

Model:ECF(K)6D280-PLHDAJ1-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 | 7.8 kg |
| Size | φ280 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 |

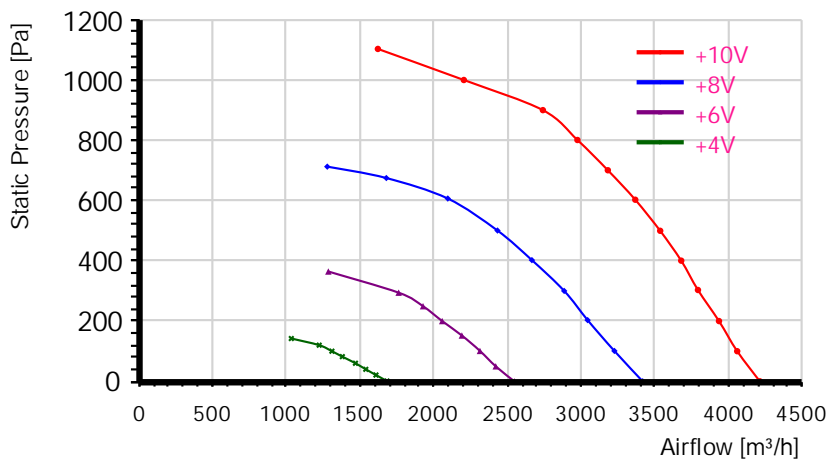
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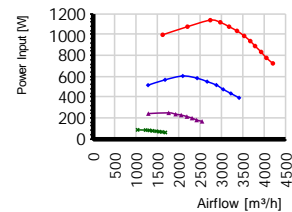
| | |
|---------------|--|
| Rated voltage | 400 VAC |
| Power input | 1140 W |
| Rated current | 1.86 A |
| Rated speed | 3270 r/min |
| Max airflow | 4150 m ³ /h (Static pressure=0Pa) |
| Acoustic | 74 dB(A) measured at 1.0m from inlet side |
| ErP level | 2015 |

Performance curve

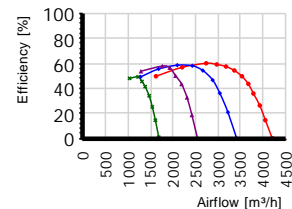
Airflow curve



Power input curve



Efficiency on static pressure



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

| TestID | 2022050902 | | | Control voltage | 10 VDC | | | | | |
|------------------|----------------------|-------------|-------------|-----------------|----------------------|-----------------|------------------|----------------|--------------------|-------------|
| Test environment | | | | | | | | | | |
| Outlet size | Outlet area | Temperature | Humidity | Baropressure | Density | | | | | |
| 339mm | 0.0903m ² | 25°C | 68% | 101.7kPa | 1.2kg/m ³ | | | | | |
| 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 ³ /h | Pa | Pa | Pa | Pa | mm |
| 400.4 | 50 | 3250 | 999 | 1.64 | 1621 | 1102 | 15 | 1117 | 397 | 150+189*0 |
| 401.1 | 50 | 3250 | 1077 | 1.75 | 2204 | 999 | 28 | 1027 | 292 | +189*1 |
| 399.5 | 50 | 3250 | 1140 | 1.85 | 2740 | 899 | 32 | 931 | 351 | +189*1 |
| 401.3 | 50 | 3250 | 1119 | 1.82 | 2975 | 800 | 41 | 841 | 445 | +189*1 |
| 401.1 | 50 | 3250 | 1077 | 1.76 | 3181 | 700 | 56 | 757 | 229 | 150+189*1 |
| 400 | 50 | 3250 | 1037 | 1.65 | 3367 | 602 | 63 | 665 | 256 | 150+189*1 |

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| | | | | | | | | | | |
|-------|----|------|-----|------|------|-----|----|-----|-----|-----------|
| 401.1 | 50 | 3250 | 988 | 1.61 | 3536 | 499 | 70 | 568 | 282 | 150+189*1 |
| 401.6 | 50 | 3250 | 939 | 1.53 | 3679 | 400 | 76 | 475 | 306 | 150+189*1 |
| 401.5 | 50 | 3250 | 891 | 1.45 | 3792 | 303 | 80 | 383 | 324 | 150+189*1 |
| 400.6 | 50 | 3250 | 834 | 1.37 | 3935 | 200 | 86 | 286 | 349 | 150+189*1 |
| 400.3 | 50 | 3250 | 777 | 1.28 | 4058 | 100 | 92 | 192 | 371 | 150+189*1 |
| 401.1 | 50 | 3250 | 724 | 1.22 | 4212 | 0 | 99 | 100 | 400 | 150+189*1 |

| | | | | | | | | | | |
|------------------|----------------------|-------------|----------|-----------------|----------------------|--|-------|--|--|--|
| TestID | 2022050903 | | | Control voltage | | | 8 VDC | | | |
| Test environment | | | | | | | | | | |
| Outlet size | Outlet area | Temperature | Humidity | Baropressure | Density | | | | | |
| 339mm | 0.0903m ² | 25°C | 66% | 101.7kPa | 1.2kg/m ³ | | | | | |

