delfin
INDUSTRIAL VACUUM SOLUTIONS

ATEX NFPA UL INTERTEK ETL LISTED US

CERTIFIED EXPLOSION-PROOF

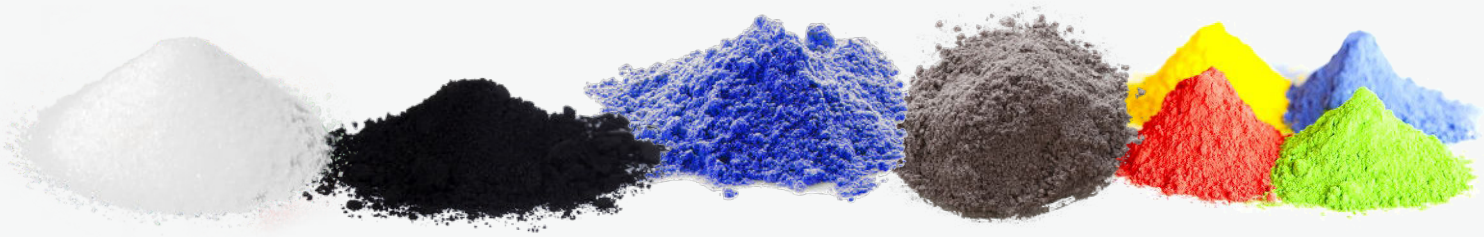
Industrial vacuum cleaners

WHAT IS *COMBUSTIBLE DUST?*

The Occupational Safety and Health Administration (OSHA) in the United States defines combustible dust as "a solid material composed of distinct particles or pieces, regardless of size, shape, or chemical composition, which presents a fire or deflagration hazard when suspended in air or some other oxidizing medium over a range of concentrations".

Several industrial incidences caused by underestimation of the combustible dust hazard led to an increased attention to prevention and manufacturing standards. In fact, some materials and powders are commonly known as explosive, but other ones become combustible only when in dust form.

COMBUSTIBLE DUST CATEGORIES



AGRI-FOOD DUSTS | **CARBON DUSTS** | **CHEMICAL DUSTS** | **METAL DUSTS** | **PLASTIC DUSTS**

How does an explosion occur?

Safety organizations, including the NFPA 654 and OSHA's Combustible Dust National Emphasis Program, use the explosion pentagon to easily illustrate how accumulations of seemingly harmless dust can result in a catastrophic explosion. Elements listed below are all that is needed to cause seemingly harmless dust to explode.

- ***IGNITION SOURCE:***
  Element that triggers the explosion. Among the most common are open flames, temperature, sparks generated by static energy or mechanical impact.
- ***OXYGEN (AIR):***
  Fire needs oxygen to burn, and oxygen is (almost) everywhere.
- ***COMBUSTIBLE (dust or gas):***
  The fuel that will feed the explosion.
- ***CONFINEMENT:***
  Closed and confined areas facilitate the concentration of dust particles and gas.
- ***DISPERSION:***
  Concentrated dust can easily turn into a cloud suspended in the air, which increases the risks and damages caused by an explosion.

DUST FIRE AND EXPLOSION PENTAGON

GUIDELINES AND REGULATIONS

NFPA is a nonprofit organization aimed at eliminating death, injury, property or economic loss due to fire electrical related hazards.

OSHA is a regulatory agency of the US Department of Labor. Its mission is to guarantee safe and healthy work conditions by defining the standards and providing training and support.

ATEX, "ATmosphères EXplosives" and refers to the European Union directives (mainly the 2014/34 / EU) regulating the manufacturing and certification of equipment in areas exposed to risk of explosion.

NRTL is an independent organization officially recognized by OSHA to provide evaluation, testing and certification of products.
ETL Listed Marking : indicates that a product has been tested and found in compliance by **Intertek**, a Total Quality Assurance provider worldwide.
UL Marking: the product has been tested by UL, a safety organization, and compliant to nationally safety and sustainability standards.

