

Efficient and reliable fans, compressors and blowers



Reliable operation p



protects your process

- *Reliable operation*
- *Energy savings*
- *Low operating cost*
- *Extended equipment lifetime*

Would you like to protect your process from unnecessary downtime, unplanned stops and equipment damage without costly investments and complicated solutions? What about reducing your energy consumption, and still have efficient and reliable operation?

Emotron offers complete solutions that ensure the safe and cost-efficient operation of fans, compressors and blowers. They protect your process and allow you to save energy.

With products from Emotron you are also in complete control of your process – every single second from start to stop. You will be warned quickly if, for example, the compressor is idling, the fan belt is broken, a filter is blocked or a valve is not fully opened. This gives you time to act before damage is done and money lost.

With more than 30 years of experience of controlling fans, compressors and blowers, Emotron offers knowledge and products that enable you to get the most from your application.



Increased efficiency a



and reduced energy cost

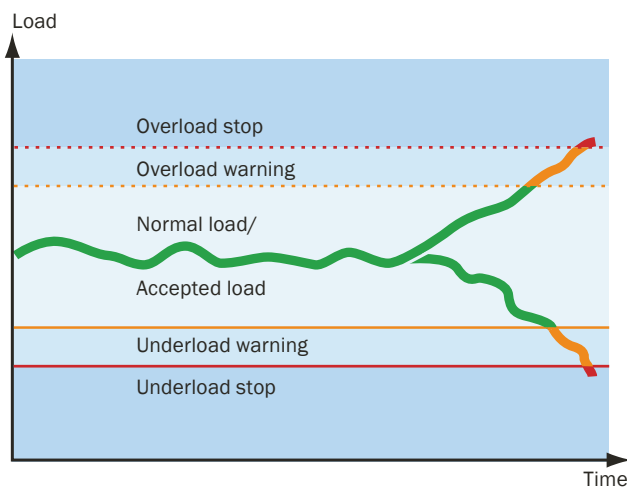
- Lower energy consumption
- Less downtime
- Extended equipment lifetime
- Lower maintenance costs

You can increase the efficiency of your process and still reduce the operating costs. Sounds like a contradiction in terms? Not with a solution from Emotron, especially designed for your fan, compressor or blower application.

All Emotron products have a shaft power monitor that ensures smooth operation and minimizes downtime, energy loss, equipment wear and breakdown. If operation is not optimal or a problem occurs the monitor reacts immediately by sending out a warning or stopping the process. Early warnings allow preventive action – if a filter is blocked, a belt is broken or a compressor is idling.

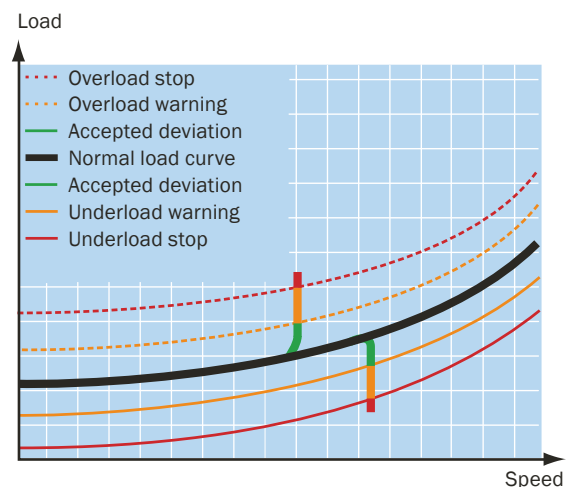
Emotron variable speed drive has a built-in shaft power monitor offering all the above advantages. In addition, it allows you to fully control and optimize operation. The variable speed drive quickly detects any deviation from the normal load curve, over the entire speed range. It is easy to set warning and stop levels to match your specific needs.

Protection at full speed



Emotron softstarters and shaft power monitors offer protection from unnecessary downtime, energy loss and equipment damage. Warning and safety stop levels are easy to set.

Protection at variable speed



Emotron variable speed drives adapt the pressure/flow to the level required. Deviations from normal operation are quickly detected over the entire speed range, thanks to the unique load curve protection (patent pending EP 05109356).

