



# The Complete System

## 1) Introduction

To attain the desired benefits with an extraction system, the system must be complete, from the suction casing to the vacuum producer. All the components of the system are equally important in implementing its' functionality.

## 2) Vacuum Producers

The vacuum producer is at the heart of the system. Here the negative pressure is created that drives the system. In Dustcontrol extraction systems, the vacuum level is generally from 6 – 40 kPa.

Our normal source extraction and vacuum cleaning systems use turbo-pumps. This device has an ideally suited characteristic capacity for this type of system. Vacuum level increases as more resistance is presented, an important quality in minimizing the possibility of blockages in the tubing system.

For applications involving fume and light dust, such as paper, radial blowers are used. These have larger air-flows and operate at a lower, relatively constant, vacuum level.

Our turbopumps and radial blowers have very high quality silencing, see technical specifications.

## 3) Filter Units

An extraction system should always be equipped with a filter unit. The filter unit separates coarse material in the cyclone body of the unit and fine dust in an internal arrangement of conical pleated cartridge filters. Pleated filters have very high filter areas in relation to their physical size. The filter units therefore have high capacity while maintaining compact overall dimensions.

Filters are cleaned with reverse pulse which results in very effective cleaning, long filter life and low maintenance.

Normally the filter units are equipped with a plastic sack for collection of the extracted material but other types of discharge arrangements can also be installed.

## 4) Pre-Separators

Pre-separators can be used in all applications where the extracted material is coarse or voluminous. These can be placed in the actual workplace for separate handling or

recovery of the extracted material, or centrally.

Pre-separators separate material from the air flow using the action of a cyclone or with inertial separation. Inertial separators are generally configured as containers with the inlet and outlet in the same wall of the container. When the air flow changes direction abruptly, separation occurs for the particles with higher relative mass.

When pre-separation is used to accommodate higher material volumes it is also important to consider the type of material discharge to be used. Dustcontrol offers a range of different standard options including; screw compaction, airlocks or container collection.

## 5) Tubing System

The tubing system transports the material from the point of collection to the central unit. Dust is generally abrasive, some more than others, therefore the standard material thickness of the tubing system is 1,5 mm. Applications with fume and light dust use reinforced spiral duct. Stainless tubing systems and extra abrasion resistant fittings are available.

Dustcontrol has a very comprehensive assortment of tubing fittings and installation hardware. This gives greater flexibility in design and installation of our tubing systems. Our mechanical jointing system makes alterations and additions very easy to carry out.

## 6) Work Place Equipment

An extraction system is sized for only those outlets which are to be used simultaneously. This is in order to maximize efficiency and minimize the size of the central unit. All outlets must have some type of closure, either a valve or shutter. These can be manually actuated, such as flap valves or manual shutter valves, or automatically controlled for actuation only when extraction is required.

The Flexpipe can be used for fume extraction, high flexibility and small diameter allow it to be placed very close to the fume source.

Overhead suspension arrangements such as swing-arms and hose reels can increase the usefulness of the system, increase ergonomics and minimize potential trip hazards from hose left on the floor.

When large volumes of material are to be introduced into the system, stainless floor funnels can be used from which the material is then extracted.

## 7) Accessories

A hose must have many qualities, the foremost for the operator however is flexibility. It should also be tough enough to withstand the abrasion created when transporting the extracted material. Hose selection should include consideration of abrasion, chemical and heat resistance as well as conductivity to static electricity. Dustcontrol has a comprehensive assortment of hose types, diameters and hose connections.

Cleaning tools, suction casings and special nozzles are those components that are actually used to capture the contaminant. The design and effectiveness of these will determine the efficiency and acceptance of the entire system. This demands a varied and complete assortment of specially designed products. Dustcontrol has that. If a standard product does not exist, we have the capacity to design and manufacture it.

## 8) Control Systems

Motor starters and System Control Panels control the operation of the system, both operation of the vacuum producers and cleaning of the filter. A variety of other control functions can be installed as required.

Even with a rather basic control system, intelligent features can be included to clear coarse material in the main tubing runs or control vacuum production and therefore energy consumption according to actual requirements.



### Mobile Equipment

Dustcontrol also has a range of mobile equipment. Please see our **Mobile Equipment catalogue**.