



## Fans for areas subject to explosion hazards with gas or dust atmospheres



Information on explosion protection, short and concise  
All Ex fans from MAICO at a glance

## Rules, standards and laws

**In many situations, an explosion hazard can hardly be foreseen by humans. An imminent danger is therefore often underestimated in daily working life and the necessary caution is not taken.**

To prevent personal injuries and material damage, standards and regulations have therefore been drawn up for explosion protection, in order to meet the legal requirements, for example, that are binding in the majority of industrial nations.

These standards and regulations are an important instrument for implementing technical solutions, for example, for fans, which are used in areas with potentially explosive atmospheres.

More detailed information can be found in our “Practical guide to explosion protection”, which is available on our website.

[www.maico-ventilatoren.com/service/downloads](http://www.maico-ventilatoren.com/service/downloads)



MAICO has been a manufacturer and specialist for fans in potentially explosive atmospheres for more than three decades and has the right Ex fans in its product range for a wide variety of requirements. This variety of models ranges from roof fans to axial wall-mounted fans and axial duct fans in a wide variety of nominal sizes. In addition to fans for combustible air/gas mixtures, MAICO has now also added fans for explosive dusts to its product range.

**“It is probable that the improbable can happen.”**

**Aristoteles**

# Explosion protection

Thanks to technical measures, the risk of an explosion can be prevented or at least reduced. In addition to the “Primary explosion protection” measure, which also includes the Ex fans, there are also “Secondary” and “Tertiary” measures.

In “Primary explosion protection” the following measures must be implemented.

- ▶ Avoidance of combustible materials
  - Use of non-combustible substitutions
- ▶ Reduction in oxygen content through inertisation:
  - Addition of an inert gas (e.g. nitrogen) or an inert dust (e.g. rock salt)
- ▶ Reduction in the concentration of the hazardous substance in the mix and therefore reduction below the explosion limit by means of
  - natural or technical ventilation
  - thinning.



- ① Ventilation duct provided by customer
- ② **ELM... Ex** fixing cuff
- ③ **ERM ... Ex e** fan or
- ④ **SGM... Ex** protective grille
- ⑤ Explosive atmosphere

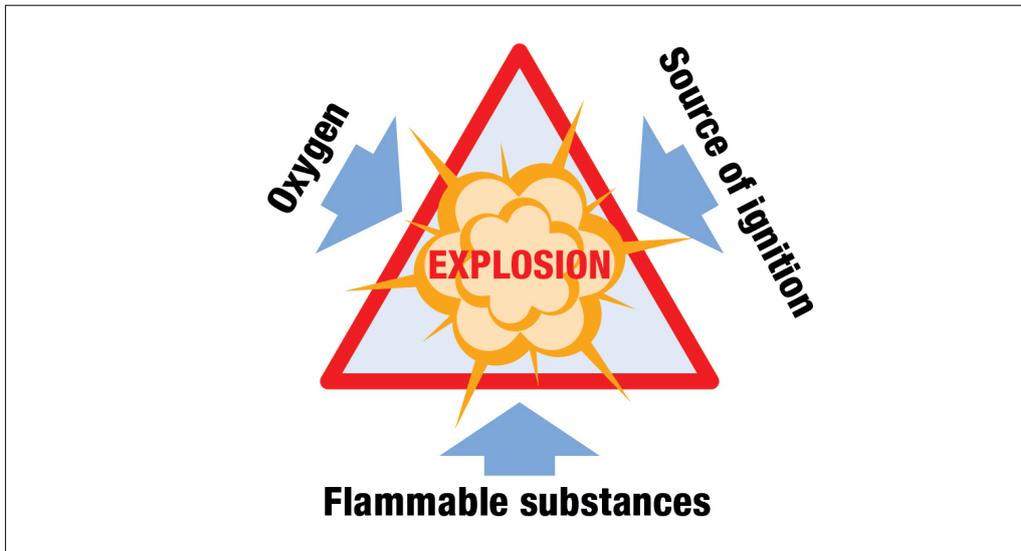
**Typical applications for ventilation systems in potentially explosive atmospheres are:**

- ▶ Store rooms
- ▶ Process technical applications
- ▶ Workshops
- ▶ Petrochemical industry
- ▶ Battery rooms
- ▶ Labs

A ventilation system is generally always needed in these areas to transport the combustible gases, vapours or mist in the explosive atmosphere out of the building.

# A constellation with explosive consequences

For an explosion to occur, the following three factors have to be present at the same time:



## Flammable substances

The following may all be combustible:

gases, mist, vapours, dusts, solid materials

When used in workplaces and production processes, this means that a combustible substance

- ▶ is used as a starting or auxiliary material,
- ▶ is produced as a residual, intermediate or end product  
or
- ▶ can be produced in the event of a normal malfunction

Flammable substances may also arise though they are unwanted, for example, by storing acids or alkalis in metal containers. Here gases may be formed which, when the container is opened, produce an explosive

atmosphere in combination with the oxygen contained in the air.

Generally speaking, materials which are capable of an exothermic oxidation reaction are considered to be combustible.

This applies in particular to all materials, which are classified in accordance with EU Ordinance (EC) No. 1272/2008 as

- ▶ flammable
- ▶ highly flammable or
- ▶ extremely flammable  
and are labelled as such.