Soft start and s



smooth operation

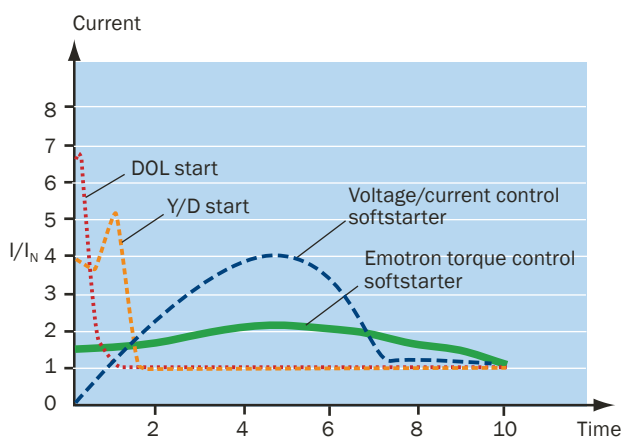
- Safe start and less downtime
- Smaller fuses and cables
- Early warnings and safety stops
- Short set-up time

Solutions from Emotron allow optimal operation at all times. Soft starts mean smaller fuses and cheaper cabling can be used. Smooth operation saves energy and extends the lifetime of the equipment. Your process is protected from unplanned downtime. Maximum output from minimum input!

When starting a fan, compressor or blower, the start current may be 6-7 times higher than nominal motor current. This causes mechanical stress and demands large fuses and expensive cables to ensure a safe start. The Emotron softstarter has a built-in torque control that reduces start current to about twice the nominal motor current. This reduces installation and energy costs, since you can use the same size fuses as required for the motor current.

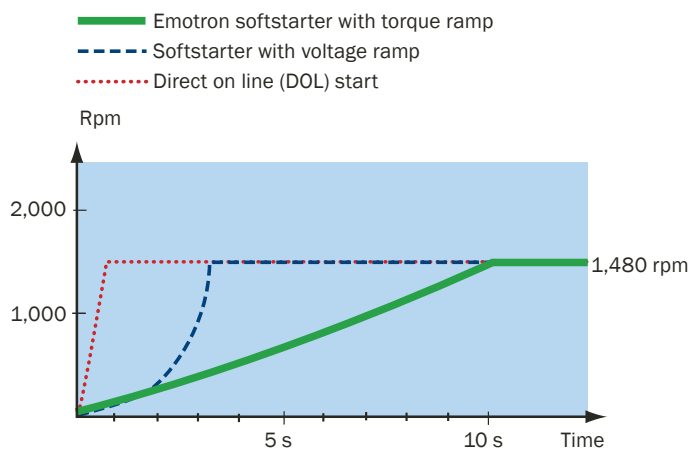
Starting a fan that is rotating the wrong way may cause fuses to blow and result in an expensive breakdown. The softstarter gradually slows the motor to a complete stop before starting again, avoiding high current peaks and mechanical stress. You can start at slow speed to ensure the correct direction and proper function are achieved. This can be critical, for example when starting a tunnel fan in the event of a fire.

Lower start current give lower energy costs



Start current is greatly reduced with the Emotron softstarter. You can use smaller fuses and cables and thus benefit from reduced installation and energy costs.

Ultra-smooth start with constant acceleration



The built-in torque control enables you to start smoother with constant acceleration. This means improved process control and lower maintenance costs.

Full control and use



r-friendly operation

- *Optimal operation at all times*
- *Early warnings for preventive action*
- *Parameters in your own process units*
- *Robust construction and easy installation*

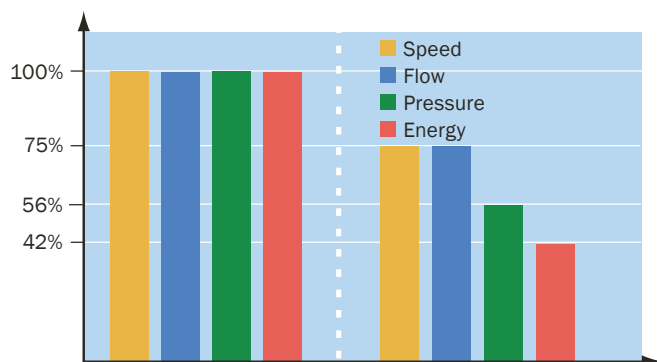
The products from Emotron are designed for fan, compressor and blower applications. By using them to control your application, you will achieve considerable savings.