Guidelines

NATIONAL EMPHASIS PROGRAM
OSHA gives guidance that all industries must follow called NEP (National Emphasis Program), which lists recommended housekeeping and maintenance procedures.

Even if the NEP is not an approved regulation, this does not mean it can be reviewed without penalty. There are some standards that can be used for regular citations.

Recommended procedures include:

- **Detailed working environment cleaning program**, defining the materials which may be combustible, the processes to avoid explosions, hidden areas in the facilities that have to be checked regularly and source of ignitions
- **Use of industrial vacuum systems** as the best and safest choice for cleaning
- **Only use certified equipment for the scope**, both as outlined by the environment or for safely picking up the dust type (Combustible / Non-combustible) as identified in your Dust testing and DHA.

GUIDELINES AND REGULATIONS

Regulations

NFPA 70 - NATIONAL ELECTRICAL CODE
NFPA set a classification of dangerous environments based on the type of risk and on its frequency in presence of combustible dust.

NFPA 654 - Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids

NFPA 484 – Standard for combustible metals both define combustible dust as "any fine solid material that is 420 microns or smaller in diameter and present a fire or explosion hazard when dispersed and ignited in air".

NFPA 652 - STANDARD ON FUNDAMENTALS OF COMBUSTIBLE DUST
NFPA regulation aimed at setting standards to deal with combustible dust in industrial environments.

	CLASS	DIVISION	GROUP
Gases vapors liquids	I	Div 1, Hazard normally present	D
	I	Div 2, Hazard abnormally present	D
Dust	II	Div 1, Hazard normally present	E, F, G
	II	Div 2, Hazard abnormally present	F, G

The NFPA 652 applies to all facilities that manufacture, blend, package, repackage, convey, or handle combustible dust or particulate solids that may become dust (even in presence of non classified environments) and states that each plant must have:

- On file a copy of their **dust type testing**
- A complete **Dust Hazard Analysis** in order to prevent dust related hazards
- Documented **housekeeping procedure** listing these methods of cleaning

Industrial vacuum cleaners are listed as the preferred method of cleaning as they collect and contain dusts safely, guaranteeing the highest level of cleaning and hygiene (much more than blowing or alternative cleaning systems).

EXPLOSION-PROOF VACUUMS

for the safe collection of combustible dust

Class II, Division 2

Vacuums certified for Class II Division 2 meet requirements for Class II, Division 2 Groups FG environments

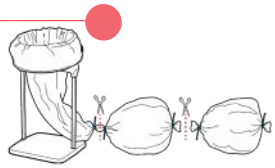
MISTRAL 201 BL D2
SCAN AND GET THE TECHNICAL DATA SHEET!

IP55 minimal electrical protection

Complete earth grounding

Antistatic class M polyester filter

Optionals:
- **Stainless steel construction**
- **HEPA filter**
- **Endless Bag (LP) collection system**



Certification applies to the entire machine

Specific Ohm testing for each part of the machine

Wide range of accessories for any application

DOWNLOAD ALL THE TECHNICAL DATA SHEETS!

Certifications available:

Ordinary locations
UL 1017 and CSA no. 243-10 (all equipment)

Hazardous locations
UL 1203 and CSA 22.2 no. 25 and 30 (Class I Division I equipment)
ISA 12.12.01-2016 and CSA C22.2 No. 213-16 (Class II Division 2 equipment)

EXPLOSION-PROOF VACUUMS

Class I-II, Division 1

Meet requirements for Class I, Group D and Class II Groups EFG environments

Certified maintenance-free motor

HEPA filter as standard

Stainless steel chamber and collection bin

Antistatic casters

Certification applies to the entire machine

MISTRAL 201 D1
SCAN AND GET THE TECHNICAL DATA SHEET!