Combustible gases	Combustible liquids	Dusts of combustible solids
<ul style="list-style-type: none"> <li>- Liquid gas (butane, butylene, propane, propene)</li> <li>- Natural gas</li> <li>- Combustible gases (carbon monoxide or methane)</li> <li>- Gaseous combustible chemicals (e.g. acetylene, ethylene oxide, vinyl chloride)</li> </ul>	<ul style="list-style-type: none"> <li>- Solvent</li> <li>- Fuels</li> <li>- Crude oil, heating oil, lubricating oil or used oil</li> <li>- Paint</li> <li>- Water-insoluble and water-soluble chemicals</li> </ul>	<ul style="list-style-type: none"> <li>- Coal</li> <li>- Wood</li> <li>- Food and feed (e.g. sugar, flour or grain)</li> <li>- Plastics</li> <li>- Metals</li> <li>- Chemicals</li> </ul>

# Explosive atmospheres are always being created

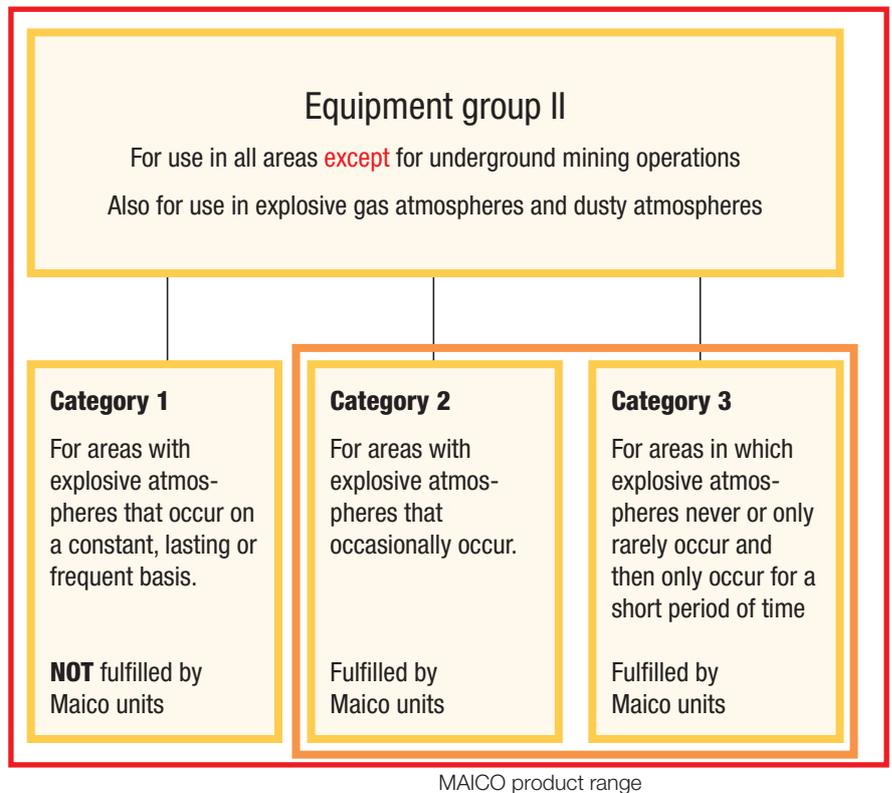
If flammable substances are involved, there is always the danger that an explosive atmosphere can form during production, storage, processing and transport.

Application examples	Process	Substances / gases
Refinery 	Production of various products that are liquid, solid or gaseous	Explosive gas mixture
Hazardous materials room 	Storage of explosive liquids and gases	Explosive gas mixture
Paint shop 	Formation of explosive mixtures in the painting process	Explosive gas mixture
Electro-chemical processes 	Formation of explosive mixtures in electrochemical processes	Explosive gas mixture
Petrol station 	Leakage of petrol vapours at the petrol pump	Explosive gas mixture
Joinery 	Grinding, sawing	Wood dust
Bakery 	Formation of explosive dust mixtures in the baking process	Flour dust
Filling systems 	Formation of explosive dust mixtures in the filling process of, for example, flour	Flour dust
Silos 	Raising up of dust during silo loading and filling	Combustible dusts
Drying processes 	Formation of explosive dust mixtures during drying processes of all kinds, e.g., fluidised bed drying during loading and filling of the system	Combustible dusts

# Classification according to hazard situation

The hazard situation is decisive for the classification into equipment groups. For potentially explosive atmospheres, there are two equipment groups according to the EU Directive (2014/34/EU) and these are in turn subdivided into two categories:

- ▶ In the **equipment group** for underground use with a risk of mine gas, MAICO does not have **any** fans in its product range
- ▶ In **equipment group II**, all other areas with potentially explosive atmospheres (all units above ground), are divided into **three categories**, depending on the risk potential. Maico produces category 2 equipment that can also be used in areas in which category 3 equipment is permissible.



## Gas or dust atmospheres

With regard to the explosive substance, a further distinction is made within equipment group II and marked accordingly.

- ▶ **G – for areas**, where there are explosive gas, vapour, mist, air mixes.
- ▶ **D – for areas**, where dust may produce an explosive atmosphere.

Zone	Aggregation state of the flammable substance	Frequency of occurrence of explosive atmosphere	Requirement	Equipment protection level	Equipment category	Equipment group
0	<b>Gas, vapour, mist</b>	perpetual, long-term or frequent	very high degree of safety	Ga	1G, (1)G	II
1	<b>Gas, vapour, mist</b>	occasional	high degree of safety	Gb	2G, (2)G	II
2	<b>Gas, vapour, mist</b>	infrequent and brief	normal degree of safety	Gc	3G, (3)G	II
20	<b>Dust</b>	perpetual, long-term or frequent	very high degree of safety	Da	1D, (1)D	II
21	<b>Dust</b>	occasional	high degree of safety	Db	2D, (2)D	II
22	<b>Dust</b>	infrequent and brief	normal degree of safety	Dc	3D, (3)D	II