Regulating flow or pressure with a variable speed drive will, in comparison to opening and closing valves, optimize energy consumption and minimize the impact on surrounding equipment such as belts, couplings, seals and screws. The PID function with auto tune reduces set-up time and ensures the process runs as efficiently as possible. Pressure/flow is automatically adapted to the level actually required. This means you will benefit from better control of your process and lower operating costs. For example, reducing the speed of a centrifugal fan to 75% results in 75% of the flow and 56% of the pressure, but only 42% of the energy consumption. The lower the static pressure demand, the more profitable is speed control.

Emotron variable speed drive provides the option of setting operation parameters in your process units, e.g. m^3/s , bar or Pascal. This makes monitoring easier and safer. You easily choose which process value is to be displayed depending upon which process parameter is currently critical – energy consumption, operating time, shaft power, current etc.

The robust steel construction, the IP54 housing and the easy installation are other highly appreciated benefits. The variable speed drive can be placed next to the controlled equipment. The tough housing protects against mechanical abuse, dust and water.

Variable speed drives lower energy costs



Using Emotron variable speed drives to control flow/pressure will result in considerable energy savings in comparison to opening and closing valves. This example shows savings from reducing the speed of a centrifugal fan to 75%.

Your own process parameters



Parameters can be set in units familiar to you – e.g. m^3/s , bar, Pascal – making it both easier and more reliable to monitor your process.

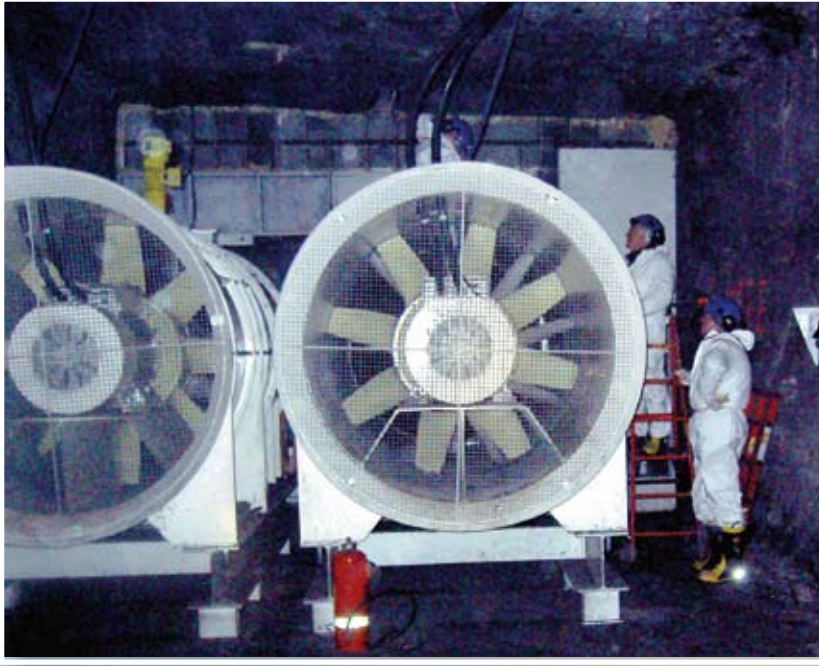
Application

Emotron has more than 30 years of experience of fan, compressor and blower applications. Our products are used in a wide range of processes, such as water and industrial solutions.

Our complete product portfolio, together with our long experience, assures a cost-efficient and fit-for-purpose solution for our customers.



n examples



Blowers with opt



imized operation

Emotron FDU variable speed drive

- *Minimized energy costs*
- *Increased efficiency*
- *Less maintenance*
- *Extended equipment lifetime*

In this sewage treatment plant the process of blowing air into wastewater to supply oxygen is responsible for a large part of the plant's energy consumption. The blower operation constantly needs adjusting to changing demand. Regulating the air flow with an Emotron FDU variable speed drive resulted in optimized operation and minimized energy costs.

Minimized energy consumption

High energy consumption means considerable savings can be made by optimizing the process. In this case, energy consumption is directly affected by air flow. Since the inflow of wastewater is constantly changing, the challenge is to adapt the air flow, and thereby oxygen supply, to the level actually needed.

The sewage treatment plant installed an Emotron FDU variable speed drive and can now continuously regulate air flow. This means the blowers operate with maximum efficiency over the entire working area. Any deviation in oxygen content from the level desired leads to a corresponding adjustment of air flow. The money saved has more than well paid for the cost of investment.