Safe collection of conductive/metal powders

Interchangeable container for combustible dust neutralization

3 Fiber filters

PPL filter and sieve grid

Dust entrance

Inert oil

EXPLORE THE FULL INERT RANGE!

HOW DOES IT WORK?

Extracted powder is immersed directly into the inert oil in the container, which makes the metal dust inert.
3 fiber filters stop possible oil mists that may be created from suction and immersion.
An overpressure safety valve guarantees the safe release in case of internal buildup of pressure.

NFPA-COMPLIANT SOLUTIONS

Pneumatic vacuums

Vacuums **powered by compressed air,** engineered for Hazardous locations meet standards of 2014/34/EU (ATEX regulation).

They can be used when electricity is not accessible or forbidden,

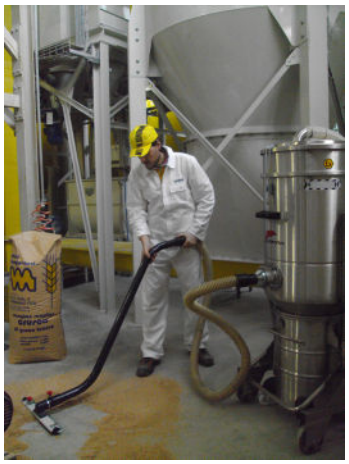
Our pneumatic systems meet the high standards of ATEX European regulation for safe use in zone 1, 2, 21, 22, in **full compliance** with OSHA and NFPA standards. Available for liquids and wet applications.

Accessories

Delfin offers a wide range of **antistatic accessories** and can provide the right accessory for every application. Antistatic accessories are made of **NBR rubber** and **stainless steel**, ensuring maximum safety for the operator even dealing with combustible dusts.

Centralized vacuum systems

Delfin engineers, builds and installs complete centralized vacuum systems to **improve efficiency and productivity** of production areas. Useful in cleaning simulaneously at more suction points or in covering wide production areas.



CLASS II DIVISION 2 CERTIFIED SOLUTIONS

Features

		MTL 300 BL D2	MTL 301 BL D2	MTL 201 BL D2	451 BL D2	DM 1 BL D2	DBFV 30 D2
Voltage	V - Hz	115-60	115-60	115-60	115-60	115-60	460-60
Power	HP (kW)	1.5 (1.1)	1.5 (1.1)	1.5 (1.1)	2.7 (2.0)	1.5 (1.1)	3.4 (2.6)
Elecetrical	IP	55	55	55	55	55	55
Max water-lift	inH20 (mmH_2O)	90.6 (2300)	90.6 (2300)	90.6 (2300)	90.1 (2289)	90.6 (2300)	60.2 (1529)
Max air flow	CFM (m^3/h)	121.8 (207)	121.8 (207)	121.8 (207)	211.9 (360)	121.8 (207)	220.7 (375)
Suction inlet	in (mm)	2 (50)	2 (50)	2 (50)	3 (80)	3 (80)	2 (50)
Capacity	gal (lt)	3 (13)	4 (15)	5 (20)	12 (45)	26 (100)	10.6 (40)
Noise level (EN ISO 3744)	dB(A)	78	78	78	76	78	72
Dimensions	in	18 x 17 x 31	18 x 19 x 34	19 x 23 x 43	23 x 25 x 49	31 x 26 x 70	16 x 24 x 40
Weight	lbs (kg)	55 (25)	55 (25)	77 (35)	121 (55)	143 (65)	132 (60)
Filter surface	ft^2 (m^2)	4.5 (0.4)	6 (0.6)	32 (3)	22 (2)	32 (3)	13 (1,2)
Media, class (IEC 60335-2-69)		Polyester ANT M	Polyester ANT M	Polyester ANT M	Polyester ANT M	Polyester ANT M	Polyester ANT M
Cleaning system		Manual	Dustop	Dustop	Manual Shaking	Manual Shaking	Manual