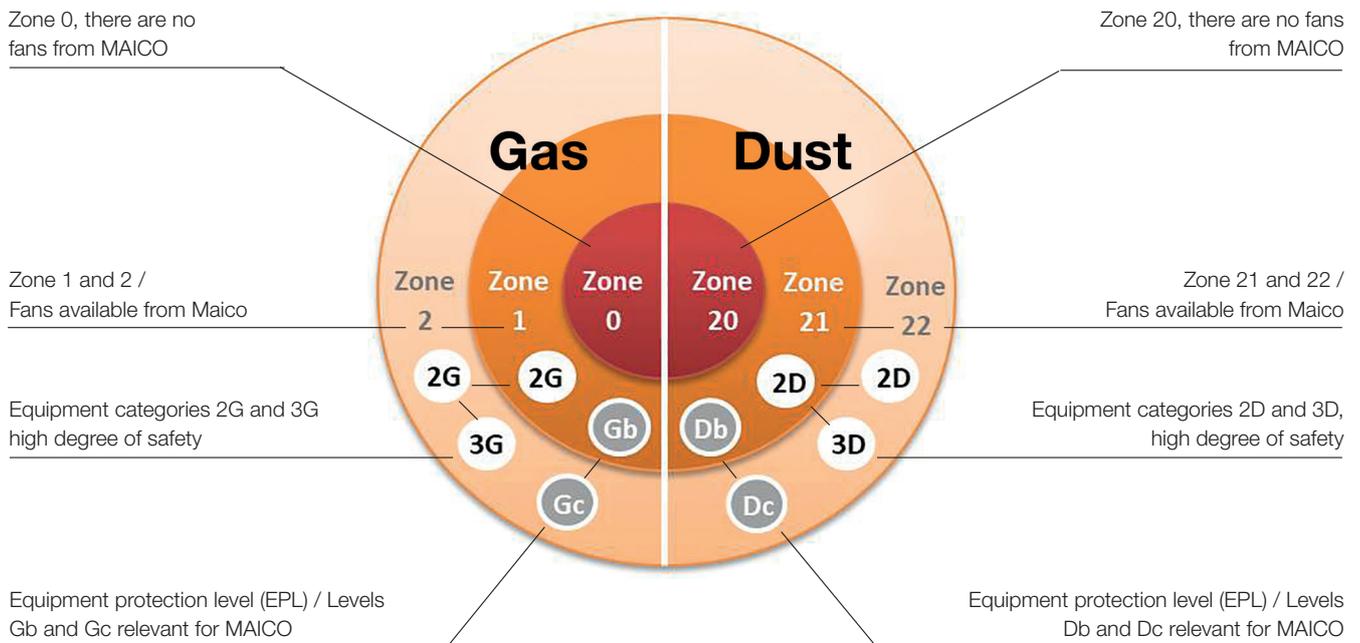
MAICO product range

# Zone classification for potentially explosive atmospheres

Zone classification depends on the frequency with which an explosive atmosphere occurs and the various potential risks this brings with it.

Depending on the aggregation state of the combustible material, a distinction is also made.

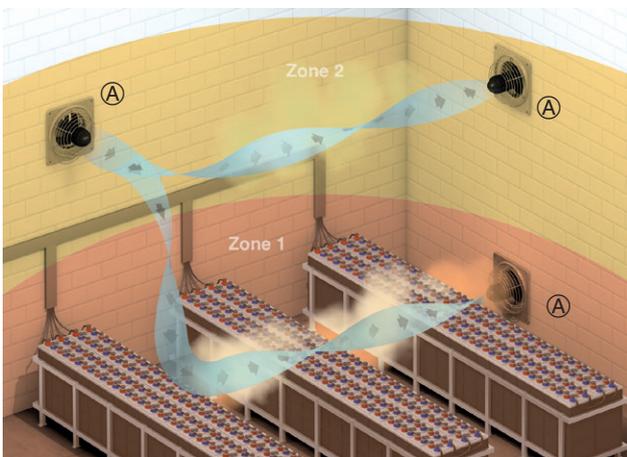
- ▶ Gas (incl. steam and mist)
- ▶ Dust



Installation example:

## Electroplating with gas atmosphere

A different zone classification is used for gas atmospheres. Depending on zone, only certain categories of devices may be used.



- Ⓐ **EZQ ... E Ex e** wall-mounted fans
- Zone 1 – MAICO fans suitable
- Zone 2 – MAICO fans suitable

Installation example:

## Grinding system with dust atmosphere

Different zone classifications are used for dust atmospheres. Depending on zone, only certain categories of devices may be used.



- Ⓐ **EZQ ... E Ex t** or **DZQ ... Ex t** wall-mounted fans
- Ⓑ **ERM ... Ex t** duct fan
- Zone 21 – MAICO fans suitable
- Zone 22 – MAICO fans suitable

# Certified safety – with an ignition protection concept

**MAICO's Ex fans ensure safety in production processes and storage of explosive substances. That the fan itself must not be a source of danger during operation goes without saying.**

