PiF-D/SDN Series

Combustible dust is one of the most serious risks in most manufacturing plants. When the explosive dust becomes the right concentration of oxygen and contact with a source for ignition will trigger a dust explosion. a dust explosion can occur in many areas of manufacturing plants, but one of the most possible locations is the dust collector. That's because dust collectors keep airborne dust in the limited to a particular space. An explosion in an unprotected dust collector can blast the dust collector body and sends fire, pressure, and dangerous projectiles into the workplace. This can critically injure personnel. Therefore, if you need to collect explosive dust, dust collectors should have the prevention and protection function of dust explosions.

Anti-electrostatic molded filter

Pulse jet

Inflammable powder/dust that might explode

Max. airflow

Premium efficiency motor/Dust explosion-proof motor

FULFILLING SAFETY MEASURES.DUST COLLECTOR FOR EXPLOSIVE AND FLAMMABLE DUST.

- Designed to provide a high level of safety during collection of potentially hazardous particles.
- Explosion pressure diffusion port(pressure from explosion is discharged into air to prevent damage to the equipment).
- Extinguisher port (in the unlikely event fire occurs in the equipment, extinguishing agent is dispensed).
- Check valve (prevent reverse flow of blow force or fire to protect the worker).

Anti-electrostatic molded cartridge filter

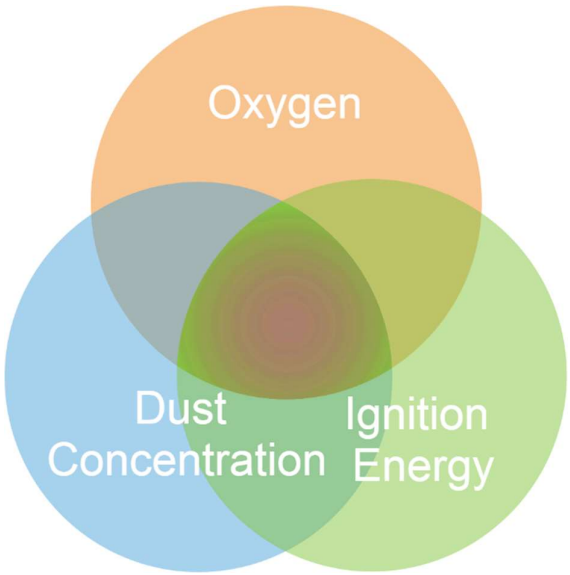
Material: Polyestet
Surface treatment: Stainless evaporation
Corresponding models: PiF-D/SD
Application: electrification characteristic dust(particle diameter about 10μm)
Others: Aluminum sheet and Earth

Finefil Antistatic filter and other type of filter are available



- Dust and powders that might cause explosions
  -**Magnesium**
  - Aluminum
  - Aluminum light alloys
  - Iron powder (non-oxidized)
  - Epoxy Resin
  - Cornstarch
  - Titanium
  - Toner
  - Coal Dust
  Other inflammable powder

- Three conditions leading to dust explosions
  1. Oxygen
  2. Dust in a concentration higher than the explosion lower limit threshold
  3. Minimum ignition energy



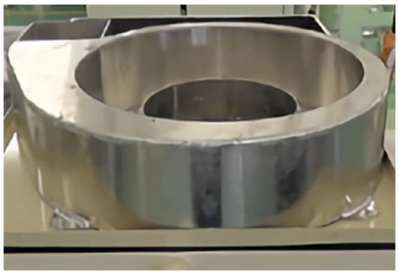
Dust explosions occur when the 3 conditions of “oxygen,” “Dust concentration higher than explosion threshold,” and “minimum ignition energy” are all present. If even just 1 of these conditions can be eliminated, then dust explosions can be prevented. So the crucial point in preventing explosions is eliminating sources of sparks. Also, we need safety measures to protect your staff and facility from dust explosions, just in case.

- **Dust Explosion Prevention and Protection**

Dust explosion-proof motor

Electric motors, for instance, involve moving parts that can cause sparking. Dust explosion-proof motor is designed to prevent the invasion of the outside substances and is designed to eliminate risks of sparks.VNA-30SDN and VNA-45SDN have mounted the motor.

Aluminium fan casing, impeller, and producer

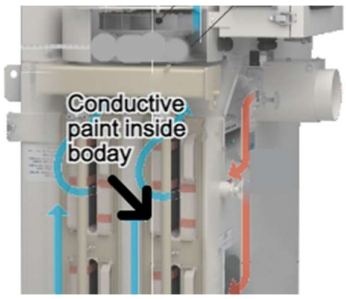


Aluminium fan casing, impeller, and producer have mounted on the VNA-SDN series. It prevents to have sparks generated by the fans.