Features

		DG KW3 D2	DG KW5 D2	DG KW6 D2	DG 86 AF D2
Voltage	V - Hz	460-60	460-60	460-60	460-60
Power	HP (kW)	3,5 (2,6)	6.2 (4.6)	8,5 (6,3)	11.5 (8.6)
Elecetrical	IP	65	65	65	65
Max waterlift	inH2O (mmH_2O)	75 (1900)	130 (3300)	77 (1950)	108.4 (2753)
Max air flow	CFM (m^3/h)	221 (376)	225 (382)	353 (600)	482.6 (820)
Suction inlet	in (mm)	3 (80)	3 (80)	3 (80)	3 (80)
Capacity	gal (lt)	26 (100)	26 (100)	26 (100)	26 (100)
Noise level (EN ISO 3744)	dB(A)	72	73	80	75
Dimensions	in	26 x 47 x57	26 x 47 x57	26 x 47 x57	26 x 47 x69
Weight	lbs (kg)	276 (125)	302 (317)	322 (146)	397 (180)
Filter surface	ft^2 (m^2)	21,5 (2)	32 (3)	32 (3)	53.8 (5)
Media, class (IEC 60335-2-69)		Polyester - ANT M	Polyester - ANT M	Polyester - ANT M	Polyester - ANT M
Cleaning system		Manual Shaking	Manual Shaking	Manual Shaking	Manual Shaking

EXPLORE THE ENDLESS BAG RANGE!

CLASS I DIVISION 1 CERTIFIED SOLUTIONS

Features

		MTL 201 D1	DG KW6 D1
Voltage	V - Hz	115-60	460-60
Power	HP (kW)	0.9 (0.7)	7.4 (5.5)
Elecetrical	IP	Explosion proof	Explosion proof
Max waterlift	inH2O (mmH_2O)	67.7 (1720)	72.2 (1835)
Max air flow	CFM (m^3/h)	138.3 (235)	406 (690)
Suction inlet	in (mm)	2 (50)	3 (80)
Capacity	gal (lt)	5 (20)	26 (100)
Noise level (EN ISO 3744)	dB(A)	80	75
Dimensions	in	19 x 23 x 43	26 x 47 x 67
Weight	lbs (kg)	88 (40)	308 (140)
Filter surface	ft^2 (m^2)	32 (3)	32 (3)
Media, class (IEC 60335-2-69)		Polyester - ANT M	Polyester - ANT M
Cleaning system		Dustop	Manual Shaking

NFPA®

MTL 201 D1

DG KW6 D1

COMPRESSED AIR VACUUM CLEANERS - ATEX CERTIFIED

NFPA® 652 compliant

ATEX

Features

		AIREX 80 W 14V 1-2G	AIREX 45 2V	AIREX DM 19V	AIREX DM HD 25V
Atex Zones		1, 2, 21, 22	1,2,21,22	1,2,21,22	
Marking		2GD (Ex II 2D Ex h IIIC T85°C Db;Ex II 2G Ex h IIB T6 Gb)	2GD (Ex II 2D Ex h IIIC T85°C Db;Ex II 2G Ex h IIB T6 Gb)	2GD (Ex II 2D Ex h IIIC T85°C Db;Ex II 2G Ex h IIB T6 Gb)	
Air supply	CFM (L/min)	51.4 (1458)	51.4 (1458)	54.0 (1530)	88.3 (2500)
Air supply pressure	PSI (bar)	87 (6)	87 (6)	87 (6)	87 (6)
Ø Air supply hose	in (mm)	3/8 (10)	3/8 (10)	3/8 (10)	3/8 (10)
Max waterlift	inH2O (mmH2O)	145.6 (3700)	145.6 (3700)	196.9 (5000)	196.9 (5000)
Max air flow	CFM (m3/h)	176.5 (300)	176.5 (300)	273.7 (465)	347.3 (590)
Suction inlet	in (mm)		3 (80)	3 (80)	3 (80)
Filter		Bag primary filter Polyester - ANT M	Star primary filter Polyester - ANT M	Star primary filter Polyester - ANT M	Star primary filter Polyester - ANT M
Filter cleaning system		Integrated	Manual	Manual	Manual
Capacity	gal (lt)	21 (80)	11.8 (45)	26 (100)	26 (100)
Noise level (EN ISO 3744)	dB(A)	68	68	74	74
Dimensions	in	24 x 20.8 x 42.5	27.5 x 21.6 x 50	24 x 24 x 63	24 x 24 x 63
Weight	lbs (kg)	79 (36)	110 (50)	176 (80)	176 (80)