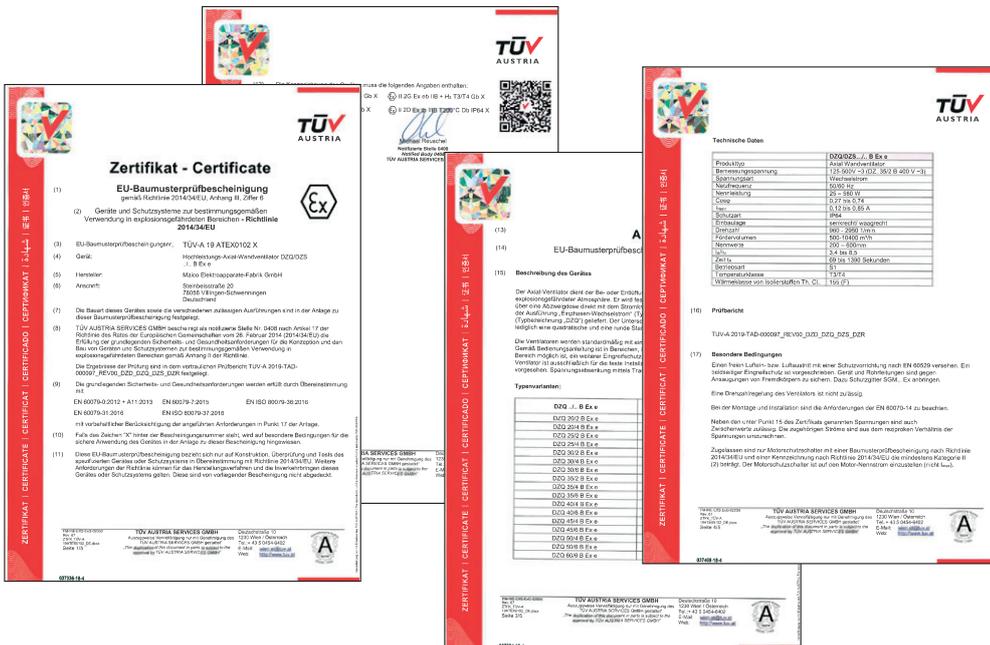
MAICO Ex fans, for gas and dust atmospheres, are all tested and approved and thus have the necessary certification for safe operation. To achieve this certification, standards, regulations and directives must be observed and various laws must be taken into account.

In the development and design of Ex fans, several factors have to be taken into account right from the beginning.

To name a few:

- ▶ Material selection and geometry of the components;
- ▶ The moving components must be designed in such a way that no danger can arise from the frictional heat of the materials used;
- ▶ All electrical components must be designed in such a way that neither mechanical nor electrical sparks are generated;
- ▶ In the event of motor heating, it must be ensured that the fan is switched off automatically and remains below the ignition temperature of the medium, even in the event of a fault.

## Certificates for Ex-fans for gas and dust atmospheres



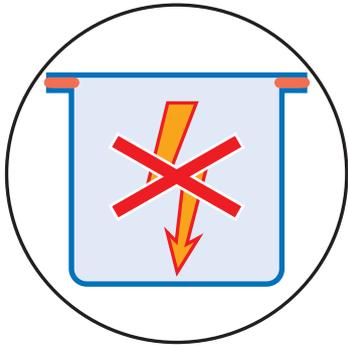
The Ex-suitability of all fans has to be proven before the fans are approved. Additionally, the ability and competence of the manufacturer itself is also assessed and evaluated. Therefore, an annual audit is carried out at MAICO in accordance with the DIN EN ISO 9001 and DIN EN ISO / IEC 80079-34 standards. The certificates confirm that MAICO has optimum production processes and an effective QM system for Ex fans.



# Types of ignition protection for MAICO Ex fans

Of the defined ignition protection types, the following are relevant for MAICO's Ex fans.

## Increased safety "e" type of protection



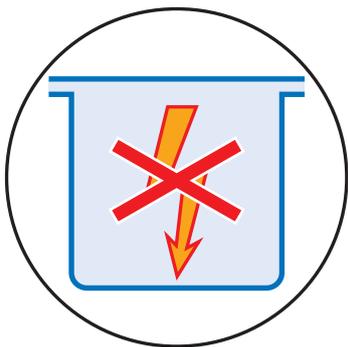
## Operating mode / principle

Additional measures are taken on the fan and components (equipment) to prevent impermissibly high temperatures as well as sparks on the inside or on outer parts. Increased safety "e" is achieved by monitoring the temperature of the motor as well as by sealing the motor compartment.

## Example components

Motors, terminals and terminal boxes

## Constructional safety "c"



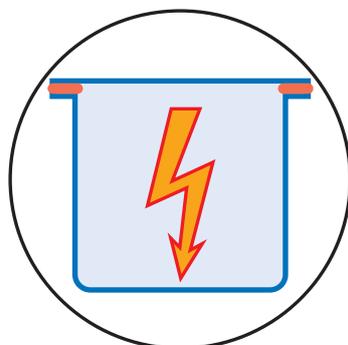
## Operating mode / principle

Tried and tested technical principles are applied to types of devices which do not have a source of ignition during normal operation. This is done such that the risk of mechanical errors, which may result in ignitable temperatures and sparks, is reduced to a very low level. For protection through constructive measures "c", a special coating of the housing is also used.

## Example components

Motors, terminals and terminal boxes

## Protection by housing "t"



## Operating mode / principle

The seal integrity of the housing prevents dust from entering or limits it to a safe level. Ignitable equipment can therefore be installed in the housing. The temperature of the housing must not cause the surrounding atmosphere to catch fire. For protection through housing "t", the IP 64 degree of protection is reached thanks to the dust-tight construction.

## Example components

Switching devices and systems, control, connection and terminal boxes, motors

## Principle: Diluent ventilation in the storage room

In diluent ventilation, the gas/air mixture or dust/air mixture is extracted directly, by means of wall ventilators. Fresh air is supplied passively via the external grille. The storage room remains free of explosion hazards.

Due to dispersion in the air, the concentration of combustible substances is reduced such that it falls below the lower explosion limit and a mixture of gases, vapours, mists or dusts cannot ignite even if a source of ignition is present.



- ① **MLZ** external grille
- ② Explosive atmosphere
- ③ **EZQ ... E Ex e** or **DZQ ... Ex e** fan

## Principle: Cross-ventilation in the workshop

During cross-ventilation, supply air flows actively into the room via the wall fan, which is installed near the ceiling. The air is distributed and flows throughout the room. The contaminated air is extracted by a duct fan installed near the floor because most combustible gases and vapours are heavier than air.

One exception is hydrogen, which collects under the ceiling, for example (see “Cross-ventilation in battery rooms application example”).



