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Maintenance, Operation and Commissioning Manual for Standard and Explosion-Proof Duct Fans 23.05.2026

RKDP series consists of PP duct fans specifically designed for the ventilation of acidic and corrosive environments in roof duct systems. It is an ideal solution for applications where corrosive gases, contaminated air, or other aggressive components are part of the exhaust air. Typical applications include plating plants, medical facilities, the food industry, the electrical industry, battery storage areas, and the petrochemical industry. High-performance, backward-curved impellers ensure reliable airflow even without a scroll casing. The impellers are manufactured from PP or PPS-el materials and are statically and dynamically balanced in accordance with ISO 21940-11 (G6.3). The casing, suitable for operation in all mounting positions, is made of corrosion- and UV-resistant PE/PE-el materials. All fasteners are made of A4/316 stainless steel. The standard design is suitable for conveying air temperatures between -20°C and +70°C. The maintenance-friendly, high-efficiency, totally enclosed electric motor is positioned outside the airflow and has a protection class of IP55/IP65.



Models and Intended Uses

All products mentioned in this document can be used for the removal of explosive gases or dusts from the environment, in accordance with this Guide. All models are Category 2G/2D Zone 1 and Category 3G/3D Zone 2 - must be protected with an additional motor protection switch.

Applications

Gurvent brand fans have an explosion-proof asynchronous motor, and the fan motor is directly coupled to the fan housing. This design is generally manufactured to provide and remove more air to the environment in explosive zones (ZONE 1-ZONE 2). All parts of the designed fan are made of antistatic or coated materials. During assembly (at the blade ends), Gurvent centrifugal fans; In designs marked with Ex, where the asynchronous motor is directly coupled to the fan housing, the design conforms to ATEX 2014/34/EU and EEx II, T3, T4, T5, T6 EN 50 314/50 019 standards. **Safety Information:** The fan blades are specially designed to remove explosive gases (Zone 1 category 2G – 2D and Zone 2 category 3G). The fan is not suitable for environments containing large solid particles. Suitable models are available. The fan is unaffected by explosive environments under normal operating conditions. The motor windings have a high insulation class, allowing operation at extremely high temperatures. The motor is EX-Proof compliant. It is unaffected by explosive/flammable gases and vapors. See operating values for fan operation and operating ranges. Electrical connections during installation must be made by qualified personnel and in accordance with the relevant instructions.direction is determined according to the fan mounting. (Figure 5)

- To prevent malfunction and protect the motor, the PTO terminals are located in the terminal box. This protection prevents the motor from overheating (standard II(2) G, rule 94/4/EG). The PTO terminals must absolutely be connected to the motor protection switch. The protections must be selected according to the specific operating conditions in accordance with EN60079-14 and EN61241-14 standards. - The electrical protections in the motor power supply may not be sufficient to provide protection against overloads. Connecting the protections built into the windings solves this problem: the PTO bimetallic probe (a normally closed electromechanical device that opens when the threshold value is exceeded) closes the circuit when the temperature is reached. Resetting this cutoff should only be done manually, not automatically. The user must use a tripping relay in accordance with the IEC 61508 standard. The metal parts of Ex-Proof motors must be connected to an external grounding system. - The guards and protective cages must always be in place except during maintenance. A grille should be installed on the fan's suction side to prevent the drawing in of particles that may be present in the air drawn from the environment and to prevent damage to the blades. - To ensure the correct selection of materials used in the assembly, the warning notes in the Draft N107-2:2003 (E) standard should be reviewed. - To remedy malfunctions that may occur due to incorrect use or force majeure and to take preventive measures, the current DIN EN 292 and especially the Draft N107-2:2003 (E) standard must be followed. The system must be switched off during maintenance. If the product is connected to the standard city mains power, maintenance is performed according to the EMC specification 89/336/EWG. During maintenance and service, attention must be paid to the notes specified in the relevant instructions. Spare parts and other accessories of the product should be stored in a suitable place. It is recommended to use the Gurvent MK mounting base for mounting. The installer is responsible for the proper connection of the fan. The airflow direction is determined according to the fan mounting. (Figure 5) **Transportation and Storage** - All fans are packaged at our factory according to the required transportation conditions. - The fan(s) are either in their original packaging or suitable conditions have been prepared for transporting large fans (carrying handles, lifting rings, lifting rings for motors). Use appropriate lifting equipment. Do not carry fans by their connecting cables! Avoid excessive vibration and impacts. Be careful to avoid damage to the packaging and fans. It is recommended that fans be stored in their original packaging in a dry, clean warehouse environment until installation. Fans should not be exposed to very hot or cold conditions. If the fans remain in stock for more than one year, check the motor and devices. Fans have a carrying hook. Fans can be lifted by attaching them to this part. •

Use of VFD speed control device, maintenance switch in hazardous assembly areas : If the frequency inverter device, maintenance switch, etc. control devices are located within the explosive zone, they must absolutely have ATEX certification. For products to be installed outside the zone, the selection of cable cross-section suitable for motor power and distance is left to the user.

