

## Plastic Centrifugal Fans EPN / EPN...Ex



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## EPN – Plastic centrifugal fans

with IEC standard motor

- corrosion-resistant design
- motor out of air stream
- backward curved impellers made of plastic
- Motor protection by PTC resistors



### Description:

Plastic centrifugal fans are used for conveying of aggressive mediums as i.e. acidic or solvent vapours etc. These may arise in process technology, in petrochemistry, in textile production, in printing plants, in laundries etc. The shaft passage is sealed against the casing backplate with a V-ring of fluororubber, located on the impeller hub. The pressure of the sealing lip decreases with increasing speed.

### Application areas:



### Casing:



The casings are produced following the rotational casting procedure and are made of electrically conductible nonflammable grey polypropylene (PPs-el). The design allows to remove the motor-impeller-unit and the console without disconnecting casing from the duct system. Casing and special steel console are sealed with an expanded PE-sealing.

#### Consoles

The consoles are made of special steel (material no. 1.4301). The console supports the motor and the spiral casing and makes up the back of the casing.

### Impellers:

The impellers made of PP are high efficient and balanced dynamically on two quality levels G6.3 to DIN 21940-11.



Backward curved centrifugal impellers made of plastic PP.  
On the inlet side the hub is covered with a stainless steel plate.

### Motor and motor protection:

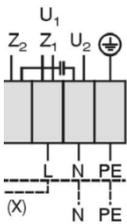


Three-phase IE2 and IE3 standard motors of series B3 with protection class IP55, isolation class F in 2-pole, 4-pole or 6-pole execution are used.

Single stage IEC standard motors are normally used in 400V versions.

Single A.C. motor on request.

### Electrical connection:



The motor connection is directly in the terminal box on the IEC standard motor. The motor has to be connected according to the wiring diagram and in accordance with valid regulations and local laws. In case of operation with a frequency converter please check the operation manual.

### Installation:



#### Position of casing / Direction of rotation:

The casings can be rotated in 45° steps and therefore can be mounted in different positions.

**When ordering please indicate position of casing and direction of rotation!**

**Air volume control:**

For more information see accessories!



**Infinitely variable control unit:**

EPND = 400V → via a frequency converter (accessory)

**Scope of delivery:**

- Plastic centrifugal fan (EPN)
- Documentation

**Centrifugal fans with plastic casing operation conditions – chemical resistance:**

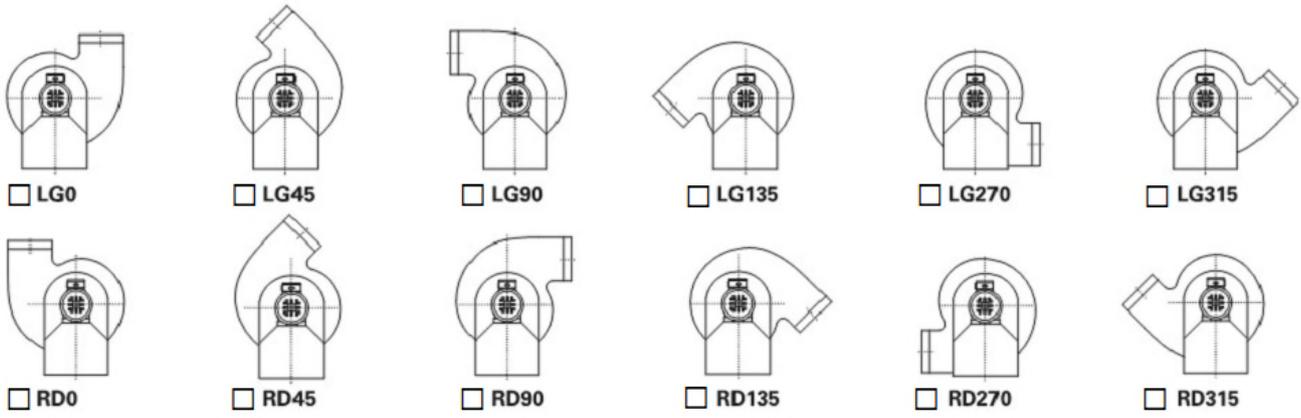
The chemical resistance depends on materials and sealing materials which are in contact with the conveyed mediums, these materials are coordinated accordingly. The chemical resistance of the fans depends not only on the composition of the gas mixture but also on concentration, temperature and duration of contact of the conveyed medium. The following chart is only a rough overview.