- ① **EZQ ... E Ex e** or **DZQ ... Ex e** wall-mounted fan for supply air (fan with air flow direction B)
- ② Air flow during cross-ventilation
- ③ Explosive atmosphere
- ④ **ERM ... Ex e** or **DZR ... Ex e** duct fan for extracting explosive atmospheres
- ⑤ Exhaust air

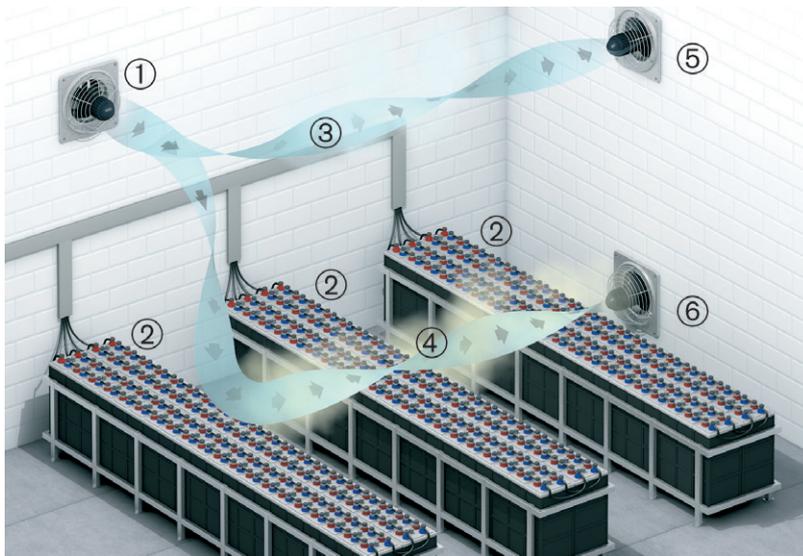
Ventilation solution for gas atmosphere

## Battery room

When the battery cells are charged, hydrogen is produced and collects under the ceiling. With lead batteries, sulphuric acid mist forms near the floor at the same time.

Both need extracting. Cross-ventilation can be created using supply and exhaust fans, which effectively prevents the occurrence of an explosive atmosphere.

MAICO's ventilation and air extraction system with Ex fans at the floor and ceiling levels guarantees that the risk of explosion is safely averted.



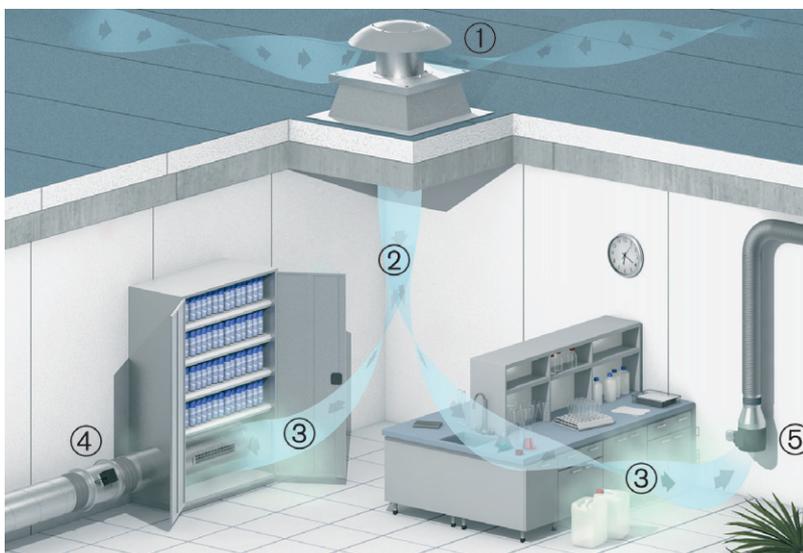
- ① **EZQ ... E Ex e** or **DZQ ... Ex e** supply air fan (fan with air flow direction B)
- ② Batteries on charging station
- ③ Explosive atmosphere (hydrogen)
- ④ Sulphuric acid mist
- ⑤ **EZQ ... E Ex e** or **DZQ ... Ex e** exhaust air fan for extracting hydrogen
- ⑥ **EZQ ... E Ex e** or **DZQ ... Ex e** exhaust air fan for extracting sulphuric acid mist

Ventilation solution for gas atmosphere

## Fuel storage

Via the Ex fan, mounted on the roof, fresh and clean air is transported into the laboratory room and flows crosswise through the room. The extraction of the contaminated air from a dangerous materials cabinet takes place directly via the integrated duct and the duct fan.

The contaminated air at the workplace is also removed directly by a duct fan.



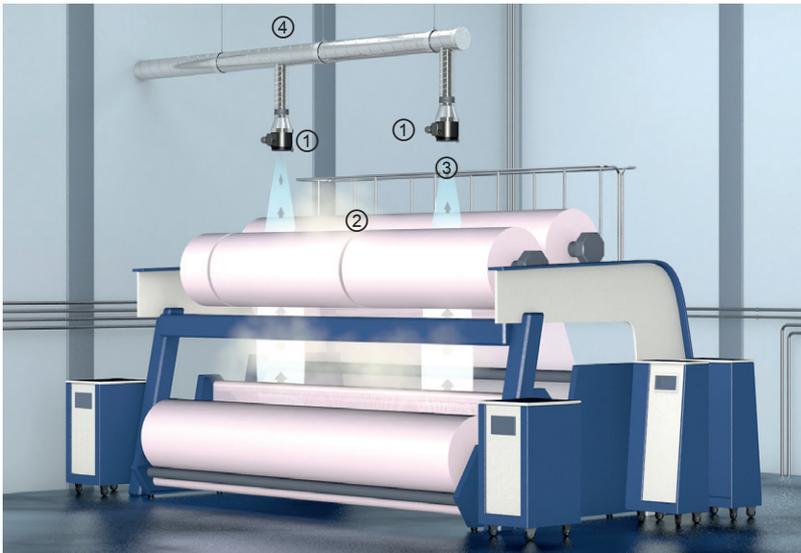
- ① **DZD... Ex e** roof fan for supply air
- ② Cross-ventilation air flows
- ③ Explosive atmosphere
- ④ **DZR... Ex e** duct fan
- ⑤ **ERM... Ex e** duct fan

Ventilation solution for dust atmosphere

## Textile production

Duct fans are used to directly and efficiently extract the fine textile dust, made up of many different materials, such as plastic and natural yarns. The production area remains free of a flammable air mix.