| 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 ³ /h | Pa | Pa | Pa | Pa | mm |
| 400.2 | 50 | 2620 | 515 | 0.89 | 1278 | 712 | 9 | 721 | 248 | 150+189*0 |
| 399.6 | 50 | 2620 | 566 | 0.96 | 1678 | 674 | 16 | 690 | 425 | 150+189*0 |
| 398.4 | 50 | 2620 | 603 | 1.03 | 2095 | 606 | 24 | 631 | 263 | +189*1 |
| 396.6 | 50 | 2620 | 582 | 0.96 | 2432 | 500 | 33 | 533 | 354 | +189*1 |
| 399.6 | 50 | 2620 | 549 | 0.93 | 2666 | 402 | 40 | 441 | 425 | +189*1 |
| 399.3 | 50 | 2620 | 516 | 0.9 | 2885 | 300 | 46 | 346 | 497 | +189*1 |
| 398.9 | 50 | 2620 | 475 | 0.85 | 3044 | 203 | 52 | 255 | 210 | 150+189*1 |
| 400.4 | 50 | 2620 | 435 | 0.77 | 3225 | 101 | 58 | 159 | 235 | 150+189*1 |
| 399.2 | 50 | 2620 | 393 | 0.73 | 3417 | 0 | 65 | 65 | 264 | 150+189*1 |

| | | | | | | | | | | |
|------------------|----------------------|-------------|----------|-----------------|----------------------|--|-------|--|--|--|
| TestID | 2022050904 | | | Control voltage | | | 6 VDC | | | |
| Test environment | | | | | | | | | | |
| Outlet size | Outlet area | Temperature | Humidity | Baropressure | Density | | | | | |
| 339mm | 0.0903m ² | 25°C | 66% | 101.7kPa | 1.2kg/m ³ | | | | | |

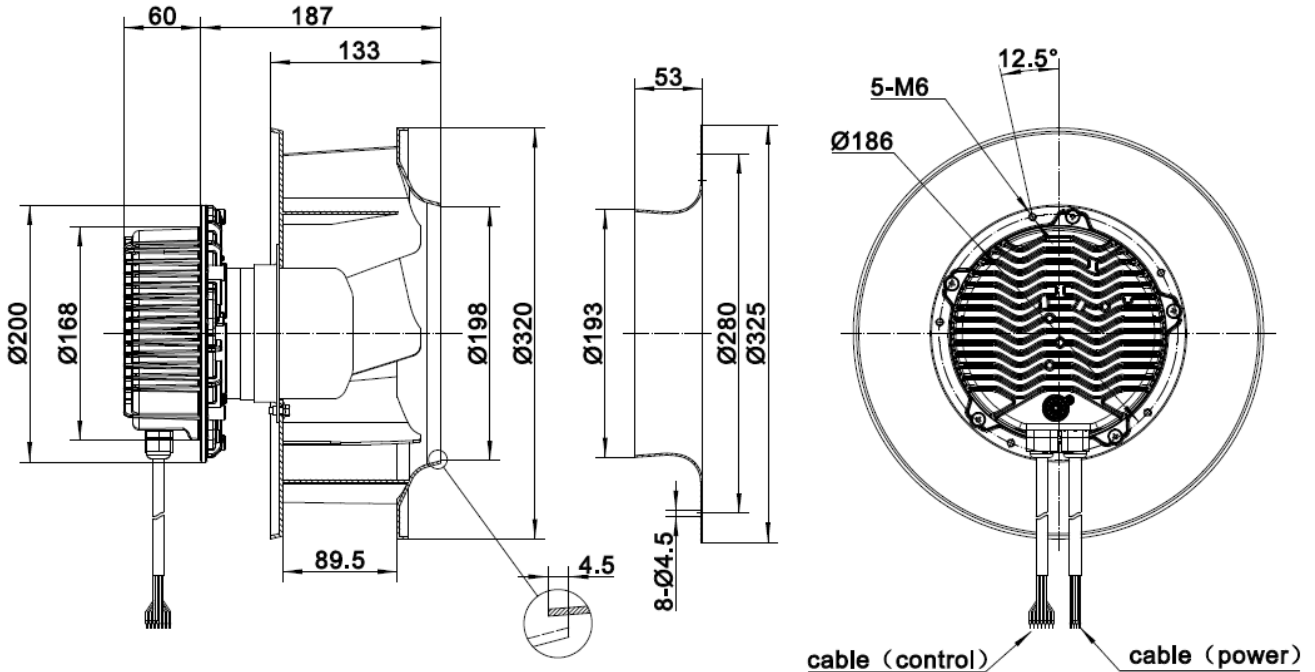
| Test data | | | | | | | | | | |
|-----------|-----------|-------|-------------|---------|-------------------|-----------------|------------------|----------------|--------------------|-------------|
| Voltage | Frequency | Speed | Power input | Current | Airflow | Static pressure | Dynamic pressure | Total pressure | Pressure Differenc | Nozzle Size |
| V | Hz | r/min | W | A | m ³ /h | Pa | Pa | Pa | Pa | mm |
| 399.2 | 50 | 1970 | 242 | 0.53 | 1285 | 364 | 11 | 375 | 291 | 150+189*0 |
| 398.6 | 50 | 1970 | 249 | 0.54 | 1762 | 294 | 17 | 312 | 187 | +189*1 |
| 399 | 50 | 1970 | 236 | 0.53 | 1927 | 249 | 21 | 270 | 223 | +189*1 |
| 398.6 | 50 | 1970 | 228 | 0.52 | 2057 | 200 | 24 | 223 | 254 | +189*1 |
| 399.6 | 50 | 1970 | 213 | 0.51 | 2191 | 152 | 27 | 179 | 288 | +189*1 |
| 397.9 | 50 | 1970 | 198 | 0.5 | 2313 | 101 | 30 | 131 | 320 | +189*1 |
| 397.6 | 50 | 1970 | 180 | 0.49 | 2420 | 50 | 33 | 83 | 351 | +189*1 |
| 398 | 50 | 1970 | 167 | 0.48 | 2547 | 0 | 36 | 37 | 388 | +189*1 |