For special applications the resistance of the materials has to be checked. Ranges of applications according the following resistance chart.

Chemical resistance with use of:	Temperature of the medium max. 60°C:
acidic vapours weak concentration	+
acidic vapours strong concentration	(+)
nitric acidic vapours	(+)
base containing vapours weak concentration	+
base containing vapours strong concentration	(+)
alcoholic vapours	+
fatty and oily vapours	+

- + adequate
- (+) partially adequate

**Position of casing EPN:**



## EPN...Ex – Plastic centrifugal fans

with IEC standard motor

- corrosion-resistant design
- motor out of air stream
- backward curved impellers made of plastic
- Motor protection by PTC resistors



### Description:

Plastic centrifugal fans are used for conveying of aggressive mediums as i.e. acidic or solvent vapours etc. These may arise in process technology, in petrochemistry, in textile production, in printing plants, in laundries etc. The shaft passage is sealed against the casing backplate with a V-ring of fluorrubber, located on the impeller hub. The pressure of the sealing lip decreases with increasing speed.

Those fans are designed and manufactured to be operated in vaporous explosive atmosphere. They are marked in accordance with the Atex directive 2014/34/EU: **Ex II 3G c IIB T3 X** ("e"-motor) or **Ex II 3G c IIB T4 X** ("de"-motor).

### Application areas:



### Casing:



The casings are produced following the rotational casting procedure and are made of electrically conductible nonflammable grey polypropylene (PPs-el). The design allows to remove the motor-impeller-unit and the console without disconnecting casing from the duct system. Casing and special steel console are sealed with an expanded PE-sealing.

#### Consoles

The consoles are made of special steel (material no. 1.4301). The console supports the motor and the spiral casing and makes up the back of the casing.

### Impellers:

The impellers made of PP are high efficient and balanced dynamically on two quality levels G6.3 to DIN 21940-11.



#### Materials:

Backward curved centrifugal impellers made of conductive plastic PP. Inlet cone and flange made of conductive plastic.

On the inlet side the hub is covered with a stainless steel plate.

### Motor and motor protection:

The IEC-motors are characterized by a compact, robust design. The speed can be controlled in combination with a Variable Frequency Drives (VFD). Therefore the motor must be labeled with ignition class "d" or "de".

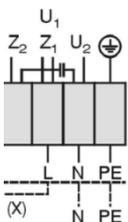


Single stage IEC standard motors are normally used in 400V versions.

#### Motor Protection:

Standard motors have to be fitted with an upstream motor protection switch. The specifications of the manufacturer have to be taken into account. Standard motors with the permit of the Positive Temperature Coefficient (PTC) thermistor as single motor protection can also be protected with a PTC thermistor tripping unit. In this case the remarks of motor protection of external rotor motors are also guilty. But one certified motor protection has to be connected. The specifications of the manufacturer of the motor have to be followed. A certified motor protection has to be used.

### Electrical connection:



The motor connection is directly in the terminal box on the IEC standard motor. The motor has to be connected according to the wiring diagram and in accordance with valid regulations and local laws.

### Installation:



#### Position of casing / Direction of rotation:

The casings can be rotated in 45° steps and therefore can be mounted in different positions.

**When ordering please indicate position of casing and direction of rotation!**

### Air volume control:

For more information see accessories!