SAFETY SOLUTIONS-ATEX CERTIFIED INDUSTRIAL VACUUMS

Features

		DG VL 125 EX1/3D	DG VL 125 EX1/2D	DG VL 185 EX1/3D	DG VL 185 EX1/2D
Zone Atex		20/22	20/21	20/22	20/21
Marking		Ex II 1/3D Ex h IIIC T160°C Da/Dc	Ex II 1/2D Ex h IIIC T160°C Da/Db	Ex II 1/3D Ex h IIIC T160°C Da/Dc	Ex II 1/2D Ex h IIIC T160°C Da/Db
Voltage	V - Hz	460-60	460-60	460-60	460-60
Power	HP (kW)	19.4 (14.5)	19.4 (14.5)	28.6 (21.3)	28.6 (21.3)
Elecetrical	IP	65	65	65	65
Max waterlift	inH2O (mmH_2O)	108.3 (2750)	108.3 (2750)	110.2 (2800)	110.2 (2800)
Max air flow	CFM (m^3/h)	735.7 (1200)	735.7 (1200)	941.7 (1600)	941.7 (1600)
Suction inlet	in (mm)	5 (120)	5 (120)	5 (120)	5 (120)
Capacity	gal (lt)	42 (160)	42 (160)	42 (160)	42 (160)
Noise level (EN ISO 3744)	dB(A)	75	75	81.5	81.5
Dimensions	in	30 x 71 x 79	30 x 71 x 79	30 X 71 X 79	30 X 71 X 79
Weight	lbs (kg)	485 (220)	485 (220)	584 (265)	584 (265)
Filter surface	ft^2 (m^2)	75 (7)	75 (7)	75 (7)	75 (7)
Media, class (IEC 60335-2-69)		Polyester - ANT M	Polyester - ANT M	Polyester - ANT M	Polyester - ANT M
Cleaning system		SELF-CLEAN	SELF-CLEAN	SELF-CLEAN	SELF-CLEAN

NFPA 652 compliant

ATEX

		DG300 HD EX1/3D	DG300 HD EX1/2D	DG300 SE EX1/3D	DG300 SE EX1/2D
Zone Atex		20/22	20/21	20/22	20/21
Marking		Ex II 1/3D Ex h IIIC T160°C Da/Dc	Ex II 1/2D Ex h IIIC T160°C Da/Db	Ex II 1/3D Ex h IIIC T160°C Da/Dc	Ex II 1/2D Ex h IIIC T160°C Da/Db
Voltage	V - Hz	460-60	460-60	460-60	460-60
Power	HP (kW)	28.6 (21.3)	28.6 (21.3)	28.6 (21.3)	28.6 (21.3)
Elecetrical	IP	65	65	65	65
Max waterlift	inH2O (mmH_2O)	96.5 (2450)	96.5 (2450)	152.6 (3875)	152.6 (3875)
Max air flow	CFM (m^3/h)	780.5 (1326)	780.5 (1326)	794.6 (1340)	794.6 (1340)
Suction inlet	in (mm)	5 (120)	5 (120)	5 (120)	5 (120)
Capacity	gal (lt)	58 (220)	58 (220)	58 (220)	58 (220)
Noise level (EN ISO 3744)	dB(A)	78	78	77	77
Dimensions	in	37 x 71 x 87	37 x 71 x 87	37 x 71 x 87	37 x 71 x 87
Weight	lbs (kg)	1786 (810)	1786 (810)	1687 (760)	1687 (760)
Filter surface	ft^2 (m^2)	129 (12)	129 (12)	129 (12)	129 (12)
Media, class (IEC 60335-2-69)		Polyester - ANT M	Polyester - ANT M	Polyester - ANT M	Polyester - ANT M
Cleaning system		Automatic	Automatic	Automatic	Automatic

