+189*2
398.9	50	1300	431	0.86	6418	0	40	40	376	150+189*2

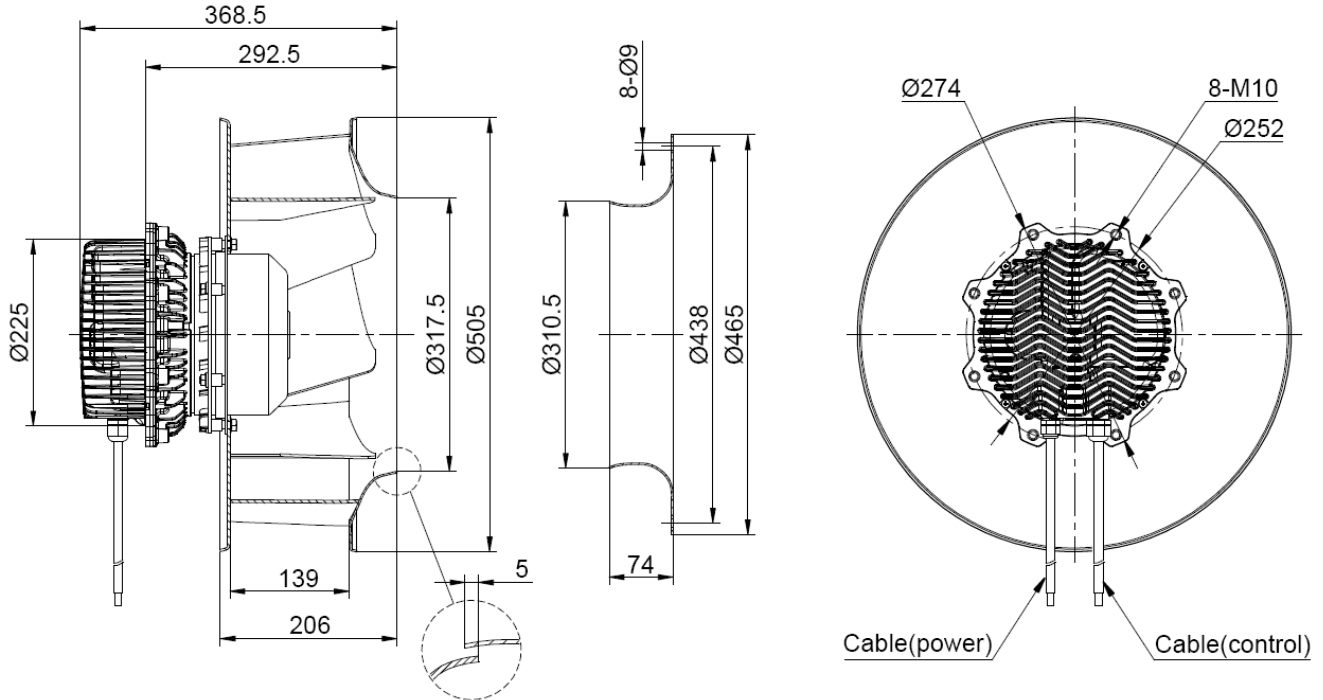
TestID	2018011504			Control voltage	4 VDC	
Test environment						
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density	
531.6mm	0.222m <sup>2</sup>	12°C	78%	102.2kPa	1.2kg/m <sup>3</sup>	

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m <sup>3</sup> /h	Pa	Pa	Pa	Pa	mm
401.5	50	867	201	0.57	1304	200	2	202	272	150+189*0
399.7	50	867	232	0.58	2282	180	5	185	329	+189*1
400.6	50	867	233	0.62	2668	161	7	168	449	+189*1
400.7	50	867	230	0.64	2986	140	9	148	562	+189*1
399.7	50	867	225	0.59	3259	120	10	130	253	150+189*1
399.6	50	867	212	0.57	3455	100	12	112	284	150+189*1
401.3	50	867	203	0.56	3644	80	13	94	316	150+189*1
400.3	50	867	190	0.53	3838	60	14	74	350	150+189*1
400.3	50	867	182	0.47	3992	40	16	55	379	150+189*1
400	50	867	169	0.5	4136	21	17	37	407	150+189*1
399.1	50	867	156	0.48	4249	1	18	18	429	150+189*1