Anti-electrostatic molded cartridge filter

Static electricity will make spark and could be ignition energy of dust explosion. Anti-electrostatic molded cartridge filter employs metal thread is woven into polyester technology and the filter has a strong and long time antistatic effect and reduces the possibility of generating spark cause by static electricity.

Conductive paint

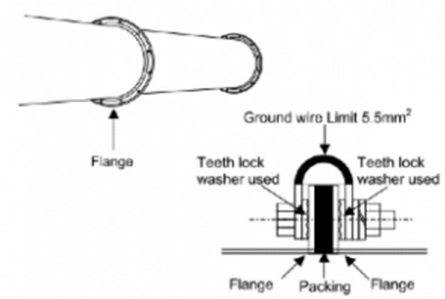


Countermeasures against the problem of a dust explosion caused by static electricity are indispensable. The antistatic coating Conductive paint is effective in preventing static electricity and noise by painting on metal and plastic. The conductive paint prevents the spark inside the dust collector and dust explosion.

Dustproof control box

Sealed electric control box is designed to structure that does not give trigger of dust explosion.

Earth bonding



Earth Bonding is used to reduce the risk of electric sparks by connecting bonding conductors between particular parts, it reduces the voltage there might have been.

Fire extinguishing port

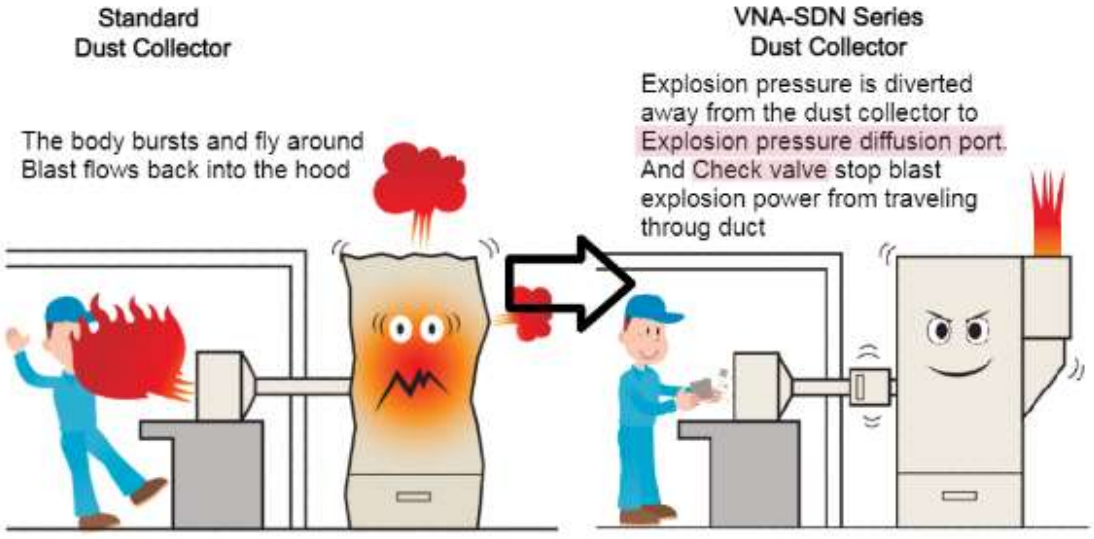
In case of fire in the dust collector, the fire extinguishing port is designed to load Fire extinguishing agent in to dust collector.

Check Valve

Explosion isolation check valve is to safeguard the surrounding workers as well as machinery. Explosion isolation involves stopping an explosion energy through the duct to suction point. the aim of the check valve is to stop blast explosion power from traveling through duct.

Explosion pressure diffusion port

Explosion pressure diffusion port is designed to be the “weak” area of the dust collector body, an Explosion pressure diffusion port opens when predetermined pressures are reached inside the collector, allowing the excess pressure and flame front to exit to a Explosion pressure diffusion port. It is designed to minimize damage to the dust collector and prevent it from blowing up in the event of a deflagration, thereby reducing the safety hazard.