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MAINTENANCE

During maintenance, the dimensions between rotating and stationary parts should not be less than 1% of the fan diameter. Torque wrench tightening values are: 9.5 Nm for M6, 23 Nm for M8. Fittings must be tightened in a way that does not cause vibration during operation. In vertically mounted motor shafts, the drain hole under the shaft must always be open. The electrical connection diagram is located on the stator or fan housing. Hose ends for drainage connection are clip-on. A liquid-sealed water drainage pipe is supplied with the product to prevent condensation in very humid, steamy environments. If the system is in an area exposed to lightning, lightning protection methods must be applied. If the system is in an area closely exposed to radio waves, appropriate protective measures must be taken. Bearings should be replaced after 40,000 operating hours. You can consult our maintenance department for suitable special spare parts that need to be replaced. Points to consider during service and maintenance: Ensure the device rotor and its connected rotating parts are stopped. Ensure the power is switched off until the maintenance work is complete. Personnel must comply with safety regulations. Assembly should be done in a way that allows for cleaning and inspection. Regular cleaning should be performed to prevent motor imbalance. - Absolutely no harsh or damaging cleaning tools should be used when cleaning the fans.



Ventilation Windows



Protection Grille



Maintenance Switch

- Operating values and technical information are on the label on the device. Voltage and current values are specified. Permissible values and nominal current draw must not be exceeded. Value overruns are specified as (2%). The maximum permissible air temperature for operation is +70°C and density q=1.2 kg/m3. - The motor protection thermistor value is DIN 44082-M and the motor value is specified in the certificate (03ATEX 3045). The fan is under thermistor control according to the characteristic curves and permissible values that will occur during operation. Operating regime (Start-Stop number): The motor is suitable for continuous operation regime S1. Frequent switching on and off should be avoided. The cooling of the heat generated in the motor during operation complies with the EC certificate requirements. The device operates according to the values specified on the label. Operation outside these values may cause the fan to burn out. Revision: In ATEX-approved fans, reuse of repaired parts and replacement with equivalent parts are not permitted. If the fan is damaged, it must be replaced with a completely new one.

STANDARDS

MINIMUM SAFETY DISTANCES according to TS 12820 for private fuel stations
MINIMUM SAFETY DISTANCES to be observed at petrol stations according to TS 12663
MINIMUM SAFETY DISTANCES to be observed at LPG filling stations according to TS 11939.
EN 50014 / IEC 79-0 ATEX (Directive 2014/34/EU) has been put into effect by being published in the official gazette as a regulation. ATEX “Regulation on Equipment and Protective Systems Used in Potentially Explosive Atmospheres (2014/34/EU)



OPERATING CONDITIONS - COMMISSIONING - (Before starting work)

Since the fan will contain corrosive and explosive gases, absolutely use chemical-resistant, non-sparking equipment and respirators. Inspect the product by hand and visually; if there is any malfunction, breakage, crushing, cracking, or unwanted noise, contact the company from which you purchased the product. Check the assembly and electrical connection. Check that it is secured against touch. Check the fan blades to ensure there is no friction and no sparks. Fan protection elements and grounding must be connected. Thermistors and devices must be properly connected. Check the inside of the electrical connection box. Assembly and connections must be done correctly. Motor electrical connections must be made according to the label information. Otherwise, the product will not be covered by the warranty. To prevent unforeseen but potentially dangerous situations during commissioning: Check the airflow and rotation direction. The airflow and rotation direction should be in the direction indicated by the arrow on the device. Briefly (max. 3 seconds) supply power to the fan, then turn it off and check the rotation direction. If the rotation direction is incorrect, swap the positions of the two phases. For single-phase motors, please consult our company. Check for vibration and imbalance during operation. Take necessary precautions to prevent corrosion and damage caused by dirt, environmental conditions, and other factors during or after installation. After installation, collect any remaining materials and address any deficiencies.