The system operators breathe clean air, free from fine dust, while working on the machine.



- ① **ERM ... Ex t** duct fan for air extraction
- ② Mix of textile dust and air
- ③ Exhaust air
- ④ Folded spiral-seams duct

Ventilation solution for dust atmosphere

## Storage room for wood pellets

The dust-filled and explosive air is conveyed out via the wall fan. Fresh and clean air flows passively through the external grille across the entire room.

The concentration of combustible substances is thus reduced such that it falls below the lower explosion limit and a mixture of dusts cannot ignite even if a source of ignition is present.



- ① **MLZ** external grille
- ② Explosive atmosphere
- ③ **EZQ ... E Ex t** or **DZQ ... Ex t** fan

# Maico fans for use in potentially explosive atmospheres

MAICO offers fans, in various nominal sizes and performance classes, as well as an extensive range of accessories for areas subject to explosion hazards with gas and dust atmospheres.

As an established brand manufacturer and ventilation specialist, with many years of expertise in explosion protection, there are many reasons to choose MAICO:

- ▶ MAICO is a certified manufacturer of explosion-proof products in accordance with ISO 80079-34 for ATEX and IECEx
- ▶ All Ex fans fulfil the safety requirements of European Directive 2014/34/EU for units and protective systems in potentially explosive atmospheres
- ▶ Manufactured exclusively by personnel trained in explosion protection
- ▶ Explosion-proof motors produced in-house
- ▶ Fan models customized to meet customer requirements (e.g. special voltages and frequencies) are possible
- ▶ Customer support and assistance regarding questions about explosion protection and ventilation planning

MAICO fans meet the following explosion protection requirements for the gas and dust to be conveyed:

## General Ex gas characteristics

- ▶ Approved for zone 1 and zone 2
- ▶ Equipment category 2G
- ▶ Qualified for all gases and vapours of Ex group IIA and IIB and also for hydrogen
- ▶ Ignition protection types “e” – increased safety and “c” – constructional safety
- ▶ Operating temperatures:  
EZ-/DZ series  $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$   
ERM series  $-20^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$

## General dust Ex characteristics

- ▶ Approved for zone 21 and zone 22
- ▶ Equipment category 2D
- ▶ Qualified for non-conductive and non-abrasive dusts of groups IIIA and IIIB
- ▶ Types of ignition protection “t” – protection by housing and “c” – constructional safety
- ▶ Operating temperatures:  
EZ-/DZ series  $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$   
ERM series  $-20^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$

# ERM Ex semi-centrifugal duct fans



- ▶ Explosion-proof fans, nominal sizes DN 180 – 250 mm
- ▶ Explosion protection and approvals in accordance with ATEX and IECEx
- ▶ Compact design for installation in small spaces
- ▶ For easy installation in a duct system
- ▶ Housing made of anti-static, conductive plastic
- ▶ Can be fitted in any position
- ▶ Robust, maintenance-free AC motor with operating capacitor
- ▶ Ready to connect, explosion-protected terminal box mounted on the fan
- ▶ Degree of protection IP 64

Article		Article number		Nominal size	Temperature class of gas medium / temperature of dust medium	Air volume	Rated voltage/frequency		Nominal power	Sound power level $L_{WA5}$		Speed controllable
Gas		Dust					mm	m <sup>3</sup> /h		400 V 50 Hz	230 V 50 Hz	
ERM 18 Ex e	0080.0290	ERM 18 Ex t	0080.0466	180	T4 / T 135°C	310		●	50	66		●
ERM 22 Ex e	0080.0288	ERM 22 Ex t	0080.0467	200	T3 / T 200°C	560		●	200	64		●
ERM 25 Ex e	0080.0249	ERM 25 Ex t	0080.0468	250	T3 / T 200°C	870		●	300	77		●

# DZR Ex axial duct fans



- ▶ Explosion-proof high-performance fans, nominal sizes DN 200 – 600 mm
- ▶ Explosion protection and approvals in accordance with ATEX and IECEx
- ▶ For easy and direct installation in a duct system
- ▶ Duct sleeve made of galvanised sheet steel with flanges on both sides
- ▶ Can be fitted in any position
- ▶ Robust, maintenance-free three-phase AC motor
- ▶ Temperature monitoring by PTC thermistor embedded in the motor winding
- ▶ Ready to connect, explosion-protected terminal box mounted on the fan
- ▶ Degree of protection IP 64
- ▶ Can be switched to ventilation or air extraction