#### Infinitely variable control unit:

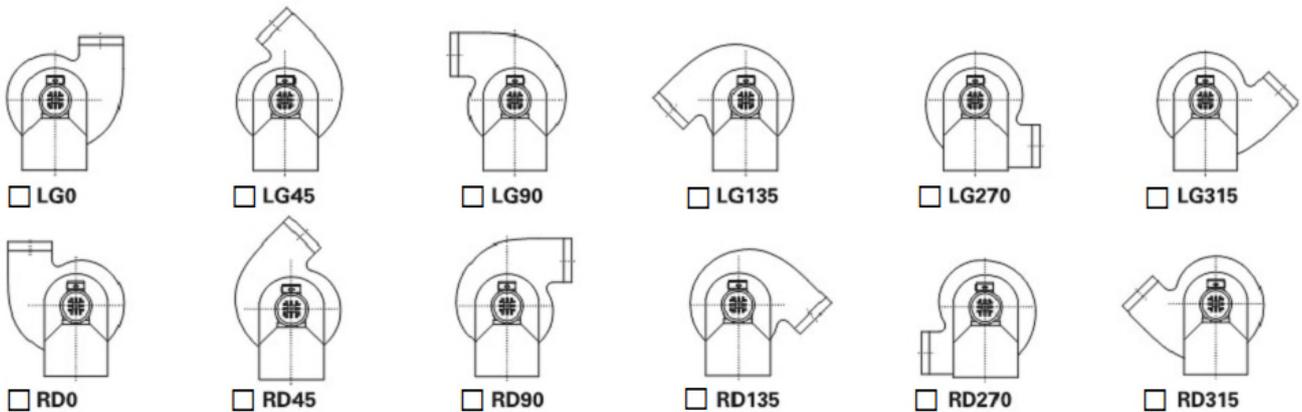
EPND...Ex = 400V → Explosion proof standard IEC motors.

The speed of standard motors can be controlled by frequency converters. In this case type of protection „d“ or „de“ is obliged.

### Scope of delivery:

- Plastic centrifugal fan (EPN...Ex)
- Documentation

### Position of casing EPN...Ex:



## Technical information of Explosion proof fans:

### Mechanical part

Rosenberg fans for potentially explosive atmospheres are manufactured and tested in accordance with EN 14986. The possible contact surfaces between rotating and stationary components in view of operating malfunctions, which are typically to be expected, are manufactured of materials with a minimized ignition hazard resulting from friction, grind or impact sparks. The inlet and outlet of the fan shall be fitted with guards to prevent the ingress of foreign particles. The guard shall meet at least the requirements of DIN EN ISO 13857.

### Electrical part

The motor data for an optimally cooled motor are stamped onto the type nameplate and part of the contents of the EC type examination certificate. Refer to the fan nameplate for the nominal fan data. In order to realize a favourable speed ratio for voltage-controlled fans with external rotor motors, motors may possibly be used, which have a higher rated voltage than the fan voltage. In this case, the voltage will also differ in addition to the current, power and speed.

### Temperature class

Electrical appliances in explosion hazardous areas are listed according to their maximum surface temperatures in temperature classes ranging from T1 to T6. The lowest temperature of ignition of the concerned explosive atmosphere must be higher than the maximum surface temperature of the used electrical appliance (according to EN 60079).

#### Temperature class / max. surface temperature

T1	450°C /	T2	330°C /	T3	200°C
T4	130°C /	T5	100°C /	T6	85°C

Rosenberg explosion proof fans can be used for temperature classes T1 up to T3 (T4 with standard motor on request).

### Zones

For combustible gases, vapours and fogs the following is applied:

#### Zone 0 (= Equipment Category 1)

For areas where the given danger of explosive atmosphere is long-term or continuously.

#### Zone 1 (= Equipment Category 2)

For areas where the given danger of explosive atmosphere is during normal operation.

#### Zone 2 (= Equipment Category 3)

For areas where the given danger of explosive atmosphere is seldom or short-term.

Rosenberg fans, based on their design, are suitable for ventilation of explosive atmosphere in zone 1 and 2 as well as installation in zone 1 and 2.