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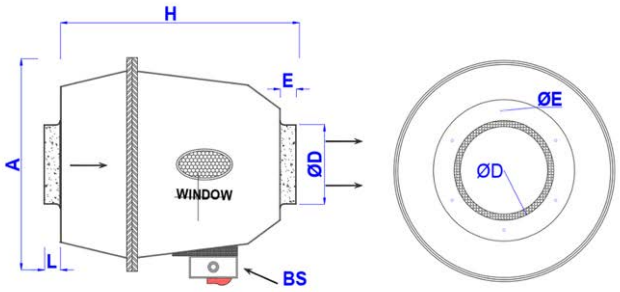




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DIMENSIONS



Model	A	E	ØE	H	ØD	L	Weight	Dimesions (mm)
RKDP 18B	500	40	M4X6X250mm	560	180	40	22	550x550x640
RKDP 20B	500	40	M4X6X250mm	560	180	40	22	550x550x640
RKDP 22B	500	40	M4X6X295mm	560	200	40	24	550x550x640
RKDP 25B	500	40	M4X6X295mm	560	200	40	26	550x550x640
RKDP 28B	600	40	M6X6X322mm	660	250	40	31	650x650x720
RKDP 31B	600	40	M6X6X322mm	660	250	40	35	650x650x720
RKDP 35B	700	40	M6X6X356mm	660	280	40	42	750x750x720
RKDP 40B	700	40	M8X6X356mm	760	315	40	45	750x750x800
RKDP 45B	700	40	M8x6x395mm	760	355	40	55	750x750x800

POSSIBLE MALFUNCTIONS AND TROUBLESHOOTING METHODS

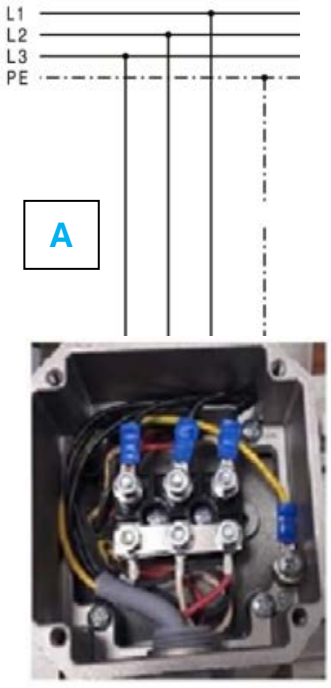
Possible Malfunction	Reason	Solution
If there is excessive vibration in the fan	Dust and foreign objects may be stuck on the propeller.	The propeller should be cleaned. Cleaning should be done more frequently, filters should be used.
	Foreign materials may have entered the bearings.	The bearing must be cleaned and replaced with a new one. If necessary, the fan should be replaced.
	The pedestal may have been installed incorrectly.	The pedestal must be leveled.
	The propeller or pulley may be out of balance.	The propeller must be rebalanced.
	There may be runout on the motor shaft / propeller hub.	Runout of the shaft / hub should be checked.
	The propeller may be rubbing against something (the body).	It must be checked and placed properly.
If the propeller wears out quickly,	The operating temperature of the fan may be too high.	The temperature should be checked.
	Dust filter may be clogged. / There may not be a fan suitable for the purpose	It must be replaced with a new one.
If it is not operating at the desired capacity,	There may be a tear in the ducts.	Connections in the ducts should be checked.
	The dust filter may be clogged.	They should be replaced with new ones.
	The fan may be rotating in the opposite direction.	Direction of rotation should be checked.
	The power of the fan may be insufficient.	Use a fan with a larger capacity.
Engine starts but heats up quickly	The parts of the fan may be rubbing.	Friction should be prevented.
	Motor capacity may be insufficient.	Larger power motor should be used.
If the electric motor is not running,	Phase Poles or switch may be connected incorrectly.	Electrical Installation should be checked. It may require maintenance by an electrician or coil winding master.
	The phase may be incomplete.	
	The switch may not be turned correctly or a lead may be broken.	
	The motor is not cooling down or the cooling propeller may be damaged.	
	The mains voltage may be low.	
	The thermal switch may be set incorrectly.	