Article		Article number		Nominal size	Temperature class of gas medium / temperature of dust medium	Air volume	Rated voltage/frequency		Nominal power	Sound power level $L_{WA5}$	Speed controllable	
Gas	Dust	mm	m <sup>3</sup> /h				400 V 50 Hz	230 V 50 Hz			W	dB (A)
DZR 20/2 B Ex e	0086.0700	DZR 20/2 B Ex t	0086.0720	200	T4 / T 135°C	1050	●		65	80	●	
DZR 25/4 B Ex e	0086.0701	DZR 25/4 B Ex t	0086.0721	250	T4 / T 135°C	980	●		38	65	●	
DZR 25/2 B Ex e	0086.0702	DZR 25/2 B Ex t	0086.0722	250	T4 / T 135°C	1950	●		130	81	●	
DZR 30/6 B Ex e	0086.0703	DZR 30/6 B Ex t	0086.0723	300	T4 / T 135°C	1130	●		25	58	●	
DZR 30/4 B Ex e	0086.0704	DZR 30/4 B Ex t	0086.0724	300	T3 / T 200°C	1760	●		95	66	●	
DZR 30/2 B Ex e	0086.0705	DZR 30/2 B Ex t	0086.0725	300	T3 / T 200°C	3410	●		240	85	●	
DZR 35/6 B Ex e	0086.0706	DZR 35/6 B Ex t	0086.0726	350	T4 / T 135°C	1700	●		35	58	●	
DZR 35/4 B Ex e	0086.0707	DZR 35/4 B Ex t	0086.0727	350	T3 / T 200°C	2650	●		125	72	●	
DZR 35/2 B Ex e	0086.0708	DZR 35/2 B Ex t	0086.0728	350	T3 / T 200°C	5230	●		530	89		●
DZR 40/6 B Ex e	0086.0709	DZR 40/6 B Ex t	0086.0729	400	T4 / T 135°C	2770	●		95	66	●	
DZR 40/4 B Ex e	0086.0710	DZR 40/4 B Ex t	0086.0730	400	T4 / T 135°C	4200	●		170	76	●	
DZR 45/6 B Ex e	0086.0711	DZR 45/6 B Ex t	0086.0731	450	T4 / T 135°C	4160	●		150	69	●	
DZR 45/4 B Ex e	0086.0712	DZR 45/4 B Ex t	0086.0732	450	T4 / T 135°C	6200	●		350	78	●	
DZR 50/6 B Ex e	0086.0713	DZR 50/6 B Ex t	0086.0733	500	T4 / T 135°C	5520	●		175	71	●	
DZR 50/4 B Ex e	0086.0714	DZR 50/4 B Ex t	0086.0734	500	T3 / T 200°C	8190	●		445	82	●	
DZR 60/6 B Ex e	0086.0715	DZR 60/6 B Ex t	0086.0735	600	T3 / T 200°C	9370	●		295	77	●	

## EZQ Ex axial wall-mounted fans

- ▶ Explosion-proof high-performance fans, nominal size DN 200 mm
- ▶ Explosion protection and approvals in accordance with ATEX and IECEx
- ▶ With square wall plate for simple installation
- ▶ EZS Ex series with steel wall ring available
- ▶ Robust, maintenance-free shaded-pole motor
- ▶ Motor connection with 0.5 m connecting cable on pre-wired explosion-protected terminal box
- ▶ Degree of protection IP 64



## DZQ Ex axial wall-mounted fans

- ▶ Explosion-proof high-performance fans, nominal sizes DN 200 – 600 mm
- ▶ Explosion protection and approvals in accordance with ATEX and IECEx
- ▶ With square wall plate for simple installation
- ▶ DZS Ex series with steel wall ring available
- ▶ Robust, maintenance-free three-phase AC motor
- ▶ Temperature monitoring by PTC thermistor embedded in the motor winding
- ▶ Motor connection with 0.5 m connecting cable on pre-wired explosion-protected terminal box
- ▶ Degree of protection IP 64
- ▶ Can be switched to ventilation or air extraction

Article		Article number		Nominal size	Temperature class of gas medium / temperature of dust medium	Air volume	Rated voltage/frequency		Nominal power	Sound power level $L_{WA7}$		Speed controllable
Gas	Dust	mm	m <sup>3</sup> /h				400 V 50 Hz	230 V 50 Hz		W	dB (A)	
EZQ 20/4 E Ex e	0083.0850	EZQ 20/4 E Ex t	0083.0217	200	T3 / T 200°C	440		●	45	57		●
DZQ 20/4 B Ex e	0083.0170	DZQ 20/4 B Ex t	0083.0200	200	T4 / T 135°C	540	●		30	59	●	
DZQ 20/2 B Ex e	0083.0171	DZQ 20/2 B Ex t	0083.0201	200	T4 / T 135°C	1090	●		65	75	●	
DZQ 25/4 B Ex e	0083.0172	DZQ 25/4 B Ex t	0083.0202	250	T4 / T 135°C	950	●		38	65	●	
DZQ 25/2 B Ex e	0083.0173	DZQ 25/2 B Ex t	0083.0203	250	T4 / T 135°C	1880	●		130	81	●	
DZQ 30/6 B Ex e	0083.0174	DZQ 30/6 B Ex t	0083.0204	300	T4 / T 135°C	1100	●		25	60	●	
DZQ 30/4 B Ex e	0083.0175	DZQ 30/4 B Ex t	0083.0205	300	T3 / T 200°C	1730	●		95	69	●	
DZQ 30/2 B Ex e	0083.0176	DZQ 30/2 B Ex t	0083.0206	300	T3 / T 200°C	3380	●		240	86	●	
DZQ 35/6 B Ex e	0083.0177	DZQ 35/6 B Ex t	0083.0207	350	T4 / T 135°C	1750	●		35	64	●	
DZQ 35/4 B Ex e	0083.0178	DZQ 35/4 B Ex t	0083.0208	350	T3 / T 200°C	2660	●		125	72	●	
DZQ 35/2 B Ex e	0083.0179	DZQ 35/2 B Ex t	0083.0209	350	T3 / T 200°C	5460	●		580	90		●
DZQ 40/6 B Ex e	0083.0180	DZQ 40/6 B Ex t	0083.0210	400	T4 / T 135°C	2740	●		95	68	●	
DZQ 40/4 B Ex e	0083.0181	DZQ 40/4 B Ex t	0083.0211	400	T4 / T 135°C	4130	●		170	77	●	
DZQ 45/6 B Ex e	0083.0182	DZQ 45/6 B Ex t	0083.0212	450	T4 / T 135°C	4240	●		140	72	●	
DZQ 45/4 B Ex e	0083.0183	DZQ 45/4 B Ex t	0083.0213	450	T4 / T 135°C	6400	●		330	82	●	
DZQ 50/6 B Ex e	0083.0184	DZQ 50/6 B Ex t	0083.0214	500	T4 / T 135°C	5320	●		165	73	●	
DZQ 50/4 B Ex e	0083.0185	DZQ 50/4 B Ex t	0083.0215	500	T3 / T 200°C	8200	●		420	82	●	
DZQ 60/6 B Ex e	0083.0186	DZQ 60/6 B Ex t	0083.0216	600	T3 / T 200°C	9450	●		295	78	●	