Protects the equipment and enhances efficiency

By adjusting speed the Emotron FDU variable speed drive also reduces unnecessary downtime, equipment damage and wear. This means the plant benefits from more reliable operation, lower maintenance costs and extended equipment lifetime.

Inefficiency caused by, for example, a worn out belt, a broken damper or a valve not fully opened is detected immediately. Early warnings and safety stops give the operator time to take preventive action before damage is done and money lost. Put this all together and it results in an optimized ratio between energy and output.

Fans keeping a c



Constant pressure

Emotron FDU variable speed drive

- *Simplified and safer control*
- *Own process values*
- *Less production downtime*
- *Energy savings*

Constant pressure is critical in this application, in which fans are used to dry and clean grain. This is ensured by using Emotron FDU variable speed drives. The result is simplified control and reduced energy consumption.

Constant pressure a critical factor

The company in this example buys grain from farmers and then cleans, dries, and sells it to the food industry. In the hectic autumn period its driers take care of large quantities of damp grain. During the summer the grain needs to be cooled in order to prevent vermin. Next comes the process of separating the grain from chaff and dust. Drying, cooling and cleaning are all done with the air flow from large fans. When modernizing this fan control, Emotron offered a customized solution using Emotron FDU variable speed drives.

Simplified control and improved working conditions

The new solution has simplified the work of the operators. They can now control the process from the control room, instead of regulating the air pressure manually with dampers on-site. The result is an optimized process and improved working conditions, since the operators spend less time on the dusty and noisy premises.

The operators also appreciate the user-friendly control panels on the cabinet front, and the option of choosing which parameters to display, for example the critical air flow. Clear text shows the process units of their specific application which makes monitoring easier and safer. They no longer need to calculate figures.

Reduced energy consumption and less maintenance

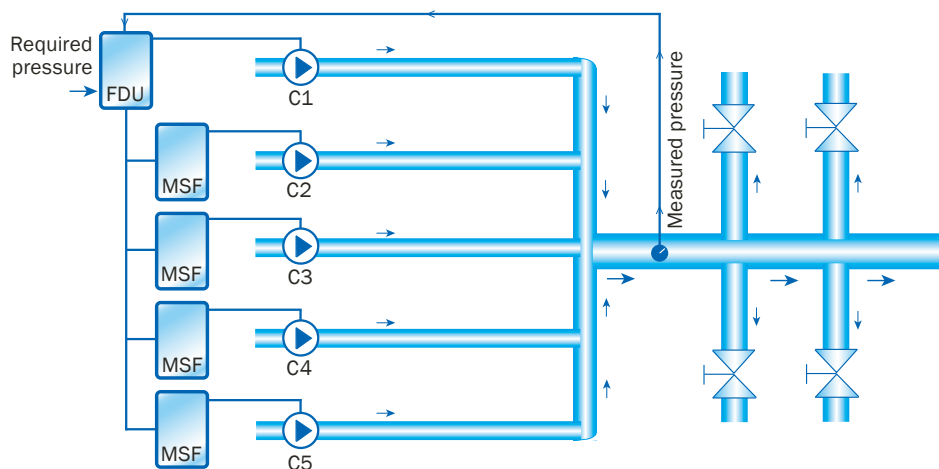
The new solution has reduced operating costs by eliminating unnecessary energy consumption, production downtime and equipment wear. When regulating with dampers, the motors were run with the same power at all times. The variable speed drives continuously adjust the speed to meet the actual demand. The built-in shaft power monitor immediately detects any deviation in flow. A broken fan belt, a blocked filter or a not fully opened damper results in a warning or safety stop.

Easy to set up and use

The control was easily set up thanks to the PID auto tune function. With the push of a button the Emotron FDU scans the system and automatically sets the required settings for the regulator.

Pre-set fan functions also made the set-up quick and easy. Since there are several fans with the same settings, the operators used the option of copying the settings to the next fan drive by simply moving the control panel.