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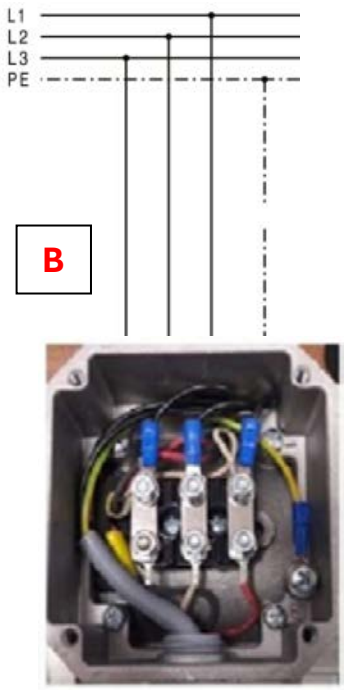
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ELECTRIC MOTOR CONNECTION METHODS

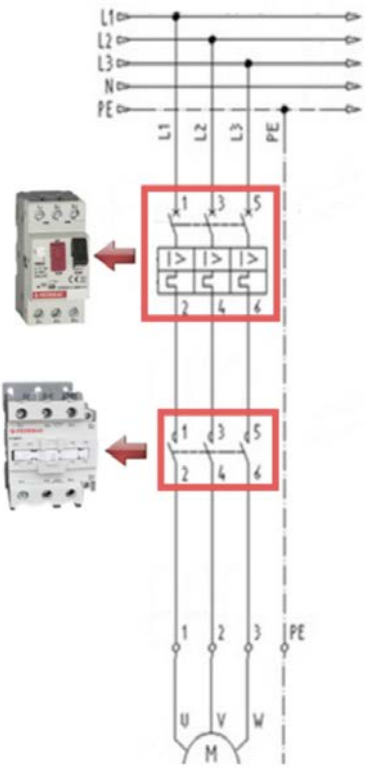
STAR CONNECTION (MAX.



DELTA CONNECTION (5.50 KW AND ABOVE)



MOTOR PROTECTION



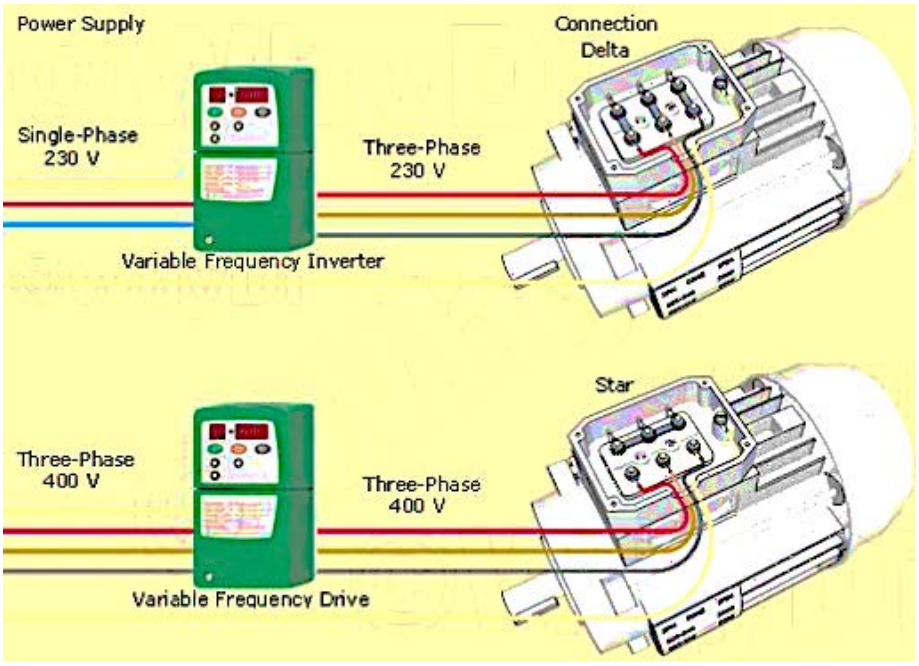
* Under normal conditions, 380V electric motors are made star connection (A)
* 5.50 Kw and above Electric Motors Delta connection (B) is made.

Matters to be carefully considered about Frequency Drive connection

* Delta connection is made if your drive is suitable for 220V supply input - 380V motor connection output, that is, if the motor is 380V.
* Star connection is made if your drive is suitable for 380V supply input - 380V motor connection output, that is, if the motor is 380V.

DELTA CONNECTION

STAR CONNECTION



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