NFPA 652 compliant

ATEX

COMBUSTIBLE DUST/DRY COLLECTION

Features

		SEP.EX-001	400BL INERT	451BLINERT	ZFR75INERT	DG50 INERT
Atex zone/ Marking		(canister) Ex II 3D Ex h IIIC T85°C Dc	(canister) 1/2D	Ex II 3D Ex tc IIIB T135°C X Dc	Ex II 3D Ex tc IIIB T135°C X Dc	Ex II 3D Ex tc IIIB T135°C X Dc
Voltage	V - Hz	-	115-60	115-60	460-60	460-60
Power	HP (kW)	-	1.5 (1.1)	1.5 (1.1)	4.6 (3.5)	6.2 (4.6)
Elecetrical	IP	-	-	55	55	55
Max waterlift	inH2O (mmH_2O)	-	90.6 (2300)	90.6 (2300)	100.4 (2550)	104.3 (2650)
Max air flow	CFM (m^3/h)	-	121.8 (207)	121.8 (207)	211.9 (360)	294.3 (500)
1st stage filter - surface		PPL	PPL	Star	Star	Star
2nd stage filter		3x fiber filter	3x fiber filter	PPL	PPL	PPL
3rd stage filter		Star	Bag	3x fiber filter	3x fiber filter	3x fiber filter
4th stage filter		-	Idrooleophobic	HEPA (optional)	HEPA (optional)	HEPA (optional)
Filter surface and Media class	ft^2 (m^2)	Star filter: 129 (12) Polyester ANT M	Bag filter: 3,33 (0,31) Polyester ANT M	Star filter: 22 (2) Polyester ANT M	Star filter: 32 (3) Polyester ANT M	Star filter: 32 (3) Polyester ANT M
Suction inlet	in (mm)	3 (80) in /3 (80) out	2 (50)	2 (50)	3 (80)	3 (80)
Capacity - oil	gal (lt)	7 (27)	2 (8)	2 (8)	7 (27)	7 (27)
Capacity - dust	gal (lt)	3.4 (13)	1 (4)	1 (4)	3 (13)	3 (13)
Noise level (EN ISO 3744)	dB(A)	-	-	74	75	72
Dimensions	in	1.9 x 2.3 x 4.4	1.9 x 2.3 x 4.4	23 x 25 x 51	31 x 26 x 67	26 x 46 x 57
Weight	lbs (kg)	79 (36)	99 (45)	137 (62)	232 (105)	342 (155)

ATEX

NFPA 652 compliant

EXPLOSION PROOF: NOT ONLY VACUUMS
PNEUMATIC CONVEYORS

Pneumatic conveyance is the safest and most effective way to move dust, granules and solids.

Learn how Delfin systems can help you increase productivity up to 30%.

Delfin is a global leader in the manufacturing of industrial vacuum equipment, ranging from portable vacuums for industrial cleaning, to central vacuum systems and engineered solutions, to pneumatic conveying systems. Our mission is to create value by designing innovative solutions that improve efficiency, safety, and productivity. Our aim is to use our expertise to help our customers to achieve their goals.

delfin
INDUSTRIAL VACUUM SOLUTIONS

DELFIN INDUSTRIAL CORPORATION

2010 E CENTER CIRCLE BLDG C SUITE 300
PLYMOUTH, MN 55441

1-877-958-7904

SALES@DELFININDUSTRIAL.COM

WWW.DELFININDUSTRIAL.COM