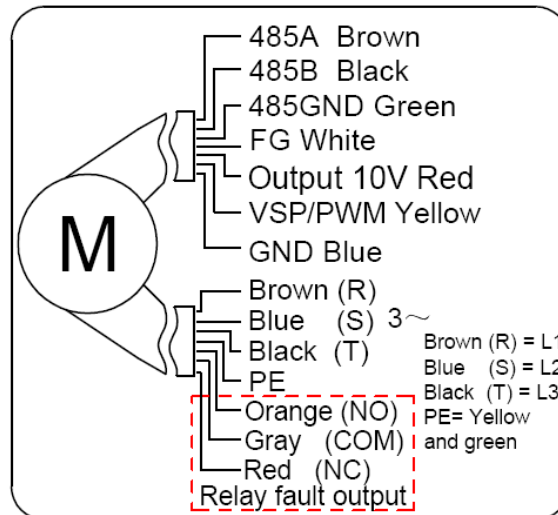
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## Dimensions(in mm)



## Wiring diagram



## Electrical connections

Connection	Assignment/function
L1、L2、L3	Three-phase supply connection, voltage range 380-480VAC, frequency 50/60Hz
PE	Protective earth
485A	RS485 interface for MODBUS-RTU

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485B	RS485 interface for MODBUS-RTU
485GND	Reference ground for control interface
NC	Status relay, mode2--close on normal, open on fault
COM	Common connection of status relay, contact rating 250VAC/3A
NO	Status relay, mode2--open on normal, close on fault
FG	Speed feedback pulse output, 2 pulses per revolution, can be customized
+10V	10VDC output,maximum output current 10mA
VSP/PWM	Speed control signal input connection, 0-10V voltage or PWM signal (amplitude 10-12V, frequency 1-10kHz)
GND	Signal ground for control interface

## Attentions

- ★Please check the appearance and the accessories if there is no damage before use, check the model is consistent with requirements;
- ★Keep reliable grounding according to the wiring diagram. to avoid motor burning and personal accident, please check wiring is loose or fall off;
- ★Before connect the power supply, check whether the motor is reliable, otherwise it will cause motor damage and personal injury;
- ★It is forbidden to pull the power cable, if the power cable is damaged, to be repaired before use, to avoid the accident of electric shock;
- ★Drop or impact motor is forbidden;
- ★Washing motor with water is prohibited, it will reduce the motor insulation level, even lead to electric leakage even endanger personal safety;
- ★Special customized product is designed for specified requirements, please consult with our engineers before change useage;
- ★The temperature of the motor shell may be higher in a short time after the fan stopped, Please avoid direct contact with the motor surface. If necessary, please take protective measures to prevent scald;
- ★Do not contact the impeller when the fan running, you need to wait for all the parts stopped before operate it;

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★When the fan is installed, check and ensure there is no debris in the shell and other shell body, keep the fan clean;

★After the fan installation complete, before connected to supply, please confirm that there is no collision or interference or stuck.

## Product life and maintenance, warranty

- The design life of this product is 40,000 hours. This data is derived from the expected life of L10 for general ball bearings at 40°C is 40,000 hours. The actual service life of the product is affected by the use environment (temperature, humidity, installation, bearing load, etc.).
- According to the use of the environment, please make a clean maintenance every 3~6 months.
- From the date of purchase (order delivery date), The warranty period is one year. During this period, for failure due to the quality of the product itself, we provide free replacement or repairing. If the damage caused by improper disassembly, transportation, artificial damage or natural disasters, etc., is not in the scope of this warranty;