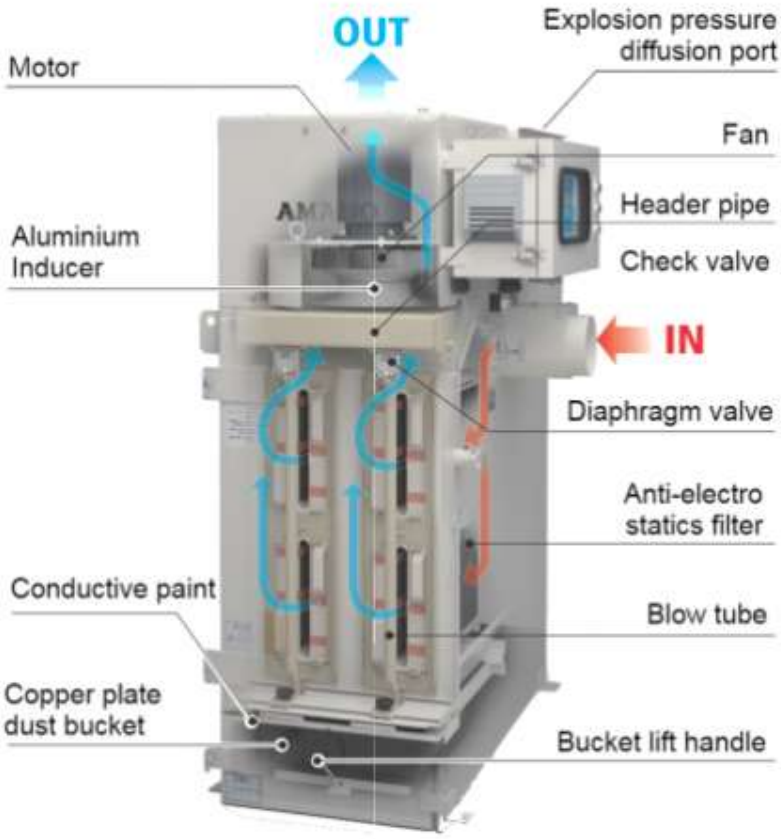
Kst and Pmax value

Kst and Pmax value

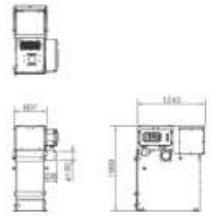
Model	Kst value	Pmax
PiF-30D	400	11.5
PiF-45D	400	11.5
PiF-30SD	400	11.5
PiF-45SD	400	11.5
PiF-60D	400	11.5
PiF-75D	300	10.0
PiF-120D	300	10.0
PiF-150D	300	10.0

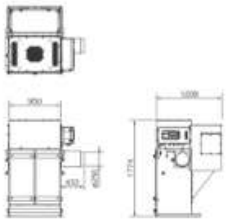
The above Kst and Pmax value was covered calculated based on “Japan Explosive pressure discharge device technical guidelines(Revised version)NIIS-TR-No.38(2005) in incorporated agency industrial safety institute laws. The above figures are for standard equipment. Please evaluate your target dust for explosion potential (option: dust powder explosion evaruation service are available)

- Internal design



- Dimension





PiF-30SD

PiF-45SD

PiF-75D

PiF-120D

PiF-150D

Unit: mm

Specification

Particular	Unit	PiF-30D	PiF-45D	PiF-30SD	PiF-45SD
Power Supply	Volt	220	220	220	220
Frequency	Hz	60	60	60	60
Phase		3P	3P	3P	3P
Output	kw/hp	1.35/1.8	2.0/2.6	1.5/2	2.2/3
Max Airflow	m³/min	30	45	22	35
Max. Static Pressure	kPa	2.75	2.75	2.75	2.75
Filter Area	m²	12.0	18.0	12.0	18.0
Suction Port Ø	mm	150	200	150	200
Dimension (WxDxH)	mm	775x1243x1569	786x1228x1600	556x1245x2247	681x1237x2392
Weight	kg	290	340	375	435

Particular	Unit	PiF-60D	PiF-75D	PiF-120D	PiF-150D
Power Supply	Volt	220	220	220	220
Frequency	Hz	60	60	60	60
Phase		3P	3P	3P	3P
Output	kw/hp	3.1/4.1	5.5/7.3	7.5/10.0	11.0/14.7
Max Airflow	m³/min	60	75	105	150
Max. Static Pressure	kPa	3.00	3.10	3.205	3.10
Filter Area	m²	24.0	38.4	57.6	86.4
Suction Port Ø	mm	250	290	290	380
Dimension (WxDxH)	mm	991x1209x1774	950×1519×2292	1398×1650×2389	1484×2009×3055
Weight	kg	465	520	710	1020