OPTIMIZER 4.0: Blowers

ATLAS COPCO CENTRAL CONTROLLER

Atlas Copco's Optimizer 4.0: Efficiency, reliability and connectivity

We aim to contribute on reducing the world's carbon footprint while your production is assured of stable supply of clean compressed air. Atlas Copco Blowers are already designed on energy efficiency and with multiple unit installation, we can save even more. Our central controller with a defined set-point can automatically operate the blowers connected at lower pressure, thus reducing power consumption.

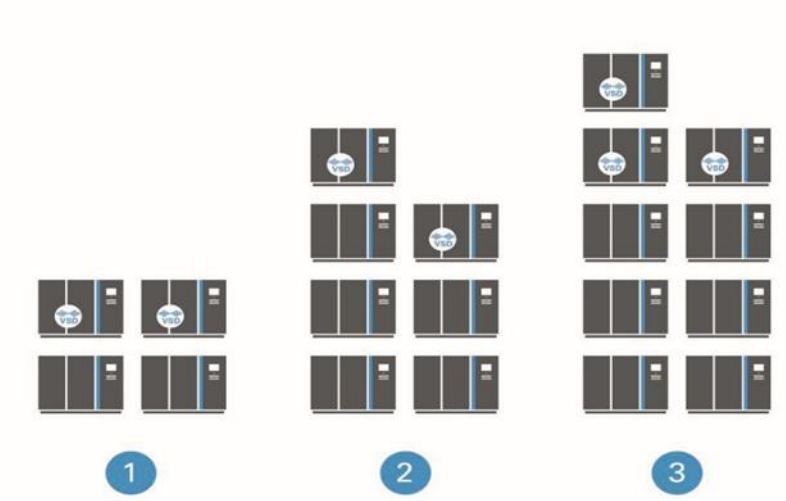
Adapting to the 4th Industrial Revolution or the Industry 4.0, which pertains to Internet of Things (IoT), we developed the product that can gather data, store and analyse information that can be available in the cloud to be used to further improve an existing process or system. A perfect fit for "**Smart Factories**".

Hence, Atlas Copco provides a solution to complete a smarter compressed air system package. The product of which the name says it all... **Optimizer 4.0**.

Group Management with Optimization Modes:

- Energy Efficiency
- Equal Wear
- Forced Sequence

Non-expiring Functionality* included based on your machine configuration:



n ≤ 4 blowers **n ≤ 8 blowers** **n > 8 blowers**

*Upgrades available

Control modes for different applications

Process controls:

The optimization modes are in fact the algorithms which are used, but depending on the application the customer wants to regulate a certain process variable. The Optimizer can control two outputs: The pressure of the machine and the flow of the machine.

- **Pressure control**: The Optimizer 4.0 delivers a dynamic outlet pressure stabilizing the customer's application. The regulation of the load/unload and VSD blowers is based on a tuneable pressure band. All required pressure protections can easily be integrated.
- **Flow control**: The Optimizer 4.0 delivers a dynamic outlet flow stabilizing the customer's application. The regulation of the load/unload and VSD blowers is based on very accurate flow models. All required flow and pressure protections can easily be integrated.

General information related to both flow and pressure control:

When variable flow machines (VSD-IGV-DGV) are connected to the system, Optimizer 4.0 regulates towards the process pressure/flow setpoint. The regulation can be tuned to avoid over- or undershoot. Optimizer 4.0 can decide to switch the blowers, i.e. starting or stopping one or more machines, in order to maintain the set pressure/flow with the correct flow/pressure. When the Optimizer 4.0 needs to switch a blower, it calculates the optimal timing of the blower commands to keep the pressure/flow inside the band and to minimize the influence of the switch on the pressure/flow.

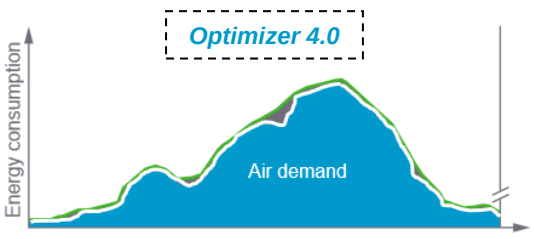
Optimization modes:

The Optimizer 4.0 has three different optimization modes which can be selected. Each of the modes have specific benefits for the application and the blowers.

- **Energy Efficiency:** This mode gives the highest energy savings as the different blowers are now running in the operating ranges with the highest energy efficiency. In the end, the total energy consumption is the lowest in this mode.