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| TestID | 2022050905 | | Control voltage | 4 VDC | | | | | | |
|------------------|----------------------|-------------|-----------------|--------------|----------------------|-----------------|------------------|----------------|--------------------|-------------|
| Test environment | | | | | | | | | | |
| Outlet size | Outlet area | Temperature | Humidity | Baropressure | Density | | | | | |
| 339mm | 0.0903m ² | 25℃ | 67% | 101.7kPa | 1.2kg/m ³ | | | | | |
| 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 ³ /h | Pa | Pa | Pa | Pa | mm |
| 400.6 | 50 | 1309 | 85 | 0.29 | 1034 | 142 | 5 | 148 | 166 | 150+189°0 |
| 399.8 | 50 | 1309 | 83 | 0.28 | 1223 | 120 | 8 | 128 | 227 | 150+189°0 |
| 399.4 | 50 | 1309 | 80 | 0.28 | 1309 | 100 | 10 | 110 | 260 | 150+189°0 |
| 400.3 | 50 | 1309 | 76 | 0.27 | 1380 | 82 | 11 | 93 | 289 | 150+189°0 |
| 399.8 | 50 | 1309 | 72 | 0.26 | 1469 | 60 | 12 | 72 | 327 | 150+189°0 |
| 399.3 | 50 | 1309 | 68 | 0.25 | 1539 | 40 | 13 | 53 | 358 | 150+189°0 |
| 400 | 50 | 1309 | 65 | 0.24 | 1608 | 21 | 14 | 35 | 391 | 150+189°0 |
| 400.2 | 50 | 1309 | 60 | 0.23 | 1683 | 1 | 16 | 17 | 428 | 150+189°0 |

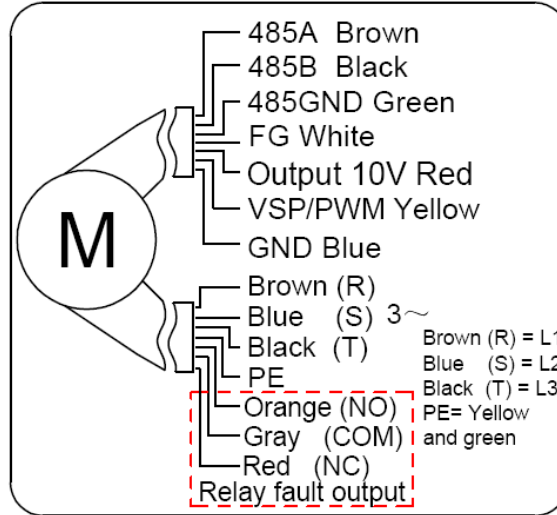
Dimensions(in mm)



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Wiring diagram




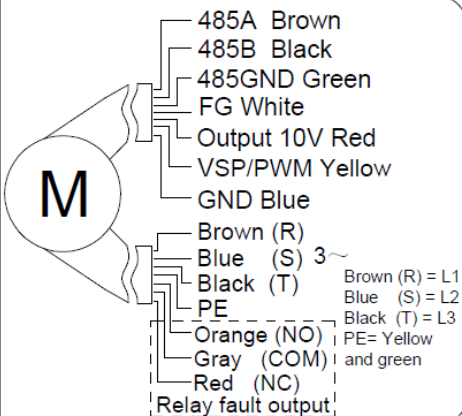


Electrical connections

| 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 |
| 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 |

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NamePlate

| | | | | |
|--|-----------------|-------------------------------|--|--|
|  | | ECF(K) 6D280-PLHDAJ1-RF | |  |
| Volt.:400V | Freq.:50/60Hz | Amp.:1.86A | | |
| Input:1140W | Speed:3270r/min | Airflow:2760m ³ /h | | |
| Pst:900Pa | Static | Ip54 | CL.F Erp2015  | |
| Rotation :  | | | | |

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;