# DZD Ex axial roof fans



- ▶ Explosion-proof high-performance fans, nominal sizes DN 250 – 600 mm
- ▶ Explosion protection and approvals in accordance with ATEX and IECEx
- ▶ Base plate, intake nozzle and rain hood made of galvanised sheet steel.
- ▶ Horizontal air outlet direction
- ▶ Sturdy transport lugs enable transport by crane
- ▶ Robust, maintenance-free three-phase AC motor
- ▶ Temperature monitoring by PTC thermistor embedded in the motor winding
- ▶ Motor connection with 1.7 m connecting cable on pre-wired explosion-protected terminal box
- ▶ Degree of protection IP 64
- ▶ Can be switched to ventilation or air extraction

Article		Article number		Nominal size	Temperature class of gas medium / temperature of dust medium	Air volume	Rated voltage/frequency		Nominal power	Sound power level $L_{WA5}$	Speed controllable	
Gas	Dust	mm	m <sup>3</sup> /h				400 V 50 Hz	230 V 50 Hz			W	dB (A)
DZD 25/4 B Ex e	0087.0796	DZD 25/4 B Ex t	0087.0810	250	T4 / T 135°C	800	●		38	68	●	
DZD 25/2 B Ex e	0087.0797	DZD 25/2 B Ex t	0087.0811	250	T4 / T 135°C	1600	●		140	87	●	
DZD 30/6 B Ex e	0087.0798	DZD 30/6 B Ex t	0087.0812	300	T4 / T 135°C	940	●		25	64	●	
DZD 30/4 B Ex e	0087.0799	DZD 30/4 B Ex t	0087.0813	300	T3 / T 200°C	1390	●		95	74	●	
DZD 30/2 B Ex e	0087.0800	DZD 30/2 B Ex t	0087.0814	300	T3 / T 200°C	2690	●		300	91	●	
DZD 35/6 B Ex e	0087.0801	DZD 35/6 B Ex t	0087.0815	355	T4 / T 135°C	1370	●		40	69	●	
DZD 35/4 B Ex e	0087.0802	DZD 35/4 B Ex t	0087.0816	355	T3 / T 200°C	2060	●		130	77	●	
DZD 35/2 B Ex e	0087.0803	DZD 35/2 B Ex t	0087.0817	355	T3 / T 200°C	4280	●		620	97		●
DZD 40/6 B Ex e	0087.0804	DZD 40/6 B Ex t	0087.0818	400	T4 / T 135°C	2130	●		100	74	●	
DZD 40/4 B Ex e	0087.0805	DZD 40/4 B Ex t	0087.0819	400	T4 / T 135°C	3200	●		170	84	●	
DZD 50/6 B Ex e	0087.0806	DZD 50/6 B Ex t	0087.0820	500	T4 / T 135°C	3870	●		180	77	●	
DZD 50/4 B Ex e	0087.0807	DZD 50/4 B Ex t	0087.0821	500	T3 / T 200°C	5830	●		485	88	●	
DZD 60/6 B Ex e	0087.0808	DZD 60/6 B Ex t	0087.0822	600	T3 / T 200°C	6510	●		365	83	●	

Further technical data, characteristic curves and dimensional drawings can be found at [www.maico-ventilatoren.com](http://www.maico-ventilatoren.com)

# Accessories

## Motor monitoring

- ▶ Thermistor triggering device for explosion-proof fans. Complete system for monitoring the maximum motor temperature with operating indicator light.

**MVS 6**                      **Article number: 0157.0585**



- ▶ Thermistor triggering device for explosion-proof fans for installation in control cabinets.

**TMS**                              **Article number: 0157.0992**



- ▶ Motor protection switch to monitor the maximum motor current.

**MVEx 0.4**                      **Article number: 0157.0547**

**MVEx 1.0**                      **Article number: 0157.0548**

**MVEx 1.6**                      **Article number: 0157.0549**



## Sensors for use in potentially explosive atmospheres

- ▶ Differential pressure switch  
Differential pressure switch for determining the pressure difference between two pressure values between 0 – 500 Pa.

### Differential pressure switch

**DDEx 500**                      **Article number: 0157.0302**



### Installation kit

**DDEx 500 IK**                      **Article number: 0157.0304**



### Mounting console for round channels

**DDEx 500 MKR**                      **Article number: 0157.0305**



- ▶ Vibration monitoring  
Vibration sensor for monitoring fans in potentially explosive atmospheres against fan overload and against unplanned standstills.

### Vibration sensor

**SWEx**                              **Article number: 0157.0303**



Technical data for the matching fans as well as further mechanical accessories, mounting material and electrical accessories can be found at [www.maico-ventilatoren.com](http://www.maico-ventilatoren.com)



## Maico Elektroapparate-Fabrik GmbH

Steinbeisstraße 20

78056 Villingen-Schwenningen

Germany

Telephone numbers:

Sales: + 49 77 20 / 694-255 or 227

Order processing: + 49 77 20 / 694-372 or 393

User Help Desk: + 49 77 20 / 694-392 or 227

[www.maico-fans.com](http://www.maico-fans.com)

[sales@maico.de](mailto:sales@maico.de)