- **Equal Wear**: In this mode all the different blowers run the same amount of running hours, so all of the units wear simultaneously over time. The benefit is that the blowers can be serviced at the same moment in time, so the technician doesn't have to come multiple times. All machines are treated equally.

- **Forced Sequence**: The Optimizer 4.0 functions as a sequencer. So, the order of starting and stopping the blowers is pre-defined. This gives the customer the opportunity to define which blowers are base units and which are the ranging units.



Benefits that matter

Efficiency

Complimenting the already efficient Atlas Copco blowers, is the Optimizer 4.0 Central Controller. Multiple blowers installation run with optimum pressure and flow band while prioritizing machines that will have more efficient combination. Realize the full energy saving potential of VSD (Variable Speed Drive) units. This central controller regulates the VSD to cope with varying demand, while avoiding fixed speed machines to run unload whenever possible.

Turbo blowers will run at most efficient zones, putting it as the base load while avoiding blow-off and surge.

Furthermore, the Optimizer 4.0 automatically shuts down machines during “non-production” times such as nights, weekends and holidays, running hours and service costs are further reduced.

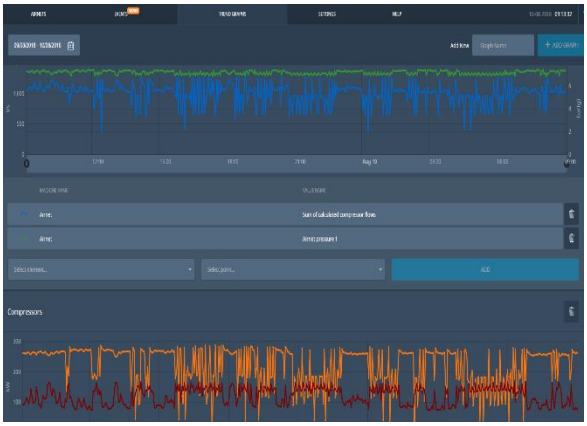
Reliability & Uptime

Aside from efficiency, another important parameter being measured by end-users is reliability of the blowers. For multiple blowers and with the Optimizer 4.0, there will be equal wearing which distributes the load among your machines, hence equalizing their running hours. With that, planning and conducting the preventive maintenance can be done accordingly.

Blowers operating with Atlas Copco’s Central Controller will have less L/UL cycles and will operate at lowest possible pressure that can extend system lifetime. To avoid production downtime, modern and newer units are prioritized.

Connectivity

Most industries these days involve remote monitoring and controls. In the 4th Industrial Revolution (Industry 4.0), machines should be able to send information to be analyzed by the available system or by the people managing the units; this is possible if you’re connected. Optimizer 4.0 is way to connect your blowers and dryers to be monitored and analyzed whether through Local Area Network (LAN) or via cloud-based monitoring system. There are various ways to get see real time monitoring.

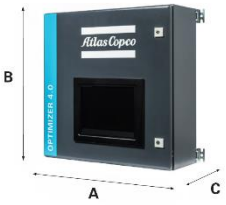


General Information Sheet

Controller Capability	
Maximum number of connected machines	60
Load-Unload, VSD & Turbo	30
Dryers (monitoring)	30
Maximum amount of processes	3

Connectivity	
Standard Analog Input	8
Standard Digital Input	4
Standard Digital Output	4
Data Logging	Raw Data up to 1 month; Energy Data up to 2 years
Remote system ON/OFF	Via I/O or Communication Protocol
Local / Remote Connectivity	Embedded webserver view of user interface on any device in LAN via ***REMOTE****VIEW* (standard)
	Local monitoring via ***SMART****VIEW* (optional)
	Online (cloud-based) monitoring via ***SMART****LINK* (Optional)
Remote Commands via Fieldbus	Modbus TCP / Ethernet IP via **SMART2SCADA**

Hardware	
Display size	12”
Screen	Capacitive Touch
Ethernet port	4
Cubicle protection	IP54
Weight	32 kg



Dimensions

A: 600 mm / 24 in
B: 600 mm / 24 in
C: 210 mm / 8 in

Optimizer 4.0: Completing the smart AIR solutions

Through CAN (Controller Area Network) connection, all blowers can be optimized and dryers can be monitored to saving energy while pressure and air demand is met. If you are contracted to a monitoring services, data will be uploaded automatically to the cloud-based storage of Atlas Copco, ***SMART****LINK*. Once connected, end-users can also access and monitor their compressed air system *anytime…anywhere*.