

CASE STUDY

APPLICATION: COLLECTION OF STRAW RESIDUES AND LIME DUST

CLIENT: COMPANY SPECIALIZED IN THE PRODUCTION OF ANIMAL LITTER

ADVANTAGES: HANDLE BOTH LARGE QUANTITIES OF STRAW AND FINE LIME DUST; EASILY MOVE THE SYSTEM BETWEEN DIFFERENT AREAS OF THE FACILITY.

DEPURECO
INDUSTRIAL VACUUMS

A company specialized in the production of **animal bedding for livestock** needed to vacuum straw, plant fibers, and lime dust

The addition of approximately 10% lime to plant-based materials improves the absorbency of the bedding, helping to reduce moisture and ensure greater comfort and hygiene for the animals.

The bedding production process takes place across multiple buildings, where a significant amount of lime dust and fine straw fibers is generated.

These residues must be effectively vacuumed to maintain a clean and healthy working environment, **protecting both operators and equipment.**



PRODUCTION PROCESS

STRAW SHREDDING

At the bedding production site, several buildings are used to process large quantities of straw. In the first building, the straw is finely shredded, and during this phase, material residues accumulate around the machinery and in transit areas, which must be regularly vacuumed.



STORAGE AND MIXING

Subsequently, the shredded straw is transferred to a second, larger building, where it is stored in dedicated hoppers and then loaded with mechanical loaders into mixers, where lime is added. Despite the mixers and conveyor belts being equipped with dedicated extraction systems, a significant amount of fine lime dust and fine straw fibers is still generated inside the building and must be removed.



CLIENT REQUIREMENTS: OUR CHALLENGE

The client requested the design and implementation of a vacuum system capable of:

- being **easily moved** between production areas;
- vacuuming large quantities of fine **lime dust mixed with fine straw fibers**;
- effectively filtering the **finest particles** of lime and plant fibers;
- being used both as **a mobile solution**, with flexible hoses, and as part of a fixed piping system

A customized vacuum system was designed to effectively clean the production buildings, consisting of a three-phase industrial vacuum cleaner **Puma 15 P** and a **tipping cyclonic pre-separator**.

In this way, the coarser straw residues are collected in the pre-separator, while the Puma is able to **handle even the finest lime dust**, thanks to its dual-stage filtration system.



OUR INSTALLATION

FOR STRAW AND LIME FIBER COLLECTION

The installed vacuum system consists of a **Puma 15 P vacuum unit**, combined with a **580-liter tipping cyclonic pre-separator**. The entire setup is mounted on a robust transport frame, allowing both the vacuum and the separator to be moved as a single unit using a forklift.



PUMA 15 P



TILTABLE CYCLONIC PRE-SEPARATOR



TRANSPORT FRAME

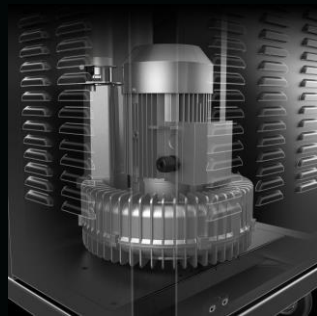
OUR INSTALLATION

VACUUM UNIT

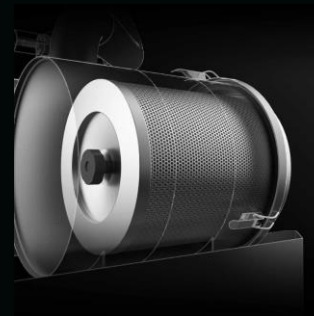
PUMA 15 P

The **PUMA 15 P** is a medium-to-high power three-phase industrial vacuum, ideal for heavy-duty continuous applications or as a suction unit in centralized systems. It is equipped with an SP automatic filter cleaning system, operating with compressed air.

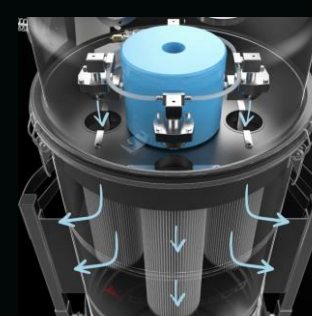
- Power: 11 kW
- Vacuum in continuous run: 300 mbar
- Maximum air flow: 950m³/h



Powerful side channel blower



Hepa Filtration H14



Automatic filter cleaning system SP



175 liters bin

OUR INSTALLATION

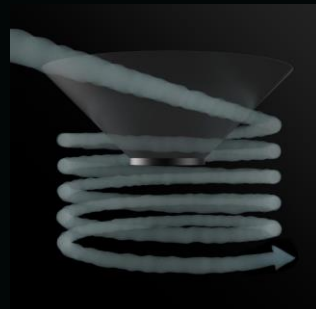
TILTABLE PRE-SEPARATOR



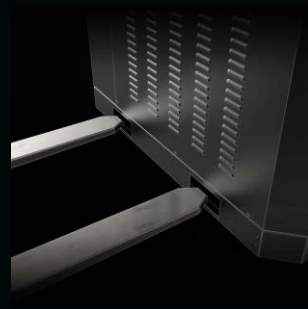
TILTABLE PRE-SEPARATOR 580 LITERS

The **580 liter tilting cyclonic pre-separator** uses **centrifugal force** to separate dust from the air flow, optimizing suction efficiency and reducing filter clogging. Its tilting structure allows for **quick and effortless unloading**, while the possibility of **lifting it with a forklift** ensures an even easier operation, reducing handling times and increasing operator safety.

- High efficiency cyclonic separation
- Easy unloading thanks to the tilting system
- Handling with a forklift truck for an effortless operation



Cyclonic effect



Forkliftable



Easy to connect to the vacuum



Simplified discharge thanks to the tipping system

ONE SYSTEM, DOUBLE SOLUTION

MOBILE SOLUTION



This configuration represents an **ideal mobile solution for collecting straw** inside industrial facilities: the PUMA 15 vacuum and the pre-separator are connected via flexible hoses, ensuring high operational flexibility and allowing the operator to easily work across different areas, vacuuming the material directly where needed.

FIXED SYSTEM



The system can also be configured as a **fixed installation** by connecting it to a piping network, allowing straw to be vacuumed simultaneously from two intake points, ensuring continuous and efficient operation within the facility.

THE SYSTEM IN ACTION

Thanks to this customized system, the company can clean its facilities **quickly and efficiently**, optimizing operational time and ensuring a safer and healthier working environment.

In the pre-separator, the **coarser straw residues** are collected.



The Puma also handles **finer lime dust** thanks to its dual-stage filtration system.

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