Multiple compressors



FDU: Emotron FDU variable speed drive
MSF: Emotron MSF softstarter
C1 - C5: Compressors

Emotron FDU variable speed drive and Emotron MSF softstarter offer a very cost-efficient multiple compressor solution.

for varying demands

**Emotron FDU
variable speed drive
Emotron MSF
softstarters**

- *Reliable operation*
- *Redundancy*
- *Controlled maintenance*
- *Energy savings*
- *Easy to install and use*

This aluminium fluoride manufacturer needs to keep a constant pressure in its process, despite large variation in demands. This is achieved by using Emotron products to control its compressors. The result is also reduced energy consumption and investment costs.

Constant pressure despite varying demands

For this company, the objective is to keep a constant pressure in its process, despite large variation in demands. Because of this variation, the compressors need to be controlled to prevent uneven product quality, unplanned downtime and unnecessary energy consumption and equipment damage.

Reduced energy consumption

A master/slave solution from Emotron has resulted in major savings thanks to lower investment costs and reduced energy consumption. The master is an Emotron FDU variable speed drive, and four Emotron MSF softstarters work as slaves. Up to seven compressors can be controlled. No external PLC or other equipment is needed.

The Emotron FDU continuously regulates the motor speed and adjusts pressure to the level required, which means there is no unnecessary energy loss. Replacing one 500 kW compressor with five 100 kW compressors also reduces energy consumption.

Soft starts and less mechanical stress

When the master compressor reaches its capacity limit, the Emotron FDU sends a signal to the Emotron MSF softstarter to smoothly start another compressor. The Emotron FDU keeps track of each compressor's running time and chooses the one with the shortest time, giving them all an equal work load and simplifying servicing.

When the demand decreases the compressors are stopped smoothly. The one stopped first is the one with the longest running time. Should a problem occur with a compressor or motor, the system automatically switches over to the next compressor in turn, avoiding unnecessary downtime.

IP54 withstands harsh environment

The robust IP54 steel housing of the Emotron FDU makes it possible to install it close to the compressors, which saves money and simplifies installation. It withstands high ambient temperatures and harsh environments, since the cooling airflow is completely separated from the drive electronics.

Communicating your process



All Emotron products provide support for analogue, digital, serial and fieldbus communication. The read-out can be set in the values of your own process, eliminating the need to calculate what the figures really mean.

All Emotron products enable communication of critical parameters between the control devices involved in a process, and with for example a control room. The read-out can be set in the values of your own process, eliminating the need to calculate what the figures really mean. Emotron provides the following communication possibilities:

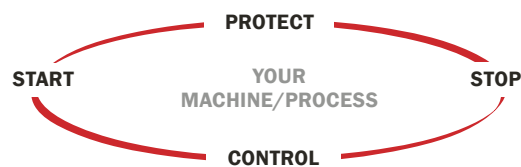
- Fieldbus (Profibus, DeviceNet, Ethernet)
- Serial communication (RS232, RS485, Modbus)
- Analogue and digital outputs

Several process values and system parameters are made available via the communication interfaces,

including current, voltage, power factor, shaft power, shaft torque, energy consumption and operating time. These values and parameters can be used in your control system to achieve optimal performance at minimal cost. You will not only be warned when something is wrong, you will get a complete data log that helps you to quickly spot the fault and thereby simplifies maintenance.

You will also be alerted if your process is not running at optimal speed. Perhaps a filter in the fan is blocked or the compressor idling? This is detected immediately allowing you to take the necessary measures to achieve a smoothly running process.

Products for your specific needs



Our complete product portfolio offers optimum solutions for your specific needs. The products are all based on the same technology platform and can easily be integrated in complete solutions. Wide power range, high protection class and compliance with global standards mean they fulfil the highest demands.

- *Shaft power monitors* – protect your process from damage and unplanned downtime.
- *Softstarters* – ensure smooth starts and safe stops.
- *Variable speed drives* – minimize energy consumption and wear.



Dedicated Drive

Emotron develops products for starting, protecting, controlling and stopping machines and processes driven by electric motors. Our drive is to create measurable benefits for our customers through reliable, cost-efficient and user-friendly solutions. By focusing on selected applications, such as pumps, cranes and lifts, we can offer functionality optimized for specific needs.

Since 1975 we have established a solid position as an innovative and pioneering company. Research and development takes place at our head office in Sweden and at our subsidiaries in Germany and the Netherlands. Germany is also the location for the Emotron technical centres for lift and crane solutions. We have sales offices in Sweden, Germany, the Netherlands, China and Latin America, as well as a worldwide network of authorized service partners.



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