MISSION

HISTORY

ESA Electronic Engineering has been working in the industrial dust collector sector since 1980 with electronic equipment of its own design, production, and sales worldwide.

With a wide and complete range of products, the most varied requests from customers are satisfied, often with specific customizations.

Our production is an essential part in the construction of dust collection systems of both small, medium, and large dimensions with the major European and worldwide manufacturers.

Through our WEB site in five languages, it is possible to view all the technical characteristics, documentation, relating to our equipment.

Within the WEB pages with the APP buttons, it is also possible to have images of the applications of each equipment, to facilitate understanding and practical use by the user.

From the site in the INFO button, you can use useful tools for searching by code of equipment and more. There are also tables that help with coding products.

From the INFO, it is possible to download the documentation of the current production and of the equipment out of production in five languages.

Another important aspect of the WEB site is the REGISTER button that allows, through the Password received and LOGIN, to view the net price with the discount applied by ESA of the product selected on the site. ESA Electronic Engineering

Use ESA Devics Equipment in industrial Dust filtration systems “Dust Collector Systems “.

In most industrial production processes, solid materials are moved that can generate harmful dust dispersed into the environment.

To prevent dust generated by production from dispersing into the environment, air/gas filtration systems are used.

These systems are equipped with electronic control units that control valves that make up the cleaning cycle, also called cleaning cycle.

The cleaning cycle keeps the filtering parts, whether bags or cartridges, within the dP values (differential pressure between points P1 and P2) indicated by the system manufacturer. See image on the home page of the site.

APPLICATIONS

See image on the home page of the site.

The management of cleaning cycles in dust removal systems is usually done via control units called sequencers or cyclic timers because they activate the valves cyclically at programmed times.

The sequencers who are connected to the valves that activate the cleaning cycle.

The valves are in turn inserted into the compressed air system.

Activating the cleaning cycle causes the valves to open, allowing compressed air to enter the filter areas (bags or cartridges), cleaning them from dust with the vibrating action of the shots.

The ESA electronic equipment forms the command-and-control units of the cleaning cycle of the air and gas dust removal system.

OBLIGATIONS

In many industrial processes, it is mandatory by law to use industrial dust collectors' systems based on the regulations in force where the system is located.

The spread of dust particles in the surrounding environment must be kept under control within certain limits with periodic checks conducted by the competent bodies that verify the efficiency of the systems.

Through isokinetic analyses of the air emitted into the atmosphere, the actual emission values during the operation of the system are set up, which must fall within the limits set up by law without incurring penalties.

Also, the control of the differential pressure dP is often mandatory based on the size of the system.

ENVIRONMENTAL SAFETY

The dust particles produced by the processes, in addition to being harmful to the health of plant workers, can be dangerous for the environment and in some cases cause fires or explosions.

In the presence of possible explosive emissions, the use of equipment with ATEX marking is mandatory depending on the characteristics of the work area.

See ATEX ESA Electronic Engineering tables ESA Electronic Engineering

SAVINGS IN MANAGEMENT AND ELECTRICITY COSTS

With adequate adjustment of the control unit running parameters, following the indications of the system manufacturer (cleaning cycles / h and dP values of system operation), considerable cost savings are guaranteed.

From experience, savings of up to 30% of electrical energy can be obtained with good tuning of the operating parameters, avoiding the waste of compressed air used by the cleaning system.

The primary aim is to keep the filtering system in best condition with the least number of cleaning cycles and with minimum firing times following the instructions of the valve manufacturer.

Often, adjustments are made to the firing times in many seconds with unnecessary waste of air.

SAVINGS ON FILTER MATERIAL COSTS

The aspect relating to the wear of the filter components and valves should not be overlooked, which if stressed by incorrect adjustments of the operating parameters, significantly reduce their operating life over time, with related added costs.

For this purpose, the correct setting of the four operating parameters of the sequencer cleaning cycle must be carefully evaluated, which must be done following the instructions of the system manufacturer.

Incorrect adjustments of the parameters can cause various operating problems:

Pulse time also called firing time of the solenoid valves or pilots in the case of pneumatic valves (follow the instructions of the valve manufacturer)

Pause time between one shot and the next, paying attention to the sizing of the compressed air system which must guarantee the operating pressure at the time of firing.

Pause times that are too short prevent the compressed air system from reaching the operating values.

This situation is very dangerous for the proper functioning of the cleaning system, in fact if the pressure at the valves is lower than the present value e.g. 5 atm, but only 2 atm, the effect of the compressed air shot on the filtering parts (bags or cartridges) is nullified with a defective cleaning that can cause anomalies in the system with an incorrect cleaning.

dP values that activate the cleaning cycle when the filter is dirty.

dP = differential pressure of the filter between the dust inlet area and the air outlet area after the filtering baffles.

Max dP alarm values that set up the maximum operating value of the system beyond which the emergency must be reported through the alarm contacts.

SAVING COSTS IN THE PREVENTIVE CONTROL OF OPERATIONAL ANOMALIES The control to prevent costs from malfunctions is based on three points:

1. Check for any broken bag with the TC probes Breaks in the filtering parts that allow polluting dust to escape into the atmosphere, with profound consequences for the surrounding environment, with significant costs and penalties.

2. Check the regular operation of the firing valves.

The correct operation of the valves is essential to ensure that the filtration system works as expected.

The valves, due to their anomalies, can have electrical, pneumatic, or mechanical problems.

Using proper accessories and ESA options it is possible to prevent and report such problems.

3. Checking the dP alarm values in case of a system malfunction.

The increase in the dP value, differential pressure between the air inlet and outlet of the filtration system, can cause serious problems to the production cycle where the filtration system is located.

The causes of such inconveniences can be of a pneumatic or electrical nature. The lack of compressed air can be one of the main causes of the increase above the alarm threshold of the dP value.

Electrical problems can concern both the electrical system of the valves and the proper functioning of the sequencer.

With adequate precautions it is possible to prevent and report such anomalies with alarms.

SAVINGS THROUGH CONTINUOUS MONITORING OF SYSTEM OPERATION Another important control for planning system maintenance consists in monitoring and collecting working data, reducing downtime due to faults.

The collection of system operation data allows you to have a history of parameters and to highlight malfunctions, which allows you to schedule maintenance interventions when production is stopped, such as during holidays or other breaks.

This check can be done by connecting the equipment involved to a remote PC. Dedicated software for this purpose must be installed on the PC, such as: ESANET, ESAWEB

Alternatively, it is possible to connect the equipment to a PLC via FIELD BUS.

For more information and details, contact the technical office:

ESA Electronic Engineering [ESA Electronic Engineering]